



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### **Usage guidelines**

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### **About Google Book Search**

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

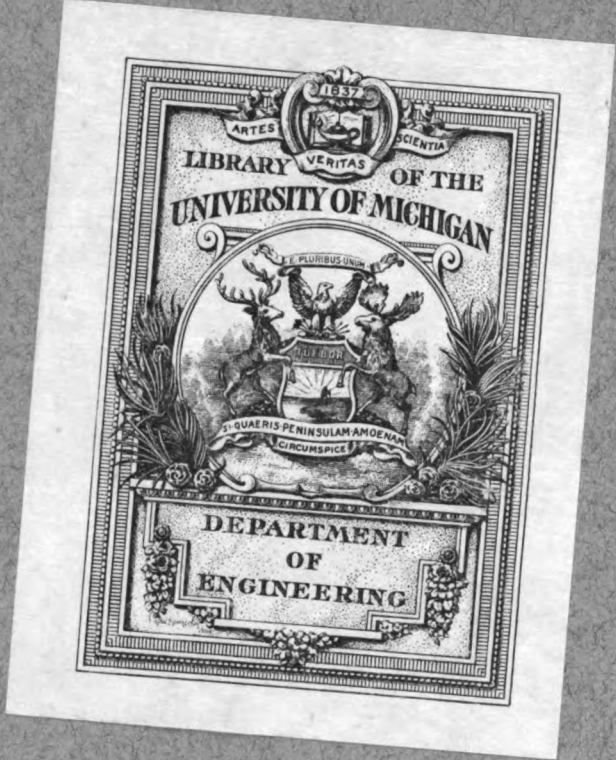




# *Telephony*

Harry B. McMeal



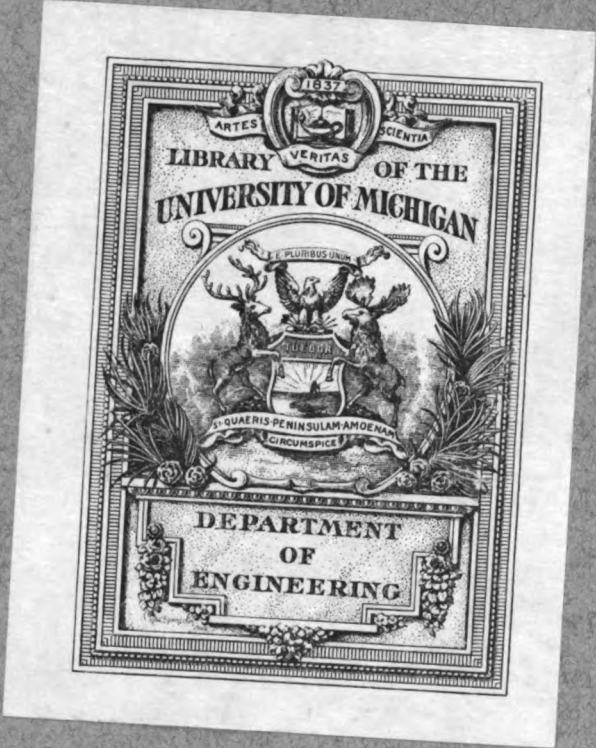




LIBRARY

TK  
13  
.T33







LIBRARY

TK  
13  
.J35















# Telephony

VOL. XIII.

JANUARY, 1907.

No. 1.

## STORY OF THE STATES—ILLINOIS

*The First of a Series dealing with the Telephone Development of the States*

By E. J. Mock

ILLINOIS furnishes a splendid example of the wonderful progress made by the Independent telephone movement. Over the fertile plains of the "Prairie State" the wires of the Independents reach in every direction, and they have contributed their share to give Illinois her prominent place in the sisterhood of states as a commercial and industrial empire. At the present time Independent telephony is knocking at Chicago's door with no uncertain sound, and the welcome extended by the people of that great city is a strong omen that ere long the territory so long held in the grasp of the Bell trust will be thrown open to Independent competition.

In the manufacture of telephone apparatus, Illinois to-day leads the world, as it has in the past, and as it will no doubt continue to do in the future. It was in Illinois where Independent telephony had its inception; where most of the litigation against Independent manufacturers by the Bell company was fought out, and where the earliest Independent exchanges were started. It is but natural, then, that "Illinois" should be made the first chapter in TELEPHONY'S "Story of the States."

Happily, to tell the telephone story of Illinois, it is not necessary to go back to the year 1818 when the state was admitted to the Union. The real story begins in 1892, and in this one essential, Illinois holds no advantage over many of the other states. All Independent telephone narratives have a common beginning, and this beginning dates from the expiration of certain fundamental patents that were owned by the Bell company.

Any record concerning the telephone, however, must necessarily suggest something of the invention itself. No man, upon examining the first crude piece of apparatus, could possibly have conceived the industrial importance of the new device making speech transmission possible. The stimulation of internal and external commerce which was due to the innovation, will never be fully realized because we can have no conception of what conditions would have been without it. The telephone, as we are familiar with it, is but thirty years old, and yet its benefit to the entire world is of such startling magnitude that it is not possible, even now, to comprehend the debt we owe to the instrument and the men who designed and developed it. Realizing partially the progress the telephone industry has made during the past decade, a glimpse into the future, based upon the record thus far made, fairly staggers the imagination.

The use of the telephone is responsible for an almost complete transformation in methods of business, inaugurating practically an entirely new era in the conduct of affairs. That the inhabitants of large cities do not fully realize this, is borne out by an illustration offered by a successful ranch-

man in the west, who had not visited Chicago for a period of ten years. He remembered vividly the street congestion of earlier days, and, being familiar with the city's tremendous growth, the anticipated visit held little charm for him. His first remark after reaching the city naturally had bearing on this point, and he was agreeably surprised to observe fewer people on the streets to-day than he had ever before noted. He was prompt to attribute the improved condition to the telephone, remarking as he did so, that to the telephone must be given the credit of saving a vast amount of life energy because of the instantaneous interchange of intelligence it provides.

The value of the instrument is not restricted, however, to purely local fields. While its greatest benefit no doubt accrues to isolated communities, the long distance feature has an enormous value, best known where its use is essential and urgent. The element of time is becoming more and more important, and the expense of travel to accomplish business at distant points is made unnecessary by the use of the telephone. With the present facilities, the longer the distance the greater becomes the economy of transacting business by this means. The rate charged for the service is purely nominal when all conditions are considered.

Those of us who are in the business may sometimes be charged with being too enthusiastic over telephone possibilities, but when all the factors are brought together, little argument is required to prove that the invention making possible this quick interchange of conversation stands easily first, as the most important single addition to the general equipment of the industrial world.

We are told that invention is full of romance. A noted author has written a volume on the romance of the development of the telephone industry. This writer has shown that against tremendous odds, the present substantial Independent telephone fabric of organization has developed from very humble beginnings and in out-of-the-way places. It would hardly be possible to find in history the accredited record of any sovereign who governed with a more absolute disregard for all principles and practices of constitutional liberty and business sense, than has prevailed with the American Telephone & Telegraph Company, the Bell octopus. Despite all disadvantages, difficulties and seeming impossibilities, the Independent telephone manufacturers and operators have triumphed against one of the most powerful corporations in the world.

It is apparent that the one essential principle in the development of public service companies requires that different and competing methods of transmission should be under different ownership. There has been an increasing disposition to forbid steam railways to own trolley lines. This



sentiment is based on the ground that the mechanical improvement of the two kinds of vehicle is promoted by competition. It is well known that the development of the telephone industry has been due wholly to the fact that the two means of communication, Independent and Bell, were competitive. English writers acknowledge that telephone service has been slow in development, because the British government controls the telegraph in connection with the postal service, and has not looked with favor on a system that would take business from its other intelligence distributing agencies. There should be some satisfaction for Americans to know that in England there is a valid reason for stifling competition. In the United States, during an uninterrupted period of seventeen years the Bell monopoly had no reason that has ever become known for limiting service to a maximum of two hundred and forty thousand stations. The financial student of conditions in the United States must agree that there exists in some of the great corporations the seeming paradox that they have their picayunish side. There are frequent occasions when tremendous aggregations of brains and capital, that overawes all competitors, are compelled by stress of circumstances to do things that would put to shame an unpretentious country merchant, but it is seldom that a vast monopoly will totally ignore the appeal for service of millions of prospective customers.

The Bell monopoly held to the theory that its position was impregnable. It still persists that the single telephone system is ideal—that a dual system is a nuisance—emphasizing that two systems mean “divided service; increased expense; two bells; two bills; two books!” Independents are familiar with the slogan. Following this stereotyped declaration is the time-worn interrogative: “If two systems are a good thing, why not six or eight?”

The Bell company has answered its own query. With one system and undisputed opportunity it required nearly two decades to install less than a quarter of a million instruments. The service rendered was intolerant and expensive. None but the rich could afford to own a badly constructed and obsolete instrument.

A competitive system built by the Independents has reached an installation in excess of three million instruments in less than twelve years.

The bugaboo of “divided service, increased expense, etc.,” held no terrors for the people who had been denied service at the hands of the monopoly. Nuisances are not tolerated nowadays to the point of reaching such magnificent proportions.

And the industry is only begun. Independent telephony had its first opportunity in 1892. The actual start was not much in evidence until 1896. The real development has been made in ten years! It requires no prophet to hint that its maturity has not been reached.

In most controversies each side usually insists upon submitting its own evidence and its own statistics, refusing to give any publicity to that of the opposition, but so unanswerable is the contention of the advocates of Independent telephony that they are willing even to submit the figures of the Bell trust. For that reason, attention is called to



Map of Illinois showing Independent exchanges and connecting toll lines.



the accompanying diagram which appeared in the annual report of the directors of the American Telephone and Telegraph Company to its stockholders for the year ending December 31, 1905—one year ago:

This diagram shows the growth in subscribers' stations connected with the Bell system from January 1, 1876, to January, 1906, a period of thirty years, ranging from the inception of the first telephone, through the years when the Independents began to press their monopolistic rival, down to 1906 which furnishes the latest available statistics.

A study of this diagram is the most eloquent argument possible of the contention that the birth and subsequent development of Independent telephony have compelled the Bell to do whatever it has done to popularize the telephone.

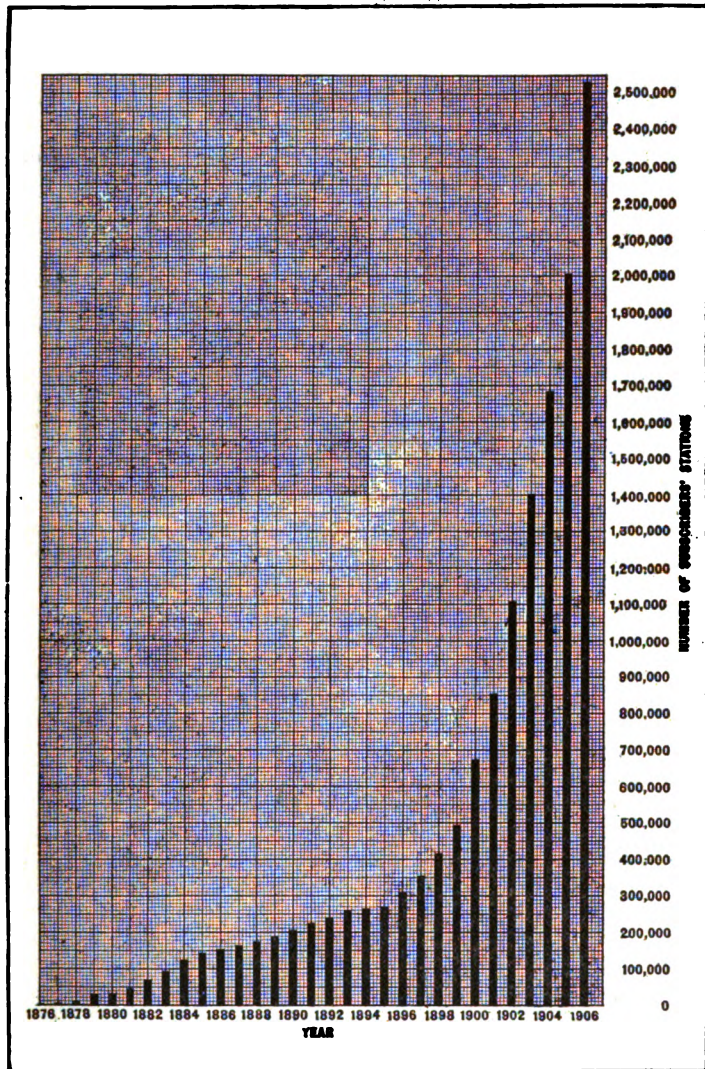


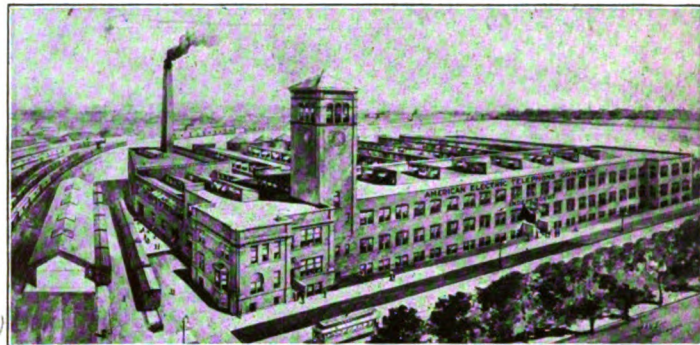
Diagram showing Bell instrument installation by years.

Look at the figures as given by the Bell's own directors:

From 1876 to 1896, twenty years, when the Bell had no competition, the number of telephones grew only to a beggarly 300,000! That was a snail's pace for any industry in the United States, the land of hustle, energy and enterprise. In 1896 the Independents entered the field, and note what happened. In two years the Bell increased its number of telephones 100,000. In six years there was an increase of 375,000, and so the record grows, every two years showing a still larger gain until 1906 when the total reached 2,500,000.

What caused this phenomenal change that made the rate of increase leap from 300,000 in twenty years to 2,200,000 in ten years? The answer is written as plain as day in the Bell company's own diagram. From 1876 to 1896 the Bell had the field to itself. The monopoly gave the people what

it wanted to give them, not what they wanted to get, and in consequence the demand for telephones was at a low ebb. Following the entrance of the Independents there was a transformation nothing short of cyclonic. They infused the telephone world with an energy and spirit that would make an athlete out of a tottering invalid. Within four years after the Independents began operations the number of Bell telephones increased more than it had during the



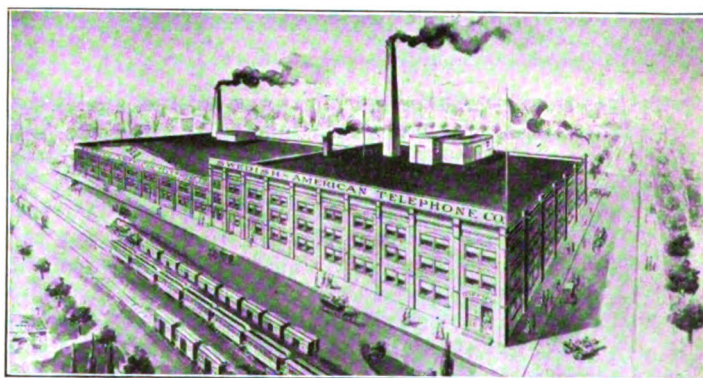
American Electric Telephone Company, Chicago.

twenty years when there was no competition—and the Bell diagram proves it. And that was only a starter. Year by year the number grew. The stronger the Independents became the more concessions the Bell had to make, with the inevitable result that more people wanted and got telephones. Here are the approximate figures from year to year:

Year	Change	Total
1896	Bell had	300,000
1897	Bell gained	50,000
1898	Bell gained	60,000
1899	Bell gained	75,000
1900	Bell gained	180,000
1901	Bell gained	180,000
1902	Bell gained	250,000
1903	Bell gained	300,000
1904	Bell gained	280,000
1905	Bell gained	320,000
1906	Bell gained	550,000

In one year, then, Independent competition made the Bell gain nearly double the entire number of telephones it installed during twenty years from 1876 to 1896.

The irresistible energy and intelligent enterprise of the



Swedish-American Telephone Company, Chicago.

Independents have brought about this wonderful condition.

Competition following the development of the Independent movement has resulted in lower rates, better service and new uses of the telephone, and they in turn have doubled and trebled the number of instruments many times over. In short the Independents have popularized the telephone as has no other agency, and the Bell diagram proves it.



To-day there is one telephone in the United States for every sixteen people. In 1894, before the Independents took the field, there was one for every 230. It is estimated that \$600,000,000 is invested in the telephone business, and the gross earnings are believed to exceed \$150,000,000.

In Illinois there are approximately 2,500 cities, towns and villages. The Independents have exchanges in nine hundred



Automatic Electric Company, Chicago.

and ninety-six of these places. Three-fifths of the towns have local organizations and these central exchanges operate sub-exchanges in the remaining two-fifths of the total.

Accompanying this article is given partial information concerning one hundred and ninety-five Independent exchanges and sub-exchanges. Bell literature refers to these as "so-called Independents." The Bell company parades its figures as being exact, and designates the statements of Independents as "wild estimates," or "gross exaggerations." It depends upon the government's initial effort to compile statistics concerning the telephone—a work conducted by the Bureau of Commerce and Labor under the direction of Mr. W. M. Stewart. This effort was made in 1902 and resulted badly for the Independents, giving them credit for



American Carbon & Battery Company, East St. Louis.

a trifle less than a million instruments as against the Bell's 1,317,178 stations. In the Department of Commerce and Labor's report, telephone systems were divided into three classes, commercial, mutual and Independent farmer, or rural lines. The commercial systems reported 93.9 per cent; the mutuals 3.8 per cent, and the rural lines 2.3 per cent. Those of us who are closely allied to the Independent industry will readily understand why the Bell company shared the greater honor in this first compilation. The department also offers this bit of consolation which we are pleased to quote:

"There was great activity, during 1902, in the formation of new companies and the consolidation of existing systems. As these changes made it difficult to collect reliable information, especially for the mutual companies and Independent owned lines, it is probable that in some respects the data are incomplete. \* \* \*

It will be noted that the foregoing has not been quoted from Bell literature. Bell figures are exact, but they are prepared to suit the exacting caprices of the New England press bureau! Furthermore, they are designed with great

care to appeal to financial men who do not always exercise the best judgment in placing investments. These figures always show the extreme cases and are meant invariably to boost Bell securities. One seldom if ever finds any mention of such cases as that of Galesburg, although Galesburg concedes that the Bell company has added 171 instruments while it installed 2,845! And of these 2,845 subscribers, 517 use the Bell service; or putting it another way, of the Bell's total installation of 871 instruments, 517 are on the wall beside Independent instruments.

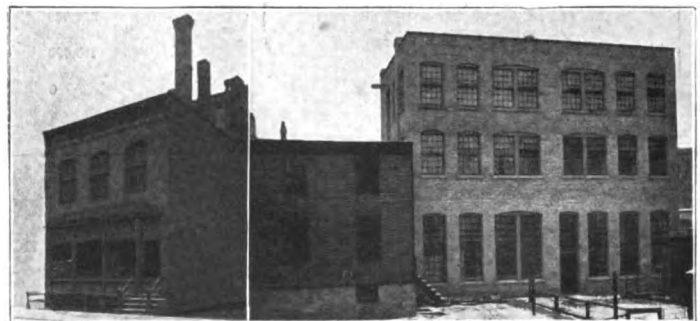
The record shows that the Bell company operates 205 exchanges in Illinois. Of these the Chicago Telephone Company operates 111; the Central Union Telephone Company, with headquarters at Indianapolis, operates eighty-five; the Missouri & Kansas Telephone Company, St. Louis, operates three, and the Cumberland T. & T. Company, Nashville, operates six. The stock of all these sub-licensee Bell concerns is controlled by the American T. & T. Company, New York. The parent concern holds 52.04 per cent of the Chicago, 76.76 per cent of the Central Union, 53.72 per cent of the Missouri & Kansas, and 52.09 per cent of the Cumberland. The opposition to Independent enterprise is there-



Eureka Electric Company, Genoa.

fore all foreign. Every dollar paid for the service contains its tribute for the parent Bell corporation and its \$250,000,000 of inflated values.

The Bell telephone monopoly existed for so many years without opposition that it formed certain habits that are now difficult to overcome. It pretends, even now, that Independent telephony is merely a "promoter's proposition." Having always been safe in its own statements with reference to instrument output and the like, it would not care to parade facts concerning the Independents. For years it has pooh-poohed the stability of Independent enterprise, because the Independents have been so busy financing and building systems against every obstacle the Bell could place in their way that no time was left to gather refuting evi-



M. Kline & Sons, Chicago.

dence. But the labor of installing Independent exchanges has gone steadily forward, nevertheless, until the Bell company now finds itself afflicted with a chronic hard-up-ness that cannot be shaken off. The reasons are very apparent. Besides a capitalization of \$250,000,000, of which \$158,661,800 is outstanding, there is a bonded debt of colossal amount. There must be paid on its outstanding capital an interest rate of 7½ per cent per annum. The bonded



Western Telephone Manufacturing Company, Chicago.



Illinois Electric Company, Chicago.



Belden Manufacturing Company, Chicago.



Electric Appliance Company, Chicago.

debt includes \$78,000,000 collateral trust mortgage 4 per cent bonds; \$10,000,000 American Bell Telephone 4 per cent debentures; \$20,000,000 3-year-gold 5 per cent coupon notes, and a comparatively new issue of \$100,000,000 convertible 4 per cents—which are giving the underwriters no end of trouble to place—making a total of \$208,000,000 upon which interest is a fixed charge.

Early in the present year the financial journals were dinning into the public ear that the American T. & T. Company derived its income from four main sources, emphasizing as one of these the importance of interest derived from money loaned to its sub-licensees. It is common knowledge that the parent company has cut off some of its fond proteges in this respect, and is not loaning them any more money. Right now it seems to be in the collection business on a very large scale. The reason is always apparent—the sub-licensee companies are feeling the effect of Independent competition without deigning to acknowledge it.

The accompanying table, which has been compiled from data supplied over the signatures of Independent operators shows most clearly that competition is beginning to tell and that the rumble has been felt as far away as the Atlantic seaboard. One hundred and nineteen exchanges in Illinois show a capitalization of \$5,264,930 and 75,887 instruments. The Bell company alleges that the Independents are promoters and stock-jobbers, but this illustration alone shows that the per capita cost per instrument is less than seventy dollars! The American Telegraph and Telephone Company claims an installation of 2,500,000 instruments capitalized at \$100 per station—which does not contemplate its enormous bond issues that have been previously enumerated.

TOWN—	Number Bell Instruments Before Competition	Number Bell Instruments Now	Incorporated or Established	Capital	Number Instruments Installed	Business Instruments	Residence Instruments
Abingdon	15	15	1902	10,000	302	100	202
Adrian	3	3	1904	2,500	70	3	67
Aledo	1	0	...	35,000	900	100	800
Altamont	0	0	1901	8,000	205	20	185
Altona	..	..	...	...	250	25	225
Anchor	..	1	1904	1,320	114	...	...
Andover	..	..	...	...	100	...	...
Arrowsmith	1	1	1903	4,000	235	19	216
Ashton	..	..	1903	5,000	275	65	210
Astoria	6	50	1900	...	225	50	175
Athens	..	..	...	...	256	30	226
Atkinson	1	1	1899	8,500	425	50	375
Bellflower	..	..	...	...	148	15	133
Biggsville	..	..	1904	7,500	250	16	234
Bloomington	..	..	1897	50,000	99	47	52
Bluffs	..	..	...	...	200	20	180
Bradford	3	3	1901	20,000	925	...	...
Breese	..	..	...	20,000	327	250	77
Brighton	18	1	1902	...	224	30	194
Brownstown	..	..	1905	5,000	229	40	189
Bruce	..	..	1905	2,500	65	8	57
Bunker Hill	..	50	1898	10,000	288	62	226
Bushnell	1	1	...	10,000	281	61	220
Cabery	0	0	1903	6,000	192	32	160
Bushnell	..	..	...	...	276	66	210
Cairo	..	..	1895	5,000	700	300	400
Caledonia	1	1	1902	15,000	270	40	230
Camp Point	..	..	...	...	250	75	175
Campus	1	1	1905	2,500	150	25	125
Canton	400	450	1902	75,000	900	200	700
Carbondale	..	..	1902	5,000	274	100	174
Carlinville	..	..	1900	10,000	300	60	240
Carthage	..	..	1904	50,000	350	70	280
Casey	1	1	1897	35,000	985	147	738
Chadwick	..	..	1902	150,000	300	100	200
Champaign	..	..	...	3,000	1,300	...	...
Charleston	..	..	...	...	600	190	410
Chauncey	..	..	1905	...	306	6	300



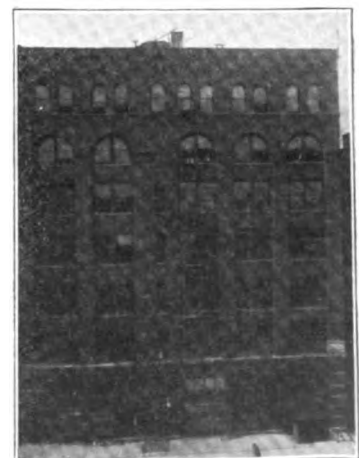
Central Electric Company, Chicago.



Baird Manufacturing Company, Chicago.



Moon Manufacturing Company, Chicago.



Runzel-Lenz Electric Manufacturing Company, Chicago.





Monarch Electric & Wire Company, Chicago.



Manhattan Electrical Supply Company, Chicago.



Roth Bros. & Company, Chicago.



Holtzer-Cabot Electric Company, Company.

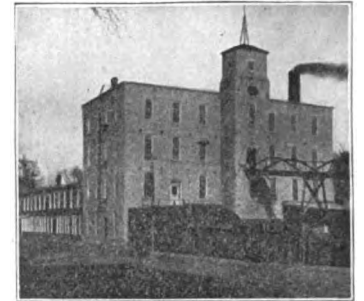
Chester	..	..	1898	5,000	450	150	300
Chesterfield	..	..	1903	15,000	300	30	270
Chillicothe	..	..	1901	20,000	580	78	502
Cissna Park	..	..	1904	..	200	..	..
Clinton	100	3	1904	100,000	2,500	1,000	1,500
Colfax	..	..	1906	12,000	358	42	316
Colterville	..	..	1904	..	80	..	..
Concord	..	..	1903	16,000	400	..	..
Corinth	..	..	1901	2,000	150	15	135
Cuba	..	..	..	..	65	20	45
Dahinda	..	..	1902	10,000	180	..	..
Dahlgren	0	16	1902	16,000	300	35	265
Danvers	..	..	..	..	392	39	353
Deer Creek	..	..	1900	10,000	380	50	330
Delavan	..	185	..	..	306	..	..
Des Plaines	..	..	1900	10,000	153	20	133
Dix	1	0	1900	..	262	12	250
Dixon	150	250	1896	100,000	1,300	400	900
Dongola	..	..	1906	2,500	96	10	86
Duncan	..	..	..	5,000	125	2	123
East Lynne	..	..	1904	34,000	180	30	150
East Peoria	..	102	..	..	102	..	..
Edinburg	60	12	1903	..	550	160	390
Efingham	..	..	1906	30,000	225	..	..
Elkhart	3	3	1902	1,250	117	14	103
Elliott	..	..	1902	6,000	225	15	210
El Paso	156	0	1902	10,000	697	60	637
Elwin	0	1	1902	..	130	3	127
Emington	4	2	1902	1,500	170	20	150
Esmond	..	..	..	..	45	3	42
Eureka	..	..	..	5,000	150	35	115
Fairview	..	..	..	..	400	..	..
Fayette	..	..	..	..	70	4	66
Findlay	..	..	1904	2,400	205	25	180
Forest City	..	..	1902	20,000	200	25	175
Freeport	660	560	1902	150,000	1,725	525	1,200
Galesburg	700	871	1902	250,000	2,845	733	2,112
Galva	..	..	..	..	378	..	..
Geneseo	375	300	1900	..	900	150	750
Gillespie	..	..	1903	..	335	68	267
Golconda	..	..	1898	5,160	130	..	..
Golden	..	..	1904	5,000	132	..	..
Grayville	..	..	1905	4,000	307	23	284
Green Valley	..	1	..	..	286	..	..
Greenview	..	..	..	..	79	15	64
Gridley	1	1	1906	1,600	..	..	..
Hamilton	110	0	1904	..	301	75	226
Havana	200	5	..	..	546	..	..
Hennepin	..	..	..	..	42	..	..
Hillsboro	..	..	1902	..	1,250	..	..
Hinckley	..	..	1904	..	270	35	235
Homer	..	..	1899	..	375	100	275
Houston	..	..	1900	1,500	464	4	460
Hume	..	..	..	..	219	19	200
Industry	0	0	1901	..	520	60	460
Jacksonville	..	..	1897	500,000	3,900	..	..
Joslin	..	..	1903	10,000	400	..	..
Kankakee	550	575	1903	500,000	1,900	325	1,575
Kempton	..	..	1902	1,200	40	..	..
Kewanee	..	..	1903	125,000	1,702	365	1,337
Kinmundy	..	..	..	..	245	25	220
Kirkwood	..	..	1904	7,500	215	20	195
Lacon	..	1	..	..	286	..	..
La Harpe	..	..	1904	..	167	55	102
Latham	2	2	1901	10,000	252	22	230
Lawn Ridge	..	..	1905	21,000	300	20	280
Leaf River	1	1	1906	4,500	135	24	111
Lexington	190	180	1905	20,000	360	50	310
Liberty	..	..	1901	18,000	650	50	600
Lincoln	200	25	1903	110,000	1,200	450	750
Louisville	..	..	1900	..	302	32	270
Macon	..	..	..	..	325	..	..
Manito	134	1	..	..	260	..	..
Manhattan	..	..	1902	5,000	315	261	54
Martinsville	..	..	..	..	600	..	..
Metamora	13	0	1901	3,000	270	16	254
Metropolis	..	..	..	..	250	..	..
Moline	..	..	1899	550,000	1,680	..	..
Monmouth	..	..	1899	50,000	1,300	200	1,100
Morton	..	..	1899	10,000	700	100	600
Morrison	0	0	1903	10,000	450	50	400
Mt. Pulaski	..	..	..	50,000	600	50	550
Mt. Sterling	..	..	..	..	195	80	115
Mt. Vernon	..	..	..	50,000	5,000	..	..
Mt. Zion	0	1	1900	..	275	10	265
Nauvoo	..	..	..	..	500	100	400
Neoga	..	..	1901	2,500	310	85	225
Neponset	..	..	1899	20,000	300	15	285
New Haven	..	..	1902	..	110	20	90



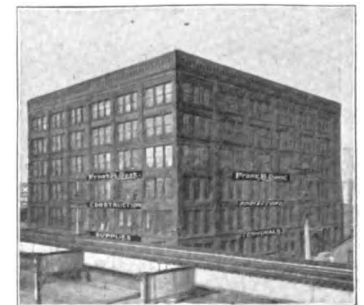
Monarch Telephone Mfg. Company, Chicago



Stromberg-Carlson Telephone Manufacturing Company, Chicago.



Sandwich Pole Changer Company, Sandwich.



Frank B. Cook, Chicago.



Farr Telephone & Construction Supply Company, Chicago.

# Telephony

New Holland.....	I	I	1904	2,500	125	30	95
Newman .....	..	..	....	....	150	40	110
New Windsor .....	..	..	....	....	260	...	...
Niantic .....	30	20	1900	....	230	28	202
North Henderson....	..	..	....	....	285	20	265
Nunda .....	..	..	1902	15,000	96	45	51
Oakford .....	..	..	....	....	105	7	98
Oakland .....	..	..	....	45,000	375	50	325
Olney .....	..	..	1896	25,000	375	...	...
Osco .....	..	..	1895	....	86	4	82
Pekin .....	934	320	1901	85,000	1,399	274	1,125
Perry .....	0	0	1903	....	400	19	381
Petersburg .....	1000	700	1905	100,000	481	65	416
Piper City .....	..	..	....	8,000	242	30	212
Pittsfield .....	0	0	1897	65,000	1,250	125	1,125
Pleasant Plain .....	..	..	1901	60,000	870	...	...
Princeton .....	110	15	1899	120,000	5,200	850	4,350
Princeville .....	..	..	....	....	318	50	268
Rankin .....	..	..	1904	34,000	251	30	221
Reddick .....	42	30	1903	10,000	248	40	208
Reynolds .....	..	..	1902	....	100	45	55
Roberts .....	..	..	....	....	236	...	...
Robinson .....	..	..	1902	25,000	560	100	460
Rochelle .....	..	..	....	100,000	1,900	...	...
Rockford .....	..	..	1902	200,000	1,700	...	...
Rock Island .....	..	..	....	....	2,014	...	...
Roseville .....	..	..	1902	2,000	490	20	470
Rossville .....	I	I	1898	....	701	183	518
Rushville .....	..	..	1897	....	350	...	...
Rutland .....	..	..	1900	30,000	111	20	91
Sciota .....	..	..	....	....	328	8	320
Scottville .....	..	..	1902	....	215	25	190
Sibley .....	I	..	1902	12,000	176	...	...
St. Anne .....	..	..	....	....	57	...	...
St. Joseph .....	..	..	1904	18,000	300	75	225
Salem .....	..	..	....	....	1,530	82	1,448
Sandwich .....	..	..	1898	250,000	2,500	400	2,100
Savanna .....	500	50	1902	150,000	2,600	...	...
Shelbyville .....	..	..	1884	35,000	230	...	...
Spring Grove .....	..	..	1906	10,000	100	28	72
Springerton .....	..	..	1901	2,500	200	25	175
Stewardson .....	..	..	1902	5,000	265	24	241
Streator .....	..	..	....	....	1,750	...	...
Stronghurst .....	..	..	1900	....	140	...	...
Sullivan .....	..	..	1901	....	235	...	...
Sycamore .....	..	..	1895	150,000	2,025	390	1,635
Tallula .....	..	..	....	....	229	30	199
Tamaroa .....	..	..	1906	2,500	300	40	260
Tampico .....	I	I	....	6,000	352	30	322
Temple Hill .....	..	..	1904	2,500	105	...	...
Texico .....	0	0	1897	....	65	...	65
Tremont .....	..	..	1901	12,000	110	...	...
Troy .....	5	I	1900	10,000	181	100	81
Tuscola .....	..	..	1904	10,000	175	125	50
Vermillion .....	..	..	1903	500	100	...	...
Victoria .....	..	..	....	....	27	...	...
Virden .....	..	..	....	....	250	...	...
Warrensburg .....	..	..	1901	5,000	206	75	131
Washburn .....	..	..	....	....	223	50	173
Washington .....	..	..	1903	10,000	200	...	...
Wataga .....	..	..	....	....	65	...	...
Waterloo .....	..	..	....	25,000	210	...	...
Waverly .....	..	..	1895	50,000	1,560	...	...
Wenona .....	..	..	1900	30,000	230	40	190
Westfield .....	..	..	1900	....	102	...	...
Williamsville .....	..	..	1904	2,500	60	...	...
Wing .....	..	..	....	1,000	87	4	83
Wyoming .....	..	..	1904	25,000	343	40	303

In the case of Biggsville and Kirkville, which are operated by one company, we have split a capitalization, assigning one-half of \$15,000 to each town.

It would be difficult to present a table showing the actual condition of the Independent telephone industry of any state, because it would require a town to town canvass and before such a campaign could be finished so many changes would have occurred that another would be necessary.

There are some remarkable developments yet to result but past accomplishments are quite satisfactory. In the counties of Bureau, Brown, Carroll, Christian, De Kalb, De Witt, Knox, Lee and Logan, the Bell company operates but 2,880 telephones as against 26,000 Independent telephones.

The Independent telephone business is not a hard and fast commercial proposition by any manner of means. It furnishes service to a class of citizens who had been denied Bell telephone service. In counties where four or more ex-



Union Telephone Company, Galesburg.



Home Telephone Company, Quincy.



Eastern Illinois Independent Telephone Company, Kankakee.



Wabash Valley Telephone Company, Paris

changes exist, it is common practice to arrange unlimited service over the lines of all for the subscribers to each. It is not a cold-blooded proposition of calling for a number and hearing the pleasant voice of a switchboard operator call back, "Drop a nickel, please." There are thousands of telephones in use in this state which are installed because of Independents and in spite of the Bell.

The "wildest exaggeration" as the Bell unfairly terms Independent statistics, has placed the number of Independent telephones in Illinois at 190,000. Instead of being a wild guess without foundation, sufficient data shown herewith proves that the estimate is most conservative. Less than two hundred reports show an installation of 92,851 instruments, and, moreover, it will be noted that few of the more important Illinois cities are represented in the accompanying list. Springfield, Peoria, Aurora, Elgin, Quincy, Ottawa and other important cities are conspicuous because of their absence, and for no better reason than that lack of time has prevented the proper office attaché from making the required report. Presuming, however, that only one-third of the exchanges of Illinois are represented by the figures here shown, the total installation would be increased beyond the quarter of a million mark with a healthy surplus. It can be safely conceded that Independents them-

Of fifty-two Independent company reports that have given the Bell installation before competition, as well as the Bell installation at present, the important fact is further developed that competition is being keenly felt. In fifty-two towns before the advent of Independent telephony, the Bell served 6,584 subscribers, whereas it now serves but 4,473 subscribers—a clear loss of 2,111. In these same towns the Independents have installed 29,601 instruments while the Bell was losing over 2,100.

Of the entire 195 accompanying reports, seventy-five do not include capitalization. The majority of these seventy-five represent unincorporated organizations. Some of the companies, as in the case of Pekin, operate in other points besides the number indicated locally. Pekin, for example, includes in its system the exchanges at Delavan, East Peoria, Green Valley, Lacon, Manito and Havana.



selves know just how great has been the development. The record of Illinois, as previously set out is 1,000 Independent exchanges and sub-exchanges. One-fifth of these show an installation of nearly 100,000 telephones, and it is considered undoubtedly conservative to place the total installation anywhere less than half a million.

In the 1900 census, Illinois is credited with having more than a million families. Only a little less than half this number own their own homes, the rest being tenants. The telephone is no respecter of financial conditions. It is obviously a household necessity, and it is not unreasonable to believe that with a state population of more than five million inhabitants that the proportion of telephones in use is over-estimated.

In the matter of gross value of all manufactured products, statistics give Illinois third place. In the manufacture

of Independent telephone apparatus the state stands easily first, and it is with considerable pleasure that a number of views of the manufacturing establishments and telephone supply houses are shown herewith. The Independent telephone manufacturer has passed all of the experimental stages in his career. His apparatus has withstood every test that years of actual service bring. The supply houses and manufacturers of auxiliary devices have shared in the increased revenues that have been coincident with the great growth of the telephone business. The affairs of the entire industry are in splendid condition and the experiences that were encountered in the early development of the movement—the bitter litigation into which the Bell monopoly dragged the pioneers—have equipped the management of the several institutions with a keen foresight that is seldom encountered in any other line of business.

## A MULTIPLE TEST BOX

*A Description of How This Apparatus May Be Built Inexpensively.*

By Chas H. Coar

**D**URING the installation of multiple cables and jacks it often proves very desirable to have some simple test which will be of assistance in testing out the various taps to the jacks, by the insertion of a plug into these jacks. This is the most applicable method, and affords

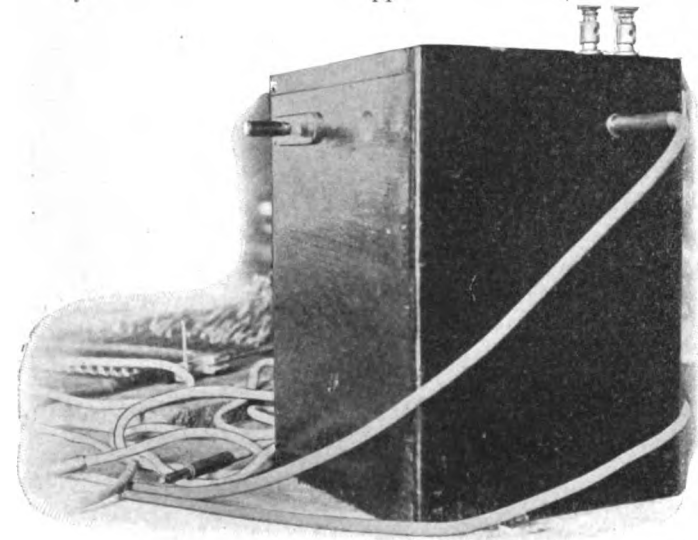


Figure 1.

a very clear and accurate test as to continuity, crosses or short circuits and reversals, such as are liable to appear in a set of multiple jacks when the number involved is very great. A test of this kind should be portable in form,

and should be so arranged that it will be sufficiently flexible in its workings to meet the different requirements under the various conditions contended with in ordinary practice. The set described herein is of very simple design, is portable, by simply changing the length of one of the test cords by means of a piece of twisted pair wire, can be arranged to test over any number of multiple connections. The circuit shown in Figure 2 is involved and consists merely of a double throw key, a buzzer, four cells of dry battery, all associated together in such manner with regard to the two cords and plugs shown that the various tests can be made.

This equipment is mounted in a box of the dimensions shown in Figure 3, and this box may be constructed of any well-seasoned lumber dressed to one-half inch thickness. Care should be taken to fasten the box together in a rigid manner, and for this reason screws should be used in preference to nails. This is also made necessary partially because the dry cells naturally will have to be renewed every so often, in which case a few screws could be readily taken out to accomplish this result.

A view of the complete equipment is shown in Figure 1, where it will be seen that one of the cords is equipped with a plug adapted to fit a jack located in the test box. The remaining plug is arranged to be attached to the circuit by means of the two binding posts shown on the box. The cord is arranged in this manner so that it may be lengthened as the occasion requires. The key lever is also seen at one side of the containing case, and on close observance the outline of a hole is discernible adjacent to this lever, several such holes being bored in the box so as to provide

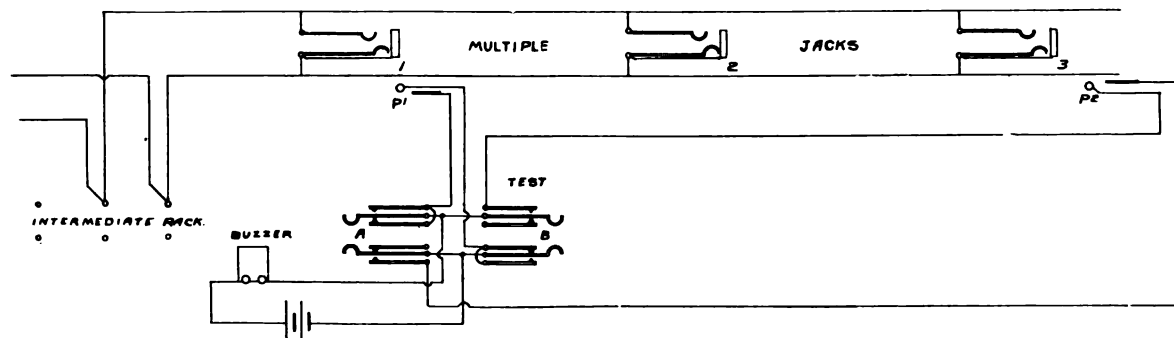


Figure 2.

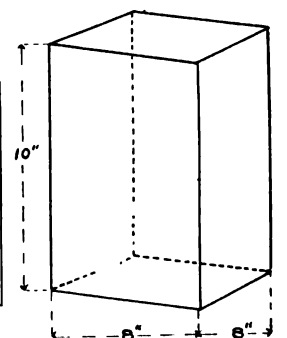


Figure 3.

an outlet for the buzzer noise when the same is in operation. Presuming now that the row of multiple jacks, shown in Figure 2, is installed or connected up on the bench, and that the same were to be tested by this arrangement, it would be accomplished as follows: One man would take the test box and locate at the first multiple where he would plug one of the cords, say *PI* into jack *I*, this plug being the one terminating in the jack of the test box. The other cord would be suitably lengthened by means of a twisted pair of wires to allow one to carry it sufficiently far enough from the test box to plug it into all the multiple jacks to be tested. Upon plugging *PI* into jack *I* should the tip and sleeve of the line be crossed at any point, the buzzer would operate immediately because a circuit would be provided for it to do so over, as may be readily traced. Assuming that this did not occur, one tester would take the portable plug *P2*, and insert it in the same line jack of the multiple adjacent which we term number 2. Plugging into this, the key in the test box would be operated so as to throw the *B* side out of normal position which would then test the conductivity of the tip conductor of this multiple jack between the two points.

Altering the action by operating the *A* side of the key, tests the sleeve conductor in a similar manner between the two points. It may be well to describe the circuit formed in this test briefly, so we will assume that the plugs *PI* and *P2* are inserted in the multiple jacks *1* and *3* respectively. A test of the sleeve conductor is desired so the *A* side of the key is operated, allowing positive current to flow from the dry cells up to and out the outer key contact of the *A* side, thence through the sleeve conductor of the plug and jack *1*, over the multiple circuit to the sleeve of jack *3*, presuming that the circuit is proper, thence over the sleeve conductor of cord *P2*, to the lower outer contacts of key *A*, and via this to the negative battery, thus closing the circuit and operating the buzzer. Thus it will be seen that, with both plugs inserted, a buzzer operation indicates a fair test. Should the buzzer operate when the plug *PI* is in alone, it would indicate that a short circuit existed between the tip and sleeve conductors of the circuit tested. From this brief description it will be evident that the amount of apparatus needed is very small and that the cost of assembling the same would be very low. The practicability of a test of this kind has been demonstrated time after time, and on this basis it can be recommended to those who may be in a position to utilize a test of this description.

#### A FEW RULES FOR TELEPHONE USERS.

The telephone is a utility that may easily be, and often is, abused. Some people delight to "cut in" on a party line and retail the conversations they hear as gossip for the neighborhood, says the *Telephonic Age*. Others use it as a sort of toy, or make it a nuisance by perpetually calling up people for the fun of the thing, making others wait who want to speak on important business. Here are a few rules, the observance of which would facilitate the work of central and preserve the telephone as a wonderful help to business men:

1. Don't call a man to the telephone for a sociable chat during business hours.
2. Don't waste the time of other people by talking longer than is necessary.
3. Don't jolly central and keep others waiting. Give central your number only. Anything more is an imposition on the other subscribers.
4. Don't use the office telephone to carry on personal conversations.
5. Don't relate gossip over the wire. If you must tell it, write it.

6. Don't use the telephone at all unless you have something to say.

#### REGARDING SWITCHBOARD EQUIPMENT.

In this issue will be found the first of a series of articles on "Modern Toll Switchboard Equipment," written by Messrs. John E. Hilbish, J. Bernhard Thiess and Guy A. Joy, which will be instructive and helpful to those engaged in construction of exchanges. All of these gentlemen have had practical experience in telephone construction work and are exceptionally well equipped to discuss the subject dealt with. *TELEPHONY* hopes the series will prove useful to its readers.



J. E. Hilbish.

John E. Hilbish, who is a well-known engineer, is a graduate of the electrical engineering department of Purdue University, class of 1898, finished a post-graduate course at the same institution the following year, and entered the telephone switchboard department of the Western Electric Company in 1900. The following year he gained experience in the telephone switchboard and installing department of the Kellogg Switchboard and Supply Company, and later was transferred to the engineering department, where he designed some of the largest common battery and toll switchboard equipments manufactured by that concern.

J. Bernhard Thiess was graduated from the Chicago English High School seven years ago, and after several years' experience with the Kellogg Switchboard and Supply Company and the installation department of the Chicago Telephone Company, took a course in telephone engineering at Purdue University. At present he is connected with the engineering department of the Kellogg company. He will present an article on the equipment of modern toll switchboards in an early number.



J. B. Thiess.



G. A. Joy.

Guy A. Joy was graduated from the Nebraska State Normal School in 1897, where he also took a course in electrical engineering, finishing in 1900. He entered the shops of the Western Electric Company shortly after, and obtained practical experience in various telephone switchboard departments. In the fall of 1900 he entered the installing department of the Western Electric. Mr. Joy also has had practical experience in long-distance exchanges, working both in Chicago and Dayton, O. In 1901-02 he worked in the shop output department to become familiar with the details of the manufacturing end of the business. In the latter part of 1902 he became assistant chief installer for the Kellogg Switchboard and Supply Company, which position he held until 1904, when he entered the engineering department, where he is now employed.



# MODERN TOLL SWITCHBOARD EQUIPMENT

*The First of a Series of Articles Dealing with this Important Subject*

By J. E. Hilbish, J. B. Thiess and G. A. Joy

## ARTICLE I.

WITHIN the last few years the toll service handled by the Independent telephone companies has assumed such proportions that a careful study of the conditions that are conducive to good service seems very essential, and it is our purpose in the following to give a complete description of what is demanded in this direction by the various conditions that are met with in different localities.

In the handling of toll business one readily appreciates that the apparatus located in one exchange must operate with that found in the neighboring exchanges. The failure

of perfect co-operation is the cause of some complicated conditions which have arisen due to the fact that the engineers of each telephone company have ideas of their own as to how they can best solve these problems, and consequently a great variety of schemes has been devised. Uniformity in this phase of the business is most important and the engineers throughout the Independent field are slowly but surely beginning to realize this very essential factor.

ator, since the method of handling rural calls is very similar to that used in the manipulation of toll calls. As to how this position can be best equipped depends in a large measure upon the type of local board, as to whether the same be multiple or non-multiple, magneto or common battery. The various types of equipment necessary can be best explained by a complete and distinctly separate description of each kind of board.

*The Magneto Non-Multiple Board.*—This type of board very seldom reaches an equipment of more than six hundred lines and, since the revenue from a board of this size is not large enough to warrant the engaging of an

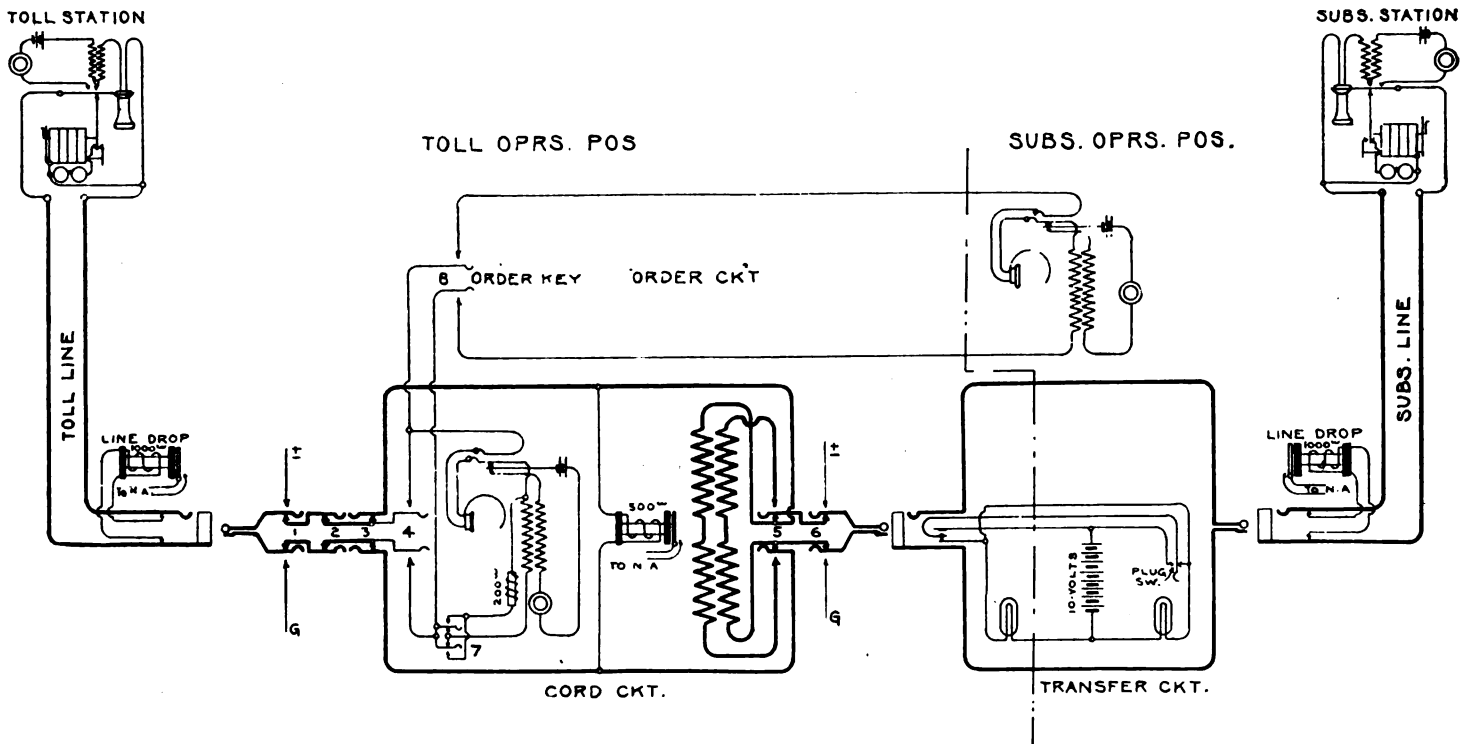


Figure 1.

of perfect co-operation is the cause of some complicated conditions which have arisen due to the fact that the engineers of each telephone company have ideas of their own as to how they can best solve these problems, and consequently a great variety of schemes has been devised. Uniformity in this phase of the business is most important and the engineers throughout the Independent field are slowly but surely beginning to realize this very essential factor.

In approaching the problem of toll service it is but natural that we start with the small exchange in which one position of the local board is given up to the handling of toll calls, therefore we will first study the conditions that warrant the installation of this kind of equipment, and then gradually advance into the more complicated multiple toll board. In a small exchange having from five to ten toll lines, which are not very busy, the installation of a separate toll board is superfluous. It is to meet these conditions that we recommend that the first position of the local board be equipped as a toll position, and in case it is found that these lines are not in service enough to keep the operator busy, the rural lines in the exchange can be turned over to this oper-

expert, the toll equipment should be designed simple enough so that a man of little experience will have no difficulty in keeping the same in working condition. This requirement is nicely fulfilled by the arrangement shown in Figure 1. The operation of this circuit can most readily be explained by carrying a call through a complete cycle.

When a toll subscriber desires to call central he will operate his generator thereby throwing the high wound drop bridged across his line by means of the series contact in the jack. The operator will then insert the answering plug of a pair of cords into the jack which operation will disconnect the drop from the line. She will then operate her listening key (4) and ascertain the number desired. If the jack of the subscriber wanted terminates in the toll or its adjacent position, the toll operator will simply insert her calling plug and ring. If upon connecting the two lines she finds that they are noisy she can by operating her repeating coil key (5) connect the two lines magnetically and thus reduce to a minimum any disturbances existing due to unbalance. These disturbances are caused by connecting a toll line with a local grounded line. The use of the repeat-

ing coil is not necessary where two metallic lines are connected. If, however, the subscriber desired is in a distant position the use of a transfer circuit becomes apparent. It will be noticed in the transfer circuit shown, that the toll end terminates in a jack and is plug ended at the local position. The reason for this will become apparent as we proceed. When the toll operator finds that she cannot

been completed, or whether the subscribers wish further service. In case both subscribers wish to talk to her she can by means of her double cut-off key (2 and 3), talk to each subscriber separately, and thus avoid the confusion of having three parties on the line. If, however, she finds that the subscribers have finished she will take down the connection. This will light the lamp associated with the transfer circuit at the local position thus giving the operator a disconnect and she will then remove her connection, thus restoring the apparatus to its normal condition.

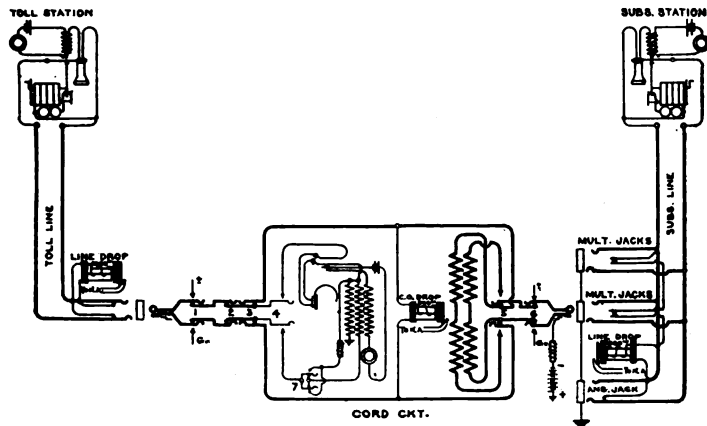


Figure 2.

reach the jack of the subscriber desired, she will plug into a transfer terminating in the position in which that jack is located. This operation will light the lamp associated with the plug end of that transfer. She will then press an order key, the circuit of which terminates in said position, and instruct the local operator as to what number is desired, she, upon receiving these instructions will pick up her transfer

If a toll call originates at the local position the operator will simply take down her local plug and insert the plug of one of her transfer circuits into the jack of the line of the party desiring a toll connection. This will operate the plug switch thereby lighting the lamp associated with the transfer at the toll as well as the local position, and hence the toll operator will plug into the jack of said transfer thus extinguishing the lamps and she will handle the call in the regular manner.

We are now in a position to comment upon the advisability of a plug ended transfer. As will be observed from the above, the toll operator has absolute control of the connection, whereas if a jack ended transfer be used it would mean the use of another cord circuit in putting up the connection at the local position. This would mean that another clearing out drop would be bridged across the line which would not only cut down transmission but might also result in a confusion of signals. Furthermore, the local operator would have an opportunity to listen in by means of her listening key and this is no trivial matter in a small exchange, where traffic is often very light and the operators

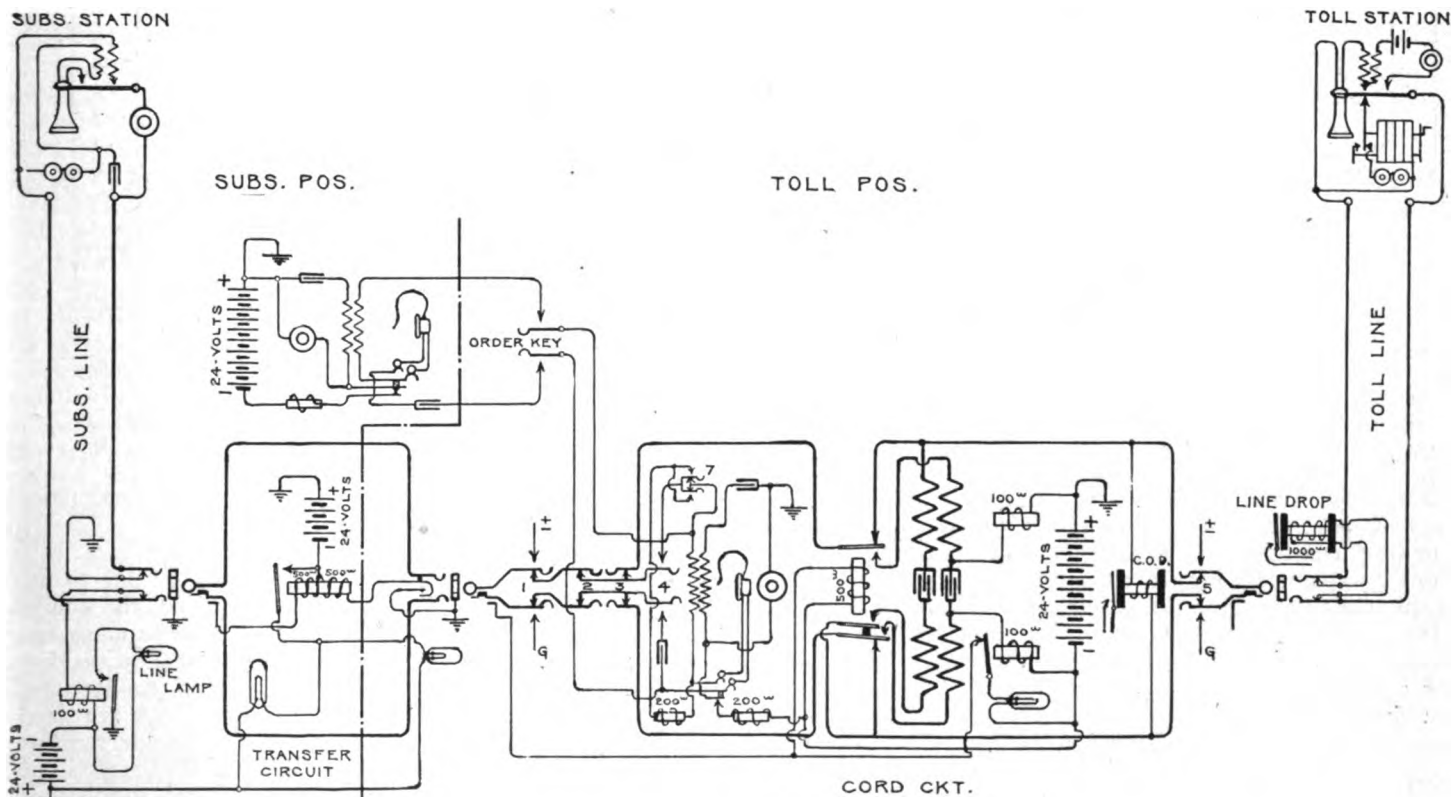


Figure 3.

plug and insert it into the jack of the desired line. The raising of the plug will operate the plug switch and this will extinguish the transfer lamp. The toll operator will then ring the party and the connection is completed. When the subscribers have finished they "ring off," thereby throwing the clearingout drop which is permanently bridged across the cord circuit. The toll operator will then operate her listening key to determine whether the conversation has

are at a loss as to how to kill time; and last but not least, by the method outlined the elimination of one cord becomes possible.

At first glance it might seem that the use of a repeating coil in each cord circuit is superfluous, but when we stop to consider that this equipment obviates the changing of cords due to special conditions, and thereby greatly increases the operating efficiency at an additional initial ex-



penditure of about \$3 to \$4 per circuit, we begin to realize that this capital is well invested, since it will improve service, and this in the long run will increase business.

In addition to what has been previously said as to the advisability of the double cut-off key it is very often quite necessary that she be able to talk to each party separately. When an operator has a subscriber waiting on a line for a toll connection she certainly ought to be able to cut off that portion of the line, while she is making arrangements for the other end of the connection. By this means she will avoid all unnecessary annoyances due to the waiting subscriber breaking in and consequently can complete her connection with much more rapidity. Since speed of operation is an important factor we consider that additional expenses to augment such facilities are well invested.

**Magneto Multiple.**—The most logical advance from the non-multiple magneto board is the step that takes us to the magneto multiple board. Since we may now place the multiple jacks of all the local lines directly in front of the

that the same be connected through a repeating coil, so as to keep the battery feeding the local line, from flowing out on the toll line. For this reason, in this class of service we must either arrange our cord circuit so that it is universal, *i. e.* so that it is well adapted for toll to toll as to local connections, or we must install two kinds of cords. Wherever it is possible it is advisable to make the cords universal, for we all know that an operator is not infallible, and she is very likely in a busy moment, if two sets of circuits be installed, to use the wrong pair of cords, thus causing confusion and giving poor service. Furthermore, if the operator does not have to bother about the kind of lines she is connecting, thus making her work more or less automatic, she can work much more efficiently.

A very ingenious method of accomplishing the above is depicted in the circuit shown in Figure 3. The toll end of this circuit is an exact duplicate of that shown in Figure 1, but the local end of the cord varies, in that it has a three in place of a two conductor cord, and the repeating coil

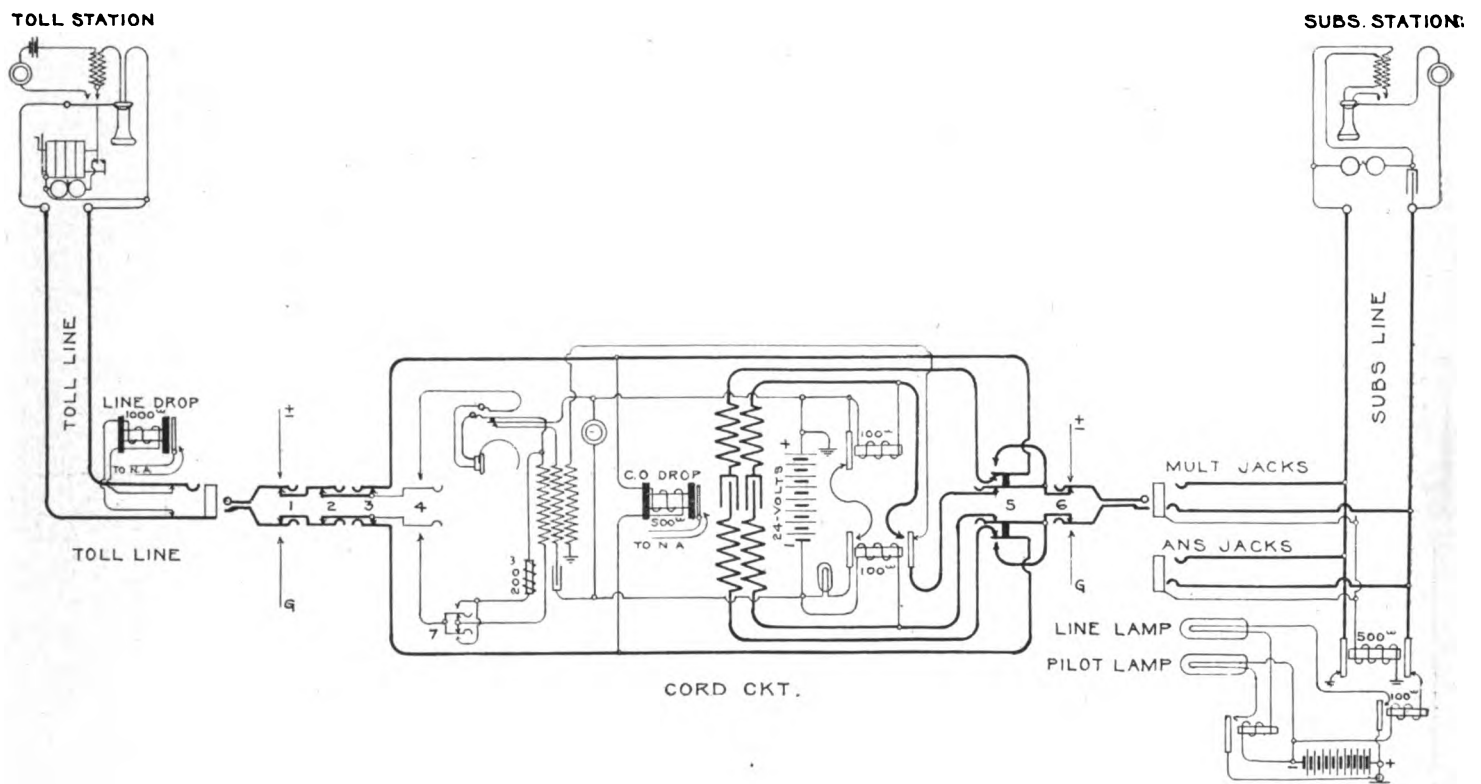


Figure 4.

toll operator, the method of handling toll calls with this kind of local equipment is simplified to the extent that no trunking equipment is necessary. The cord circuit previously explained (Figure 1) can be very readily adapted to this class of service, the only change necessary being the addition of a third conductor. This third conductor is the means by which battery is put on the sleeve of the jack for a busy test, *i. e.*, it is wired through a retardation of ten ohms to a battery of about ten dry cells. This arrangement of the equipment is shown in Figure 2. When an operator plugs into the multiple she will put the potential of the negative side of the previously mentioned battery on the sleeve of the jack and hence if the toll operator tests a busy line in the usual manner, she will complete a circuit through the sleeve conductor of her cord and the tertiary winding of the induction coil to ground, and will consequently obtain the regular busy signal. In case no test is obtained the connection will be put up in a like manner to that previously explained for the non-multiple switch-board, where no trunking is necessary.

**THE NON-MULTIPLE COMMON BATTERY BOARD.**—In connecting a toll line to a common battery line it is imperative

key is omitted since its functions are performed automatically by means of the sleeve relay.

The cost per cord circuit for such equipment is a little more than for the other type of equipment; but due to the fact that not as many circuits will be required, the equipment for the entire position is but a very little more expensive. The design of this circuit is such that in its normal condition it is arranged for toll to toll connections, hence the sleeve conductor of the toll line jacks are dead ended, and therefore the condition of the circuit remains normal when the plug is inserted into a toll line jack. The use of a repeating coil is not necessary in a toll to toll connection since it is universal practice to make all toll lines metallic, and therefore disturbances due to grounds will be absolutely eliminated if the pole line construction is what it should be.

If the plug be inserted into the jack of a local line, however, the sleeve of which is wired to ground, we will see, by referring to Figure 3, that this will complete a circuit through the sleeve of the cord and the sleeve relay to battery, thus energizing the relay, thereby placing the repeating coil in circuit, and at the same time feeding battery

to the local subscriber. Consequently for this sort of a connection the toll operator's work will be reduced to simply inserting the plug and ringing.

If the subscriber's positions at the board number three or more, however, it will become necessary to transfer all calls, excepting those desiring numbers that terminate in the jacks at the toll or its adjacent position. A transfer well suited for this purpose is shown in Figure 3; and the method of operation is as follows: Should the toll operator desire to connect a party on a toll line with a subscriber whose line terminates in a distant position, she will plug into one of the transfer circuits, the plug end of which is located in the position at which the line desired terminates. This act will operate the relay in the transfer circuit, thus lighting the lamps associated with said transfer at the toll as well as the local end. At the same time she will, by means of her order circuit, instruct the local operator as to the number of the subscriber desired. Thereupon, the local operator will insert the plug of the transfer associated with the lighted lamp into the required jack, thus energizing the differential winding on the transfer relay, which will cause the armature to fall back and the lamps at both ends of the transfer circuit will be extinguished. The toll operator will then ring the local party and the connection will be completed. When the conversation is finished, the toll subscriber will "ring down" the clearing out drop in the cord circuit, while the local subscriber upon hanging up will light the supervisory lamp in said circuit. The toll operator will then remove her connections, thus lighting the transfer lamps and giving the local operator a disconnect and she will also take down her connections and thus restore the apparatus to its normal condition. It will be observed that in this system, as well as in those previously described, the toll operator will have the entire supervision of the toll connection, and said condition is important for good and speedy service. If a toll connection originates at a local position the local operator will simply take down her local cord and plug up the call with one of her transfer plugs thus lighting the lamp at the toll board associated with this transfer, then the toll operator will take up the connection and complete it in the usual manner.

*Common Battery Multiple Switchboard.*—When a position at a common battery multiple board is equipped as a toll position the conditions are somewhat different than for a non-multiple board, since it becomes necessary to test the multiple jacks to ascertain whether or not the desired line is busy. A circuit arranged to meet these requirements is shown in Figure 4, and said circuit shows conclusively that as the exchange grows and the local equipment is improved, the local end of the toll cord becomes more complicated. The toll end of the cord is similar to that shown in Figure 3, whereas the local end is radically different, since we again resort to a two-conductor cord and a repeating coil key. The circuit in its normal condition is arranged for toll to local connections—the repeating coil is in circuit, but the same can be cut out of circuit by operating the cam of key (5) which operation also disconnects the battery from the tip and ring conductors of the cord circuit.

The operation of the circuit is as follows: When a toll subscriber desires a local connection the toll operator will test the multiple jack of the line desired in the usual manner. If the line is not busy the ground potential of the battery exists on the sleeve of the jack. Hence if the operator touches the same with the tip of her plug no flow of battery will result, since the tip of the plug is at the same potential, by virtue of the ground attached to the tertiary winding of the induction coil which is in direct connection with tip of the cord through the back contact of the ring relay. If the line be in use, however, the potential of the sleeve of the jack will have been raised by the ring of the plug inserted, to that of the negative side of battery, and

consequently if the toll operator makes a test on such a line, she will obtain a flow of battery through the tertiary winding of the induction coil and as a result, will obtain the usual busy signal. If she finds that the line is not busy she will simply insert her plug and ring. The insertion of the plug will light her supervisory signal through the make contact of the ring relay, but said lamp will be extinguished as soon as the local party answers, as this will energize the tip relay, thus breaking the back contact on said relay which will open the lamp circuit.

When the conversation is finished the toll subscriber will ring down the clearing out drop and the local subscriber will hang up his receiver, thereby robbing the tip relay of its battery which will cause the armature to fall back and thus light the supervisory lamp. The toll operator will then take down her connections and restore the apparatus to its normal state. In case a toll call originates at a local position, the local operator, by means of her order circuit will inform the toll operator as to the number of the party desiring the toll connection. Then the toll operator will answer said party in the multitude and the local operator will take down her connection. The toll operator will then handle the call in the regular manner. If a toll to toll connection is desired the toll operator will merely operate the cam of her repeating coil key (5), plug up the connection and ring.

Thus far nothing whatever has been said about the operator's telephone circuit. In all our circuits we have shown a secondary cut-out key (7). It is very important that each operator's telephone circuit be equipped with one of these keys, since by means of this key the operator is able to listen in on the connection without interfering with the conversation. By operating this key the secondary of the induction coil is opened and a retardation coil is inserted in series with the receiver, so that any noises picked up by the transmitter will not be transferred to the line.

#### THOUGHT IT TIME TO STOP.

C. J. H. Woodbury of Boston, the well-known telephone engineer, recently told the true version of the Sitting Bull telephone story. Sitting Bull had been captured by the United States troops and was held in close confinement. So also was another obstreperous Indian, held in confinement at a post about 100 miles away. The officer in charge of Sitting Bull had been chasing the Indians for two months, and was wondering what he would do with the captive. In an inspired moment he decided to arrange an interview between the two Indians over the telephone. After the necessary ringing up Sitting Bull was asked if he cared to talk into the machine. He talked into it for several minutes and did a heap of listening also.

He put down the instrument finally, and for hours was even more gloomy than usual, at last beginning to talk to himself, something very rare for the Indian. Asked if he was dissatisfied with his accommodations or if there was anything they could do for him he broke forth at last:

"No. I'm finished. It's all right when the white man's plaything talks the white man's language; but when it learns to talk the red man's tongue it's time to stop."

It is believed in the west, where the incident is fairly well known, that this talk over the telephone between the two Indians had a considerable influence in shortening the Indian wars.

Is the telephone destined to modify the American voice? Mr. William H. Kenney, head of the voice department of the Emerson College of Oratory at Hopkinsville, Ky., believes that it is. He says that the necessity of clear, precise enunciation which the telephone imposes upon those who use it is likely, in the course of the next generation or two, considerably to alter the character of American speaking.



# QUESTIONS AND ANSWERS

By J. C. Kelsey

For your information, I wish to state that I have found the G. W. K. phantom circuit scheme successful. For the benefit of those who have been experimenting with the circuit, I would suggest that you print this testimony in the columns of TELEPHONY. It occurs to me that some of those who are not meeting with success probably do not use sufficient care with their lines. It requires only a little thing to throw a line out of balance.—E. C. R., Ind.

It hardly seems necessary for me to confirm that it is easy to throw a line out of balance when experimenting with the G. W. K. phantom circuit, because lamp filaments are not alike in resistance. G. W. K. has written to me only recently, that he is having great success with his bridged lamp phantom; and in his letter he suggests that carelessness must be responsible for the failures of others. I am sure that if a balance can be found, the idea is correct. The scheme reveals that the reader and operator are on a still hunt for a cheap duplexer. In my opinion the lamp idea is as good as any other non-conductive bridge scheme, provided always, that balance in the line is easily found.

Please advise us with reference to the advantages or disadvantages of common return. Is common return as good as the metallic circuit for telephone exchanges? Can you furnish any information which shows the durability of cypress and white cedar poles in order that we can make comparisons?—G. F. C., I. T.

The common return has many disadvantages and it is not as good as a metallic system, because metallic is free from induction except from cross-talk, and can be directly connected to the longest and most sensitive toll line without danger of encountering trouble. The only advantage a common return has, is apparent in a grounded system, inasmuch as common return will eliminate earth currents if you are in the vicinity of a trolley line. A common return cannot be freed from cross-talk; and it does not matter whether you use iron or No. 1 copper wire. If you have ever tried to short circuit a receiver with any resistance above a fraction of an ohm, you have been able to entirely silence it. The theory for common return is to entirely short circuit all other lines. This, of course, is practically impossible. We regret our inability to give you any satisfactory information concerning the durability of poles.

(1) Why is it that 1,000 and 500-ohm ringers are standard for individual lines for common battery, and 80-ohm ringers for individual magneto work? If there is any good reason for the former, it looks as though the manufacturers would find a ready sale for 500-ohm bridging telephones with 3 or 4-bar generators for individual and 2-party bridging lines at an additional cost of not more than fifty cents over a good series telephone. As it is now, there is two or three dollars difference between the cheapest bridging telephone and the best series telephone, although each is made by the same firm. (2) Why is it necessary to have a separate polarizing magnet or ringers? Why not make the cores larger and of steel permanently magnetized? (3) In common battery systems in which battery flows through the receiver, could not the permanent magnets be left off—the battery current being sufficient to keep it magnetized? This would save mistakes in "poleing" the receiver. (4) Certain of the Independent telephone transmitters look so much like the Bell transmitters, both inside and out, that I would like to know what patented and distinctive feature the Bell transmitter has that is not used by the Independents. (5) Has the Western Electric Company ever manufactured a receiver with a concealed cord terminal? Has it ever manufactured a long arm transmitter with a concealed cord? Does it make a "compact style" magneto telephone or one with anything larger than a 3-bar generator? It might be interesting for you to know that I have given considerable thought to the sticking ringer discussion which has been appearing in your department. I believe that the ringers stick because of the pole changer being out of adjustment so that it supplies stronger current in one direction than in the other. A method for proving this would be to reverse the battery leads to the pole changer and

note whether it would not temporarily clear the trouble.—R. H. J., New Mexico.

(1) 1,000- and 500-ohm ringers are not necessarily standard for common battery work, although either are satisfactory. The 80-ohm ringer for magnetic work is a relic of early days when a subscriber was obliged to accept any kind of service, and there were no induction troubles. It is a well-known fact that there are more series telephones than bridging in use to-day, and it is evidently due to an absurd difference of price. The manufacturer should not receive all of the blame, for conditions have been largely responsible. The idea of a 500-ohm bridging bell seems to be all right, but when more than two parties are on the same line, trouble is very apt to be encountered. I am inclined to think you have your estimate a little high when you say you are required to pay three dollars more for the cheapest bridging generator than for a good series generator. I believe you will find by careful investigation that a 3-bar bridging, 500-ohm ringing telephone can be bought within fifty cents of a series telephone. (2) A separate polarizing magnet is necessary. If the cores were made larger and of permanently magnetized steel, it is quite probable that the ringers would not respond to the changes of the alternating current. You are probably aware that electro-magnets are made of the softest steel or iron, in order to insure the use of the greatest number of lines in force. The ringer is simply an electro-magnet acting on a permanent magnet; thus affording the cable attraction and repulsion. (3) In common battery telephones, the receiver is usually removed from the direct current which prevents wrong polarization. You would probably discover if you did not use permanent magnets, an absence of character in the transmitting of tones. (4) The White solid-back transmitter has been very closely imitated by a number of Independent manufacturers, some of whom have reproduced it piece by piece. It has no distinctive feature and cannot even be said to be above the ordinary in the way of its performance. Some of the Independent manufacturers have had trouble in the past with their transmitters, but trouble frequently happens in the best of regulated concerns. (5) The Bell has a receiver with concealed binding posts, but it is a ridiculous looking device. I do not believe the Bell has ever tried to conceal the cord, and I have never seen a compact telephone of the Bell brand; nor do I recall ever having seen a 4-bar magneto generator made by the Western Electric Company.

Will you please give some simple device for testing aerial cable without a Wheatstone bridge and other special testing instruments?—G. M. S., Ohio.

I believe the best device for testing aerial cable is a good reliable carriage that will enable you to ride the cable without danger to your neck. In testing for short circuits you can accomplish good results with a battery and receiver, comparing effects of a good pair of short circuits at extreme end with a faulty pair. By doing this you may be able to form a working comparison. The same apparatus will also answer to locate "opens." You will receive a click due to capacity of a good pair, which should be compared to the click of the faulty pair and to an entire short circuit. Between the three clicks you can obtain a fair proportion. Grounding due to a wet spot can be located by the cable rider, but the process is slow and tedious. Your company should invest in a Wheatstone bridge if it has much or little

cable, because the instrument will save it money. A trouble hunter is always handicapped without practical aids, and without a bridge you are like a lawyer without a library, a physician without medicine and a Chicago policeman without a billy.

What is a "charged" toll line? How is a line so "charged"? Can a toll line be "charged" so it will work with a local battery magneto system, and if so, how?—F. I. V., Oregon.

The chaff from wheat blown across a line, or snow driven by a storm, sometimes will gather on a line, and in the western country dust driven before a storm will accumulate on lines to the extent that will cause crackling and sticking in jacks and drops. The fault may be corrected by bridged coils grounded at some central point. Any of the causes above enumerated will "charge" a line. A toll line requires no charging of any kind to work with local battery or magneto system. It is very evident that you have become confused. We sometimes hear of charging storage batteries over toll lines and still use the line for talking, but I always feel like saying under such circumstances, "Lord help the toll line." Whether your toll line is composed of only one or more wires, you have only to connect the magneto telephone. Sometimes a toll line is charged with static electricity when paralleling a high tension electrical circuit with a grounded leg. Such a line is always dangerous to life and should never be used for toll purposes. My reply to your question may appear unsatisfactory, which might be explained because I have no knowledge of the condition which prompted your inquiry.

I would like to obtain some high frequency ringers that will ring ten instruments on a grounded line without interference. I do not want the ordinary bell, but would prefer a reed or buzzer. My idea would be to have each instrument supplied with one or more coils with soft iron cores and a fixed reed that would vibrate in response to its particular frequency. Please advise whether you know of such apparatus.—J. C. K., Ark.

I do not believe you will succeed with high frequency ringers on a grounded line that will make it possible to select ten different parties on a reed basis. Present practice is limited to four parties. No manufacturer can handle your proposition without entailing great expense to you, as your demands are not usual. It will require a great deal of time and money to develop your idea.

Why do various operating Bell companies attempt to run magazines? It was only recently that all of the sub-licensee companies were heartily opposed to any such policy.—W. B. S., Ohio.

The practice is as much of a mystery to me as it is to you. When I was with the company, we used to receive our pay in "titles." To illustrate, a superintendent of construction would ask for a salary raise from \$75 to \$85 a month—the Bell standard price. The management would invariably respond by saying: "Well done; thou good and faithful servant, thou hast been, etc., etc. We will make thee ruler over many things; we will increase your responsibility and keep you busy and in appreciation will make you general superintendent, but we cannot raise your salary. You really do not want us to do this, because we need the money for our own dear directors and stockholders." It is quite probable that the old gag of titles has worn out, and for a substitute, the company is now in the publishing business dealing out its "brag" for the benefit of some poor workmen, and by this cheap sop encourage him to hang on for a few more years. Besides, these publications like to belittle Independent securities; just why, I am not able to state, because every word they utter against Independent securities is a bang right on their own head. We live in a mad country and our Bell friends sometimes act as if the good old summer time's sun had affected them. The Bell magazines may succeed in cheating Bell employes a few more years by dealing out hot air to them, but it reminds me of the

story they used to tell to the slaves in Missouri. Kansas was always described as a lake of brimstone and fire, and the slaves believed it because they never ran away in that direction.

I would like to have more information concerning a certain diagram that was used in November TELEPHONY to illustrate the best method of measuring to an open in a toll line.—G. W. K., N. D.

The diagram to which you refer on page 276, November TELEPHONY, Figure 1, is meant to show an ordinary Wheatstone bridge arrangement consisting of fixed resistance  $A$  and adjustable resistance  $R$ . The telephone is placed across the terminals in such manner, that if the conditions were balanced, there would be no noises in the instrument. If the metallic line was opened at a distance  $X$  from the exchange, a certain amount of alternating current would flow through variable resistance  $R$ , and the capacity of the line due to the distance  $X$ . The good metallic line has certain capacities due to its length. It is greater than the distance  $X$ , which might be one-half or one-third of the complete distance which is called  $L$ . For example, if you had two copper lines from Hope to Casselton exactly alike and would put on a bridge and generator and found that it took twice as much resistance at  $R$  as you had at  $A$  to make the

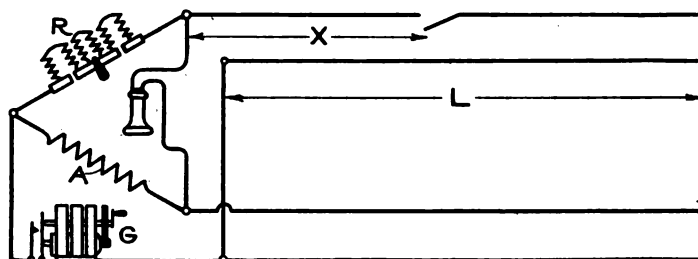


Figure 1.

faulty line balance the good line, you would then know that the line at fault had just half the capacity of the good line. With this information you would know at once where to look for the trouble. Suppose Page was half way, it would only be necessary to call Page over the good line to go out and find the trouble. In a practical way, open lines are usually found by ordinary local tests. The Page operator could call Casselton without being able to call you. You could call within one station of Page, hence ascertaining the trouble must be between the point called and Page. The test is particularly for cable work and is simply a comparison of capacities. If conditions are alike, as they practically are in cables, it is easy to keep adjusting  $R$  until the note in the receiver reaches a minimum or dead point. In this figure you will notice that good wires of both circuits are tied together. It is necessary to do this in order to obtain comparison capacity results.

I have three bridging instruments of standard make—the bell magnets being marked 1,600 ohms. I presume that this mark means that the bell has a resistance of 3,200 ohms, although I am not certain about it. One of these instruments is installed in Dawson, the second thirteen miles away, and the third, twenty-nine miles away. The line is new, full metallic. I want to use a line for these three instruments as well as for three telegraphic instruments, and will be glad to know what necessary apparatus or circuits should be employed by eliminating the ground. You may wonder why I cut out the ground; but when I explain that it is impossible to secure any ground here except in the Yukon river, you will probably understand. In winter, the earth is frozen as hard as iron for seven months; and during our short summer, it does not thaw more than three feet. My stations are all remote from the Yukon river and without the river bed, it is impossible to procure a ground.—A. J. N., Yukon Ter.

If your bridging ringers are 3,200 ohms, I am sure your manufacturer has exceeded all limitations. It had been my belief that 2,500 ohms was the maximum, and that 1,250 ohms was sufficient for any instrument. Your proposition to use a full metallic telephone circuit offers every diffi-



culty to produce perfect balance. The telegraphic impulses may be flattened out until they are hardly perceptible, which would not be satisfactory. Long distance telephone companies use each side of the line for telegraphic purposes, and I can foresee no reason why each side of your line cannot be used for a telegraphic circuit. The use of this standard telegraph-telephone circuit will prevent your bells from ringing and will require the adoption of howlers. It is my opinion that the howler will eventually supersede the magnets and ringer for certain purposes. You will understand that the circuit I have suggested will apply to only the two terminal stations. To use a middle telegraph instrument will require telegraph repeaters. I would much prefer to rely upon a circuit that is in actual operation and which shows three telegraphic instruments and three bridging telephones in use. Some reader of TELEPHONY ought to be able to supply this. Personally I do not know of any condition offering the same obstacle as set forth by you. The current required is so small that it is hard for me to believe that it could not be supplied by crowding on of battery or that a sufficient ground could not be obtained by some combination heating or driving process. However, ice is such a splendid insulator that I can readily understand that the real earth would have to be found.

I have been doing some work on single iron lines connecting with switchboards of different makes, and find in every case that each line is grounded at the board on a separate rod. I am told that it

cannot be done any other way. I have put in two boards with a single ground and they are working well; but I would like some higher authority to tell me any reason, if a reason exists, why a single ground will not do the work.—J. A. K., Ark.

One ground is ample for all your lines if the rod is driven deep. It must always be below frost line and with a surface which would offer no resistance to the earth. You will always get cross-talk in any work on a grounded basis whether you adopt separate grounds or common ground.

Will you please explain what advantage the common return system has over the ordinarily grounded one? From my experience I find there is no difference between the two as regards cross-talk and earth disturbances. The insulation resistance in both is always very low. Is it advisable to keep the insulation resistance as high as possible? If a metallic line is made of No. 12 wire on one side and No. 10 on the other, will it produce an unbalanced condition? Could balance be affected by properly inserting non-inductive resistance?—C. S. S., Ill.

I have had a little something to say on this subject in reply to the second question in this article. The insulation resistance between a common return and ground is quite apt to be low. It does not matter ordinarily unless you have a trolley line to contend with. It is always well to keep resistance of the system high for toll line purposes, if you connect without repeating coils. A line made up of No. 12 and No. 10 wire is unbalanced from the start. Balance can be affected by an adjustment of non-inductive resistance as far as your phantom circuit is concerned.

## SAGS AND STRESS IN OVERHEAD WIRES

*An Article from the National Telephone Journal Giving Ideas of English Practice.*

By T. Fletcher, M. I. E. E.

ONE of the most important and, at the same time, interesting duties devolving upon the constructor of aerial lines is the determination of the proper stress to which the wires shall be subjected during the process of erection, the object being to ensure that, while they shall not be unnecessarily slack at high summer temperatures, they shall not be so taut at low winter temperatures as to be unable to bear the augmented stress to which they are then liable to be exposed. In this connection it may be explained that, of course, only normal climatic conditions, such as are experienced in this country year in and year out, are considered, because there are certain abnormal conditions which sometimes arise, such as a high wind suddenly springing up when wires are heavily coated with frozen dew, and in which no wires, however well erected, can escape destruction.

It is a fortunate accident that most experienced wiremen have acquired the art of pulling up new wires in all ordinary conditions of weather to the proper tension, and anything like extensive failure is rare. In fact, the hand of the practiced wireman seems to *feel* the proper tension, and the eye of the experienced foreman recognizes pretty nearly the proper amount of sag. But it is just here that the personal element comes in, and while on the part of some men there is a tendency to leave the wires rather slack, there is a more general tendency on the part of others to pull wires up as taut in hot weather as in cold.

It is therefore highly desirable that reliable data should be available for the construction of tables showing the requisite stresses and resulting sags at different temperatures for wires erected in varying spans.

Tables of this kind have been prepared and published in the past for guidance in the erection of telegraph and telephone wires.

In 1874, in Calcutta, Mr. R. S. Brough, of the Indian Telegraph Department, published a small pocketbook of formulæ for the use of telegraph engineers. In this he pointed out that the length of itself which any wire can just support without breaking is constant for the same kind and quality of wire, of course irrespective of gauge. He also gave a table showing the relative dips for various spans of iron wire, though he omitted to give temperature. He further pointed out that the dip for any span is the same for all gauges of any of the same kind and quality of wire, and that it varies approximately as the square of the length of the span.

In 1882, Mr. Treuenfeld published in the London Electrician a very interesting article dealing with this subject. In this he gave a table of dips for different spans at varying temperatures. Tables have also been given in the handbooks of Culley, Preece and Silverwight, etc.

In most such tables, a factor of safety of four has been adopted; *i. e.*, they have been calculated on the assumption that at the lowest normal winter temperature, the wire is not to be subjected to a stress exceeding one-fourth of its breaking weight. In the tables recently issued by the post-office, a factor of four is taken for iron and copper, and a factor of three for bronze. But, although it may seem terribly bold and unorthodox to breathe the suggestion, it may be doubted if these conditions are adhered to in practice. Indeed, the "regulation" of postoffice wires seems to indicate that a lower factor of safety is adopted in practice, and that if the tables were rigidly adhered to the wires would be appreciably slacker than they are.

One of the most important features in the behavior of aerial wires is that due to elasticity, in virtue of which wires elongate more or less when subjected to stress, and tend to recover their original length when the stress is re-

laxed. This elastic effect was usually ignored in tables formerly issued, but it is apparently this which, in practice, saves wires from destruction by changes of temperature.

The formulæ usually employed in the preparation of the tables are as follows:

- Let  $l$  = length of span, in feet;
- $d$  = sag at minimum temperature, in feet;
- $d_1$  = sag at any higher temperature, in feet;
- $s$  = tension at minimum temperature, in pounds;
- $s_1$  = tension at higher temperature, in pounds;
- $w$  = weight per foot of wire, in pounds;
- $L$  = length of wire in span, in feet;
- $T$  = difference of temperature, in degrees F.;
- $K$  = co-efficient of linear expansion, per degree F.

$$\text{Then } d = \frac{l^2 w}{8s} \dots \dots \dots (1)$$

$$s_1 = \frac{s d}{d_1} \dots \dots \dots (2)$$

$$d_1 = \sqrt{d^2 + l^2 (T \times \frac{1}{2}K)} \dots \dots (3)$$

From (1), if any tension be assumed, the corresponding sag is obtained.

From (2), knowing the tension and sag at any temperature, by assuming any other sag the corresponding tension can be calculated.

From (3), given the sag at one temperature, the sag at any other temperature can be obtained.

It will be noticed that (3) contains the factor  $K$ , depending on the temperature, but that there is no factor involving the elasticity of the wire.

It has always been found in practice that wires erected according to the tables were too slack for good regulation, and the experiments herein described had for their object the checking of the old tables and the drawing up of new ones, which, by taking elasticity into account, should be more accurate and give better results in practice.

It was with a view to putting the question to practical test that the engineer-in-chief sanctioned the erection of the experimental wires on which careful and continuous observations might be made. All these wires were erected under the personal supervision of Mr. J. Shea, with the aid of the thermometer and dynamometer.

Experimental wires were first erected at Bermondsey by Mr. Appleby, of the southern division of London; and a large number of tests were made thereon by Mr. Coote, the resulting sags being taken by a measuring rod from a fixed datum. These tests were supplemented by a series of investigations carried out at the head office by Mr. Gall, Mr. Coote and the writer.

Three sites in exposed positions were subsequently selected at (1) Wavertree, near Liverpool, (2) Meadswood, near Leeds, and (3) Corbar Hill, near Buxton.

At each of these places three poles were erected so as to give adjacent spans of 50 yards and 100 yards respectively, the poles being well stayed, and the cross-arms fixed in a horizontal straight line. The work at these places was carried out, and periodical observations made, by Mr. Rowe and Inspector Parker of Liverpool, Mr. Lalley and Inspector Birkby of Leeds, and Mr. Bowes of Oldham, respectively.

The outcome of the experiments so far made appears to point to the eventual adoption of a factor of safety of 2.5 at 10 degrees F. for both bronze and hard-drawn copper, and the two tables here appended in which elasticity is taken into account are based upon this assumption.

Two points may be mentioned regarding the following tables: (a) that the tension for either wire may be regarded as independent of the length of the span, (b) that in regulating one would not measure to tenths of an inch although shown in the sags, but pull up to the required tension.

TABLE 1.

*100 lbs. H. D. Copper.—Mean Tensions and Corresponding Sags.*

Temp. F.	Tension lbs.	50 yds. inches	60 yds. inches	70 yds. inches	80 yds. inches	90 yds. inches	100 yds. inches
10	135.0	4.7	6.8	9.3	12.1	15.4	18.9
15	131.5	4.9	7.0	9.5	12.4	15.8	19.4
20	128.0	5.0	7.2	9.8	12.8	16.2	19.9
25	124.5	5.1	7.4	10.1	13.1	16.6	20.5
30	121.0	5.3	7.6	10.4	13.5	17.1	21.1
35	117.5	5.4	7.8	10.7	13.9	17.6	21.7
40	114.0	5.6	8.1	11.0	14.3	18.2	22.4
45	111.0	5.8	8.3	11.3	14.7	18.7	23.0
50	107.5	5.9	8.5	11.6	15.2	19.3	23.7
55	104.0	6.1	8.8	12.0	15.7	19.9	24.5
60	100.5	6.3	9.1	12.4	16.3	20.6	25.4
65	97.5	6.6	9.4	12.8	16.8	21.2	26.2
70	94.5	6.8	9.7	13.3	17.3	21.9	27.1
75	91.0	7.0	10.1	13.8	18.0	22.8	28.1
80	88.0	7.3	10.5	14.3	18.6	23.7	29.1
85	84.5	7.6	10.9	14.8	19.3	24.5	30.3
90	81.5	7.9	11.3	15.4	20.1	25.4	31.4
95	78.5	8.2	11.7	16.0	20.8	26.4	32.6
100	76.0	8.4	12.1	16.5	21.5	27.3	33.7

TABLE 2.

*40 lbs. Bronze.—Mean Tensions and Corresponding Sags.*

Temp. F.	Tension lbs.	50 yds. inches	60 yds. inches	70 yds. inches	80 yds. inches	90 yds. inches	100 yds. inches
10	80.0	3.2	4.6	6.3	8.2	10.4	12.8
15	78.4	3.3	4.7	6.4	8.3	10.6	13.0
20	76.8	3.3	4.8	6.5	8.5	10.8	13.3
25	75.3	3.4	4.9	6.6	8.7	11.0	13.6
30	73.8	3.5	5.0	6.8	8.9	11.2	13.9
35	72.3	3.5	5.1	6.9	9.0	11.5	14.2
40	70.8	3.6	5.2	7.1	9.2	11.8	14.5
45	69.3	3.7	5.3	7.2	9.4	12.0	14.8
50	67.8	3.8	5.4	7.4	9.6	12.2	15.1
55	66.2	3.9	5.6	7.6	9.8	12.5	15.5
60	64.8	3.9	5.7	7.7	10.1	12.8	15.8
65	63.3	4.0	5.8	7.9	10.3	13.1	16.2
70	61.6	4.1	6.0	8.1	10.6	13.5	16.6
75	60.0	4.3	6.1	8.3	10.9	13.8	17.1
80	58.5	4.4	6.3	8.6	11.2	14.2	17.5
85	57.0	4.5	6.5	8.8	11.5	14.6	17.9
90	55.6	4.6	6.6	9.0	11.8	14.9	18.4
95	54.3	4.7	6.8	9.2	12.1	15.3	18.8
100	52.8	4.8	7.0	9.5	12.4	15.7	19.3

In concluding this article, I may mention that the experimental wires at Liverpool, Leeds and Buxton will be maintained and periodically observed during the coming winter, and I hope to give the definite conclusions next spring.

### WHEN THE PATENT EXPIRED.

What is believed to have been the first newspaper announcement of the expiration of the Bell receiver patent was made by the Bellingham Bay Express, an afternoon paper published in Whatcom, Wash., says the Telephone World.

The morning of the day the patent expired, April 14, 1893, Mr. John F. DeTierre, editor and proprietor of the paper in question, happened to meet an electrical man at a refreshment counter.

"Say," said the electrical man, "do you want an item?"

"Sure; that is what I'm looking for."

"Well just look at the date on your telephone receiver."

"Well I'll be hanged," said the editor, taking down a telephone receiver. "That is an item sure enough; that patent seems to have expired to-day."

Then followed a long string of questions, on telephone history, patents, the effect on the industry and many other questions that only a shrewd newspaper man knows how to ask. Mr. DeTierre had frequently roasted the local Bell service and was eager for information and the information he received was treated editorially, at length, in the afternoon paper.



# INDEPENDENT TELEPHONE DEVELOPMENT

*A Paper read before the Electrical Section of the Franklin Institute, November 22, 1906*

By James B. Hoge

CONSIDERED from the standpoint of practical utility and convenience, the telephone is the greatest invention of this progressive and inventive age. It may be justly claimed that its adoption marks an epoch in human progress, since its use has done more for all practical purposes to annihilate time and distance than any other method of communication or transportation. Few perhaps think of the telephone in connection with transportation, yet to-day it is doing very much to make travel in many instances unnecessary. Stop a moment and consider how much more crowded the streets of your city would be if it was not for the use of the telephone. "Don't travel—telephone," is a sound maxim that is being very generally observed.

I ask your pardon for digressing a few moments to call attention to what seems to be inherent human instinct, the desire for rapid means of communication. We see it manifested even among savage people, and explorers tell us of a unique plan to use by the tribes of certain hill countries. A messenger is dispatched to the top of the nearest hill and shouts his message, using a code of whoops and yells, to the next messenger, who transmits it in like manner from the next hill top, and so on. By this means, we are told, the tribes could communicate very rapidly with each other. The American Indians at the time this country was discovered had a well-developed system of smoke signals, which enabled them to transmit intelligence regarding the movements of their enemies or any important matter in a very brief space of time. Numerous methods were employed by the early settlers for communication between centers of population; we find the slow going messenger wending his way over hill and dale, the lumbering stage coach, making its way over the old national pike, and other post roads, with a few passengers and heavy mail pouches, with relays of horses and drivers, covering at best from forty to sixty miles a day; the more rapid pony rider mail carrier, often averaging 100 miles a day. Then there was the wigwag system, seldom, if ever, used in civil life, but employed in military circles. Then the steam railway, a wonderful improvement over the stage coach, reaching at first, in a limited way, the principal centers of population over circuitous routes, with heavy grades and crude construction, but passing from improvement to improvement and developing into the wonderful railway system of to-day that makes possible our Twentieth Century Limiteds, traveling palaces, rushing across the country with their precious human freight, conveying the United States mail from this city to Chicago, a distance of 825 miles, in 16 hours.

Now, as a crowning achievement in methods of communication, we have the telephone, which, like all other electrical inventions, was made possible by the one whom you have seen fit to honor by naming your institute after, who with his kite discovered that wonderful, mysterious fluid we call electricity, leaving its great power, its varied applications, as a problem for future generations to utilize for their profit and pleasure. Truly the citizens of the civilized world owe to Benjamin Franklin a debt of gratitude which will carry his name down to future ages as a benefactor of mankind. Far seeing as he was, he could scarcely have imagined the extensive use of his discovery, the wonderful inventions and progress in which it would result, and could he revisit this city to-night, he would not believe that it was his dis-

covery that made possible the beautiful lights upon your streets and in this auditorium, the power that moves your street cars, that operates your telegraph instruments, and that beneath your streets are thousands of miles of copper wire, over which conversations are being carried on between parties located many miles apart, as clearly and distinctly as though the speakers were in the same room. This indeed is a wonderful age and the telephone is not the least of its wonders.

To return to our subject, the first public record of a device for the transmission of speech over an electric conductor appeared on August 18, 1854, in a magazine published in Paris, known as the "Illustrated Universal Journal," giving an account of a crude apparatus constructed by Charles Boursel, a soldier in the African army, who had attracted attention by delivering a course of mathematical lectures to his comrades in a garrison in Algiers in 1848. Boursel, in describing and explaining his apparatus, made the startling announcement that "The spoken word in Vienna could be instantly transmitted by electricity to Paris." Nothing is on record to show that Boursel made any practical use of his invention, but in 1861, Philip Reis, a teacher in a boys' school in Fredericksdorf, near Hamburg, Germany, came before the public with an apparatus with which he claimed he was "enabled to reproduce the tones of various instruments and even to a certain extent of the human voice." Reis called his invention the telephone, the name by which it has since been known. He also manufactured and sold the apparatus in a limited way. As early as 1860, Daniel Drawbaugh, of Eberly's Mills, Pa., a little town of half a thousand inhabitants, about ten miles southwest of Harrisburg, in the Cumberland Valley, was endeavoring by experiments with the primitive appliances within his reach, to convey vocal sounds over an electric wire. There is nothing to indicate that he ever heard of Boursel or Reis, but between 1857 and 1869 he succeeded in constructing an apparatus consisting mainly of a glass tumbler, a tin cup and a mustard can, connected through a membrane, by means of a wire leading from a battery, with another instrument placed some distance away, over which he was able to transmit vocal sounds of a certain range. The device was crude, and Drawbaugh was not sufficiently skilled to comprehend or explain the scientific principles involved.

On February 14, 1876, two petitions were filed in the United States Patent Office, making application for a patent on the telephone, each describing it as an invention for "transmitting vocal sounds telegraphically." One was a formal application by Alexander Graham Bell, of Massachusetts, the other a caveat on the part of Elisha Gray, of Illinois. It was a coincidence without parallel in the history of the Patent Office, as both covered practically the same ground, and involved the same points. However, the patent was granted to Bell, on March 7th, less than a month after the application had been made. One of the first instruments manufactured was exhibited at the Philadelphia Centennial that year.

Immediately after the patent had been granted, the Bell Telephone Company was organized under the laws of the state of Massachusetts. Later the Western Union Telegraph Company secured control of Gray's device, with im-

improvements thereon by Edison, and started in the business of installing and operating telephone exchanges in direct competition with the Bell Telephone Company. The latter realizing that their anticipated monopoly was in serious danger lost no time in ridding themselves of competition. A deal was promptly made with the Western Union, then suits were brought against all of the Bell's other competitors to enjoin them permanently from using telephone apparatus. This case reached the United States Supreme Court in 1888, and was heard before seven judges, four favoring the Bell company and three dissenting. The dissenting members of the court based their opinion on their belief in the priority of the invention of Daniel Drawbaugh of this state.

The Bell company, being put in possession of the controlling patents by the United States Supreme Court, and having made their arrangements with the Western Union to keep out of the field, apparently felt there was nothing further to fear from competition. Accordingly they continued the business policy which they had inaugurated, charging exorbitant rates and restricting the service, preferring to do a small business at high prices to popularizing the service at reasonable rates. The treatment of patrons, as might be expected from a gigantic corporation having such a complete monopoly, was arbitrary in the extreme.

The telephone business of the country continued with this policy of management until the patents expired in 1894. In December of that year, there were 291,253 complete telephones installed in the United States, or approximately one for every 240 persons. By this time, the public had become so thoroughly aroused over the fact that they were prohibited from enjoying what seemed to them a wonderful convenience, if not an absolute necessity, that people from all walks of life in every community were ready to go into the business, not so much with a view of financial gain as for the purpose of securing the telephone service they needed. The Bell management felt certain that the invention of Emile Berliner, whose patents they had purchased and which were filed in the Patent Office June 4, 1877, but not issued until November 17, 1891, would prolong the monopoly of the business until at least 1908; so when competition was threatened, every officer of an Independent company, as well as every subscriber to an Independent telephone, received a notice from the Bell Telephone Company that they were infringing patent No. 463,569 of Emile Berliner, which the Bell owned, and that they would be held responsible for infringement and damages. Nor was this an idle threat; in nearly every instance previous to 1888, upon the rendering of decisions favorable to the Bell Independent companies were driven out of business and their equipment reduced to scrap and burnt, widespread publicity being given to such cases as a warning to other foolhardy investors, who might dare to invade the field of the Bell monopoly. It required courage in those days to engage in the Independent telephone business, when the investors faced the prospect of being prosecuted for infringement, and having their property confiscated and destroyed. Yet courage and faith were not lacking among the pioneers of the industry, and the present extensive system is a monument to their daring and perseverance.

Feeling the hopelessness of fighting the Bell single-handed, some of the prominent men in the Independent movement invited representatives of all the known companies in the United States to come together in Detroit, Michigan, on June 22, 1897, for the purpose of forming an organization for mutual protection. This organization was effected, and a substantial sum subscribed to defray the expenses of fighting the patent cases through the Supreme Court of the United States, if necessary. One after another these cases were carried through and won by the Independent interests.

Telephone apparatus at the time the patents expired in

1894 was very crude, the service was slow and transmission unsatisfactory. To supply the widespread demand for apparatus, Independent manufacturing companies started up almost immediately, improvements were made on the apparatus, competition between the different interests put all on their mettle, and more was accomplished between 1896 and 1900 in the way of improving the apparatus and service, and extending the use of the telephone, than had been done in twenty years previous. Prior to 1896, a telephone in the country was a decided novelty; to-day it is so common as to attract no special attention. After establishing themselves in the smaller cities, the Independent extended their lines out into the country, reaching all the postoffices in a county; then the farmers began to organize companies and build, bringing their lines into the different postoffice centers where exchanges were installed, each county becoming a network of wires. This service has been constantly increasing, finances for its development being in most cases furnished locally, until to-day there is over three hundred million dollars invested in Independent telephone properties, with more than three and a half million telephones installed and several hundred thousand miles of long-distance toll lines connecting the different exchanges. The people in many of the larger cities, where the Bell was furnishing telephone service, were slow to appreciate the advantages to be derived from competition. They realized very often that they were paying more than their service was worth, and that there was a great deal of room for improvement in both the service and treatment, but dreaded to burden themselves with two telephones, "the double telephone nuisance" as the Bell taught them to consider it. In many cases where the citizens were willing, in fact anxious to have an Independent exchange installed, they were prevented through the Bell's control of their chosen representatives, who sometimes placed their own pecuniary gain above the welfare of the people they were elected to serve. If this entire history was written up by Miss Tarbell or some of the other well-known writers, who have made a specialty of corporate methods, it would prove equally interesting and enlightening as the record of the Standard Oil Company or any of the other great trusts. One by one, however, the Independents have won their fights for entrance into the larger cities, the common sense of the citizens, when the real facts regarding telephone competition had been made clear to them, demanding Independent companies as the only means of securing justice in telephone rates and service.

Sometimes the Independent companies, in the early days, after obtaining franchises were unable to develop their property in the face of the greatly reduced rates, or even absolutely free service promptly offered by the Bell company, and were forced to retire or sell out to the monopoly. Wherever this has happened, with scarcely an exception, another Independent company has been formed, proper provisions being made to prevent a like occurrence. One or two examples may not be amiss. A few years ago an Independent plant was installed at Portland, Oregon, and forced the Bell to reduce its rates and improve service; it was not strong enough, however, to withstand the continued attacks of the Bell company, backed by other corporations and political power in control, and finally sold out; rates were at once raised and service became unsatisfactory from an operating standpoint. On December 7, 1904, an application for another Independent franchise was presented, and after a fight which brought the matter into politics, upon the petition of 10,000 voters the matter was submitted to a vote of the people the following June. The result was 12,213 votes for and 560 against the franchise. Evidently the citizens of Portland prefer competition to monopoly after having tried both. At South Bend, Indiana, the first Independent company was forced to abandon the field, but



its successor to-day has over 3,000 telephones in South Bend against about 900 of the Bell, although the rates of the latter are the lower at present. In the entire county the Independent have 5,000; the Bell about 1,000. Perhaps the South Bend people do not forget that it was not until competition was introduced that rates were lowered, and that when the first Independent company had been removed from the field rates were promptly raised. No doubt they also appreciate that the present extensive development is due to competition, for under monopoly the Bell had only 240 subscribers, and showed no disposition to extend its service.

On November 6th, the citizens of Omaha, Nebraska, at the regular election ratified an Independent franchise by a vote of 7,653 to 3,625. The Independent victory there marks the close of as fierce a fight as the Bell has ever made in any city of the country against the entrance of competition. For over three years this struggle has been going on, the Bell using every influence and sparing no expense in its efforts to retain its monopoly. There is a reason for its activity, for with Omaha added to the Independent list, the Bell's one claim to the toll service of the country surrounding it has disappeared, since in all of the territory tributary to Omaha the Independents outnumber the Bell. In Nebraska the Independents have approximately seventy-five thousand (75,000) telephones. In Iowa the Independents have over one hundred and eighty-five thousand (185,000), a total of two hundred and sixty thousand (260,000) in the two states; the Bell has only, approximately eighty thousand (80,000) in the same territory. With Omaha built it will give the Independent companies at least forty thousand (40,000) additional telephones in the two states in three years, and completes the system in that section.

At the November election, Denver, Colorado, also voted in favor of an Independent franchise. Last summer one was granted at San Francisco, and within the last ten days the Independents have been given a franchise at Milwaukee. These cities with Omaha are the only ones of special consequence, except Cincinnati and Chicago, west of the Ohio river, where the Independents are not strongly entrenched or building. In Chicago a franchise has already been granted and the Independent company has over forty miles of tunnel under the city streets, this tunnel also being used for hauling freight. The telephone part of this property is controlled by a number of Chicago citizens and railway and telephone interests surrounding the city. It has lately been leased with all franchise rights to a syndicate of well-known active Independent operators, who have completed their arrangements to see that it is fully developed, and Independent long-distance connections given the numerous cities surrounding the metropolis, who have been clamoring vainly until now for such connections.

Speaking of the Bell Telephone Company, and its "iron grasp" upon the city of Chicago, Corporation Counsel Lewis said, "Here in this community there is no monopoly which has seized her more ruthlessly, which has ground her more oppressively, or which has more outraged or wronged her people than the telephone company." In the very near future this "ruthless," "grinding," "oppressive" monopoly will be once more forced to reckon with Independent competition, which there is no reason to doubt will bring the same relief to the citizens of Chicago as it has to those of other places.

In other lines of business, competition has been the life of trade; the telephone business has not proved an exception. When the electric light was invented, many of the (artificial) gas companies that had been charging from \$3.00 to \$4.00 per thousand cubic feet were inclined to believe that their business was ruined. Forced by necessity, they began to study their economies, and by marketing their by-products and the introduction of new devices for the use

of fuel gas, they were enabled to develop a day and night load, as well as a winter and summer load, which made it possible for them to reduce the price of gas to an average of \$1.00 per thousand cubic feet, bringing it into competition with coal for cooking and heating. To-day there is practically no limit to the amount of light and heat required in this country. So it is with the telephone; there is more business in this country to-day than both systems can properly take care of, and the more rapid their development, the greater will the demand become until everyone desiring telephone service has been satisfied—and who can say whether that condition will ever be reached?

There are approximately 7,000,000 telephones connected with both the Independent and Bell exchanges in the United States. If the development throughout the country was as great as in some counties of the central states, it would require at least 14,000,000 telephones, twice the number at present installed. Without competition, there would be less than 2,000,000 telephones in the United States at present; equipment would be crude, rates high, the service unsatisfactory, and the management arbitrary. The small towns and the rural districts and millions of residents and small business men in our cities would be deprived of the greatest convenience of modern times. Not only has competition as represented by the Independent companies offered lower rates, better service through the use of improved apparatus, more courteous treatment, and developed territory hitherto untouched, but it has forced the Bell to do likewise in sheer self-defense. While installing its own 3,500,000 Independent instruments, competition has compelled the Bell to increase in eleven years to ten times the number of telephones it had in service at the expiration of its more than seventeen years of absolute monopoly.

See what competition has done in your own city. Prior to 1900, when the Keystone company secured their franchise, you are reported to have had approximately 10,000 telephones; to-day, six years later, you have approximately 70,000 telephones with a superior service and more reasonable rates. The experience in other cities is similar. Cleveland had less than 6,000 telephones when competition was started in 1900, and to-day there are approximately 50,000 telephones; business rates have been reduced from \$120.00 to \$72.00 per annum; residence rates from \$72.00 to \$48.00, with party-line residence rates as low as \$24.00 per annum, thus bringing the telephone within reach of all the citizens. The same results have followed the introduction of competition in all of the cities of any size, while the smaller places and the rural districts were deprived of the service entirely until furnished by the Independents.

I should like to call your attention to the present situation in Canada, where the Independent movement is of very recent growth, and the business still largely a monopoly, conditions analogous to our own a few years ago. I think a study of the situation there will convince the most skeptical that the extensive development of the telephone in the United States is directly due to competition.

Recognizing the necessity for improvement in telephone conditions, the government of Manitoba appointed a select committee to inquire into and report regarding the various telephone systems. A similar committee had been previously appointed by the Dominion government and had held its sittings in Ottawa; testimony taken before it filled two large volumes of an average of about one thousand pages each. The Manitoba committee, after making a thorough investigation of its own, and carefully considering evidence presented before the Dominion committee, reported to their assembly. This body, after careful deliberation, decided to take the necessary steps to enable the Manitoba government to construct and operate its own telephone system, and to petition the Canadian parliament and the crown to permit the expropriation of the Bell Telephone

Company's plant and to refuse an extension to that company's capital. The Honorable Colin Campbell, attorney-general of Manitoba, in a speech before the assembly, attributed the telephone legislation "To the growth of the Independent telephone companies in the United States, to the costly and limited service of the Bell Telephone Company, and the natural objection of the people of Canada to a monopoly."

The decision of the committee, as set forth in its report and the debate with reference to the proposed legislation, was that the telephone is a necessary part of civilization, and is such a public utility that it should be operated to serve the people as a whole, and give to everyone an opportunity to enjoy its advantages at the lowest cost. It was pointed out that the system of telephones cannot be considered complete until every residence, including the farm house in convenient places, has been connected with every other; that the use of the telephone will continue to increase until it has been installed not only in every place of business, but in the home of every citizen. Special stress was laid upon the need of the telephone in the homes of farmers. It was urged that the present rates charged in Canada for telephone service are exorbitant and that a considerable reduction could be made; that the rural telephone system is absolutely neglected and discouraged at present; that the service of the Bell is unsatisfactory and too costly, and that no progress can be looked for from that corporation.

The League of Canadian Municipalities concurs in this view. In a letter to the postmaster-general of Canada, who conducted the inquiry held at Ottawa, the secretary of the league, in setting forth the views of that body, says: "There is very widespread conviction, based on what appears to be a solid ground of fact, that the Bell company's rates are far higher than they ought to be. If my own inquiries into the matter are of any use, and I may say that I have followed it without any prejudice, weighing many statements and much published matter on both sides, I consider that the progress of the use of the telephone as a home comfort among the mass of our people is immensely retarded by the present virtual monopoly."

In commenting on the progress of the Independent companies in the United States, the committee reports that "everywhere the entrance of such companies into the field has resulted in the furnishing of satisfactory service at much lower rates than had previously obtained and in the immense extension of the use of the telephone. A noticeable feature of the telephone development in the United States was the large number of long-distance lines and lines giving inter-communication in rural districts." The report further states "That it has been demonstrated to the committee that long-distance communications to the South may be easily obtained through the Independent telephone companies in the United States."

It goes on to show that the general result of competition in the United States has been an immense extension of the telephone in all directions, and especially to the farmer, and a great reduction in rates; that in many cases both telephones could be rented for the price formerly paid for one, and that in places where the charge for both telephones is higher than for one, it was inconsiderable and more than compensated for by the increased and improved service. Regarding the relative desirability of the single or dual systems, Attorney-General Campbell says: "I agree that it is undesirable to have two companies if possible to obviate such conditions, but if we cannot get competition we cannot get a reduction of price, and if we can only get the benefit of competition for the people by entering into the operation of telephones, both as a province and as municipalities, I think we would be justified in so doing."

Among the evidence considered by the committee were communications from business men regarding the actual

working of telephone competition. The following is a summary of 1,400 answers from 189 exchanges in the United States to five questions addressed by an American banker to leading business men at such places. This evidence is valuable, coming, as it does, from our fellow-citizens who are users of the telephone:

Question 1. Has competition resulted in better telephone service in your city? (a) As given by the Independent telephone company? Answers—Affirmative, 1,245; negative, 26.

(b) By an improved service on the part of the Bell company? Answers—Affirmative, 982; negative, 154.

Question 2. Has competition increased the number of telephone subscribers? Answers—Affirmative, 1,251; negative, 8.

Question 3. Has competition brought about greater civility and more courteous attention to the wants of the subscribers? Answers—Affirmative, 1,222; negative, 37.

Question 4. Have the rates for telephone service been reduced by the advent of competition? (a) By the reduction of Bell rates formerly charged? Answers—Affirmative, 979; negative, 120.

(b) By the establishment of rates by the Independent company lower than formerly prevailed? Answers—Affirmative, 1,236; negative, 45.

Question 5. In your judgment, would it be preferable to return to the conditions prevailing before the advent of the Independent company? Answers—No, 1,245; yes, 14.

Of this last fourteen, all but five qualified their answers, favoring a return to a single system only upon condition that they would be given the same service as they were now receiving and at the same price. Many of the other answers were very emphatic in opposing a return to conditions existing before competition.

The Manitoba government, recognizing the futility of attempting to secure better telephone conditions from the Bell, is determined to establish a governmental system, and will endeavor to obtain the power to expropriate the Bell plant; should this be denied, however, it will nevertheless, if the people approve of the policy, build its own lines and exchanges, believing that competition will accomplish the desired results, as it has in the United States.

The Union of Manitoba Municipalities at a meeting last week, after spending two days in listening to testimony from telephone experts and officers, and then devoting a half day to discussion, at the close of its session, by a vote of eighty-six (86) to nineteen (19), passed a resolution recommending the municipalities in the province to put in their own telephone systems in competition with the Bell. As already stated, telephone competition in Canada is practically in its infancy. The Bell Telephone Company had made exclusive contracts with many of the railways and other corporations, some of which are now expiring. This, prior to the last two years, had made it almost impossible for the Independent companies to obtain a foothold. At the close of 1904 the Bell had approximately one telephone for every ninety (90) inhabitants. Their last report shows 78,195, or one to every seventy (70) inhabitants. The Independent companies in the meanwhile have installed 12,500 telephones, and everything indicates that they will make a gain of 200 per cent in the coming year. In the state of Indiana, which has a population of approximately one-half of the Dominion of Canada, there is one Independent telephone for every fourteen persons, and in that state the Independents outnumber the Bell about three to one.

The Independent telephone interests to-day have a good organization, known as the International Independent Telephone Association of America. The organization formed in Detroit in 1897 for the purpose of defending damage cases brought by the Bell, finished its work by winning the last of the patent cases in 1904. In 1905 the association was re-



organized in Chicago under what is known as the "Ohio Plan." This plan starts with an organization in each state, which usually divides it into districts to suit local conditions, each of the districts having a complete organization of its own, subject to the control of the state body. The various companies are represented on the basis of the units they operate, a unit being one telephone or circuit mile of toll line. The district organizations select delegates to the annual meeting of the state association on the basis of one representative for every one thousand units operated by their members. One delegate to the International Convention is allowed for each 10,000 units in the state. Each district selects a delegate to this convention, the remainder necessary to make up the full quota being elected at the state meeting as delegates-at-large. At the district meetings all questions with reference to traffic conditions between the companies, the development of territory, etc., are considered. At the state meetings matters of general importance to the movement in the state are taken up.

The International Association holds its annual convention between May 1st and July 1st. Permanent headquarters are maintained in Cleveland, where a corps of secretaries and a map maker are employed for the purpose of keeping in touch with the development in the various states. At present there are over 7,000 Independent companies operating in over 12,000 cities and villages.

Our plan of organization is not a new one; it is based upon the federal plan of government, which has been in use in the counties, congressional districts and states of the Union for more than a century. I believe it was Benjamin Franklin who first proposed a plan of this kind in 1754. It was known as the Albany plan, and outlined the formation of a separate government in each of the colonies, to be brought together in a central government for all of the united colonies. The plan under which our association is operating seems broad enough to cover every possible contingency in keeping the Independent interests working together in harmony and as a complete system. It is often difficult for those not interested in the Independent telephone business to understand the enthusiasm of the people engaged in it. It is more than a mere means of livelihood to them; it is a *cause*, something worth fighting for. Perhaps this is true of any particular line of effort, but in no others I think to such an extent as in the Independent telephone business. This feeling is probably due in a measure to the interest attaching to the development of the industry, but more, I believe, to the conviction of practically all engaged in it that they are doing their part in a movement to benefit mankind. This feeling was never better expressed than by Judge Robert S. Taylor, who was appointed by President Cleveland to represent the United States government in the famous Berliner patent case. Judge Taylor, in addressing a meeting at Chicago last summer, said: "I have never done anything in my life which I did with so much heart and so much earnestness as the fights I have made for Independent telephony. I have never done anything I have felt so well satisfied with. I have always considered that no movement in this country that has ever taken place carried with it so much of a blessing to the people as the Independent telephone movement."

Aside from its many commercial and social advantages, the telephone has performed a very important part in advancing civilization, and there is little doubt that there would be much more crime in the United States to-day were it not for the extensive use of the telephone. This, I think, is particularly true of the rural districts. The use of the telephone has lessened profanity; it is seldom that a profane word is heard over the wire; it has broadened all who use it to any extent in the choice of their language; something seems to prompt people using the telephone to talk their best. Of course, there are exceptions, but very

little investigation on the part of any one will demonstrate the general truth of the statements just made.

There are to-day and will continue to be two great telephone systems; one, as at present, controlled and operated as a trust; the other, the Independent, operated as a complete system, reaching practically every farmer, all of the towns, and every important business center in the United States and Canada. The control of the securities and the management of the various companies making up this system to remain with local people. Consolidations will undoubtedly be made here and there to bring these companies into convenient groups, which in many cases will be county groups or congressional district groups, tributary to large centers, reaching out a distance of fifty to one hundred miles. In my judgment, and I am by no means alone in this view, it would be unwise to consolidate them as one system, if, indeed, such a thing was possible. The telephone business is very largely a business of detail and requires the most careful management. This management must be in close touch with the other business interests of a community. No community can afford to depend upon a monopoly to supply its telephone service for the following reasons and many more that might be enumerated:

Competition: First—Guarantees fair rates. Second—Secures at least fair management and courteous treatment from both systems. Third—Stimulates the best thought of inventive minds in improving the apparatus and the careful study of operating conditions with a view to greater efficiency.

Another advantage of competition—and I wish to call special attention to this because it is so often overlooked by the champions of a single system—is the almost absolute assurance it offers to the subscribers of both systems against being deprived by accident of their telephone service. Even if the 70,000 telephones in your city were controlled by one company, many of your business men would still be compelled to have at least two telephones to take care of their business. In case of exchange trouble, fire, strikes, cable or line trouble in any particular section, you might be completely deprived of the use of your telephones until such trouble had been cleared. With instruments connected to both exchanges, the chances for this are almost entirely obviated. It is very seldom that both of your instruments will be out of order at once. The advantage of this until demonstrated by actual experience, as it has been in many cases, is not generally appreciated.

The increase in the use of the telephone has so far exceeded the anticipation of the most optimistic that it is hard to predict what it will be in the future. It is estimated that the United States will have a population of 200,000,000 in 1950; that population will require at least 50,000,000 telephones, more than seven times the present number. The telephone while increasing in usefulness will also be made a still greater means of pleasure and entertainment, and will be utilized for the transmission of concerts, sermons, political addresses, etc., in fact, the Keystone Telephone Company of your city is now experimenting with such service.

Already the "seeing telephone," as exemplified in the "Televue," has been invented by J. B. Fowler, of San Diego, California. Long before 1950 this or a similar device will have been perfected, and by means of it, one may not only converse over the telephone, but actually see the person with whom he is speaking. Through the use of such a device, the police department will be able to transmit not only the description, but the photograph of a criminal wanted and to identify one instantly no matter where captured. Think of the convenience of shopping by telephone when one can not only order but view the goods purchased. When the telephone has been brought to its highest stage of usefulness, as our friend, Mr. Dooley, remarks, "th' legs will be as good f'r nawthin' as the appendix."

This talk would be incomplete without some reference to Independent telephone securities, for the progress of any industry, no matter how useful, depends upon its ability to show proper returns upon the capital invested and to secure the capital necessary to its development. There is no reason to believe the Independent movement will be hampered through this cause. Already its securities are being favorably regarded by investors everywhere and they will, beyond question, in the very near future take their place on a par with the securities of other public serving corporations. There is no other utility which is in greater demand than the telephone, and statistics prove that panics have less effect on the gross income of wire using companies than on any others. It has been demonstrated that subscribers will economize, not only in luxuries, but in their very necessities, in every way possible before giving up the telephone, and the telephone will continue to increase in usefulness and become a greater benefit and a more absolute necessity than at present. Thus the securities of the Independent telephone companies offer a safe and remunerative

form of investment, and this fact thoroughly appreciated, there will be no lack of funds to develop the industry.

Telephony is desirable as a career for the young man. The electrical field is a broad one and experts do not believe that we have more than commenced to develop it. The telephone branch of the business offers peculiar advantages and attractions. With the marvelous growth there will come a demand for thousands of well trained young men in this field of labor. Already telephone courses have been established at universities and colleges, and the demand for some of the technically trained students is so great that employment is offered them before they have finished their course. As telephony progresses the men with technical training will be more and more in demand. I, therefore, commend this branch of the electrical field to the students of all technical schools as one worthy of their consideration. They will find that it not only offers them employment, but will give them splendid opportunities for careful study and the development of economies and new improvements that will result in financial benefit to themselves and be of untold advantage to mankind.

## ELIMINATION OF DANGER IN THE TELEPHONE FIELD

By A. L. Stanton

THE subject about to be discussed is one that has under various heads been more or less well handled in previous numbers of TELEPHONY. It is, however, a subject of such vital importance that a reminder of the hazards run by inefficient construction or an indolent manner in the maintenance efficiency of the protective elements of any large system cannot be too forcible, although the risks attendant are, in general, given due recognition. However, the problem of efficient protection as viewed to-day differs widely from existing conditions a few years ago, due essentially to the rapid spread of power transmission and electric traction lines. This is, in particular, applicable to the western states. Unforeseen conditions have arisen, where proximity to power routes have proved the inadequacy of existent protective apparatus, disorganizing service and causing fires which have done considerable damage. In other cases linemen have met sudden death while on duty, and in other instances operators at central office got a bad scare. The problems for rendering a system absolutely immune from danger are numerous, varying with surrounding conditions, and although such incidents as referred to are fortunately rare in occurrence, they do occur, proving the need for greater care and attention to detail: I will quote two instances. The first case is one probably known to all, which occurred last year in London, when the National Telephone Company had its test room burn out. The cause of this was surmised as being due to a piece of iron troughing bridging the live rail on the underground electric railway system with the sheathing of a telephone cable. As a result fires broke out at centers fitted with test frames of an old design and *not equipped* with heat coils, a noticeable feature being that of other test rooms having circuits in the same cable but connected with heat coils on a modern type frame the heat coils were fused but no fire ensued. Doubtless the cable was fixed without the slightest conception of such an accident being possible. The second instance is one where I personally viewed the results a few months back and was caused as in the previous instance under circumstances not common. A few miles from the central office affected blasting operations as carried out for the clearing of land were in progress. During the course of these a stump was blown up, which in falling crossed several long-

distance open wires with the live trolley wire of a traction system running down same roadway. This resulted in a fire at the near central office which did several thousands of dollars' worth of damage. A considerable arc occurred at the main distribution frame where cable junction was effected, a noticeable fact being that on one of these toll lines the heat coils were cut out. The explanation is as follows, and it is the first circuit I have known designed for such a purpose. The heat coils in use each averaged 30 to 40 ohms in resistance. This was considered as objectionable in the speaking operation, therefore the circuit was arranged in a manner that in the insertion of a plug into jack the heat coils normally in the circuit were cut out to reduce the total resistance. The modern type high tension carbon arresters were in circuits but these failed to arrest the primary cause of the fire. One of these circuits was plugged up at the time. It is not proposed here to discuss the utility of such a designed circuit. Facts are quoted as of interest in details which seem usually on a burn out occurring difficult to obtain. The dangers risked by a telephone company and the elements in modern systems are well known, but throughout the whole subject of efficient protective equipment not much data seems available relative to tests or experimental investigation on the part of manufacturers. What appears to be a real danger although of remote occurrence is the setting up of arcs, on a telephone circuit becoming crossed with a foreign line carrying in addition to fair voltage value plenty of power. The apparent requirement, which present combination protective devices do not appear designed to meet, is a means of choking and destroying such an arc on its being set up. This seems to be the primary cause of all recent burn outs where standard efficient protective equipment was supposed to exist. A consideration as an important element of efficient protection lies in the careful survey and construction in all telephone systems of standard routes which do not allow of any possible crosses with foreign lines of a dangerous nature. The additional expense is money well spent. Finally, efficient maintenance is a great factor of good protection, low resistance ground connections and good grounds being a desideratum with periodical tests as a security against neglect.



# MANSON'S PRACTICAL SUGGESTIONS

*A Series of Short Articles Dealing with Important Phases of Telephone Work*

By Ray H. Manson

## SIMPLEX TELEPHONE AND TELEGRAPH CIRCUITS.

THE simplex system of telephoning and telegraphing over a metallic circuit by means of repeating coils not only gives very satisfactory results, but is inexpensive to install. Outside of the regular telephone and telegraph equipment, the only apparatus necessary is a bal-

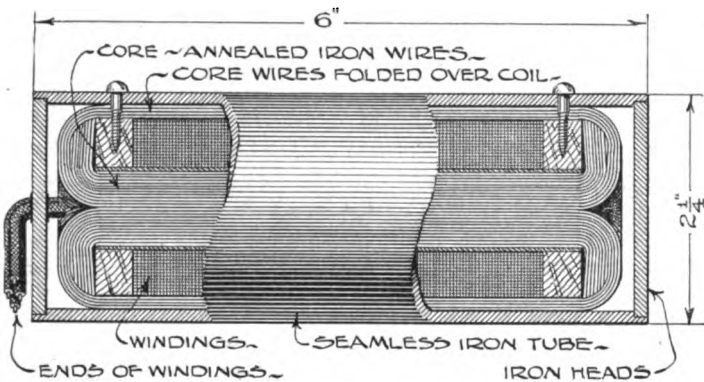


Figure 31. Ring-through and talk-through repeating coil with parallel windings for use in simplex circuits.

anced type of "ring through" repeating coil and some ordinary telephone condensers.

This system is adapted for use on any existing balanced toll line which has all of the talking and signaling apparatus bridged across the metallic circuit, the two line wires being used together as one side of the telegraph circuit and the earth employed as a return, the same as in a phantom telephone line. Repeating coils are required in each end of the toll line so as to leave the same free for telephone conversations and signaling regardless of the connection of the telegraph circuit. In other words, several toll lines can be connected together for a through telegraph circuit and each line used for separate toll conversation.

As the success of both the telephone and telegraph portions of this system depends on the repeating coil, it should

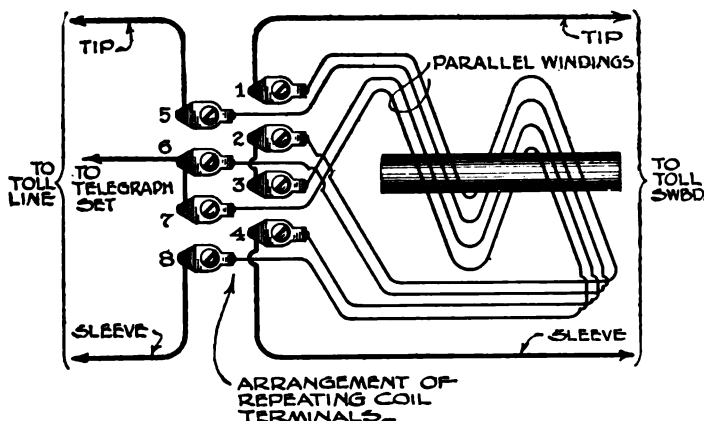


Figure 32. Arrangement of the four windings of the repeating coil shown in Figure 31. The external connections shown by heavy lines are for simplex circuits.

be selected with care. The principal requirement of this coil is perfect electric balance, which is best obtained by winding the wire of the four quarters in parallel. One particular coil of this description is made by twisting four

double silk covered copper wires into a small cable, after which the latter is wound on a repeating coil spool in the regular way. This method insures an equal number of turns, the same distribution of wire on the spool and uniform resistance for the four windings.

The general dimensions and construction of this repeating coil are shown in Figure 31. The core is made up from a bundle of very soft (annealed) iron wires with their ends turned back over the outside of the winding so as to overlap and complete the magnetic circuit, thereby making a most efficient coil for repeating low frequency ringing currents. The coil in this form will cross talk into adjacent coils unless it is provided with an outer sheath of heavy iron for confining the magnetic lines, due to its action, within its limits. Each of the four windings of the coil has about three thousand turns of wire and a resistance of about 140 ohms. The ends of the four windings are brought out to eight terminal clips, the wiring being as shown in Figure 32. The proper line connections to this coil and the neces-

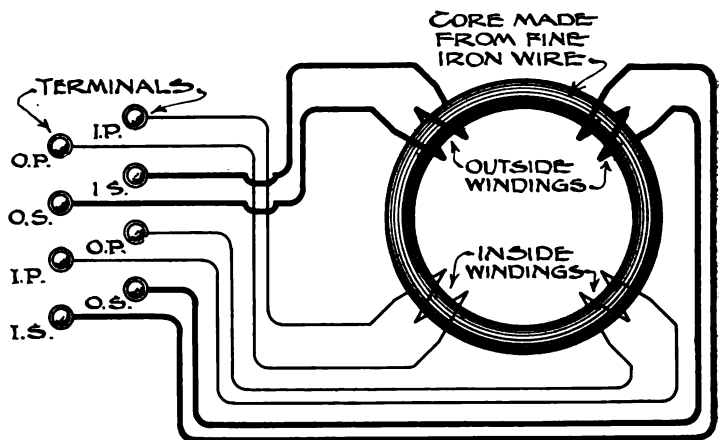


Figure 33. A repeating coil with a ring type core having separate windings so as to do away with static leakage.

sary strapping between terminals for simplex service is also shown in this diagram.

Another type of repeating coil used for simplex service employs a ring shaped core, made up from very small annealed iron wires, over which the four separate coils are wound as shown in diagram in Figure 33. One of the advantages claimed for this construction is the doing away with static leakage between the two halves of the coil when connected in a telephone circuit.

By referring to Figures 34, 35 and 36 the reasons for a carefully balanced and constructed coil are made apparent. Figure 34 shows a telephone toll line with two repeating coils *A* and *B* at either end, bringing telephones *E* and *F* located between the coils, also bridging telephones *C* and *D* located on the extreme ends of the circuits, the latter representing two exchange subscribers connected through for a long distance conversation. A telegraph circuit is also shown legged off from the middle of the line halves of these coils. The telephonic transmission between the stations *C* and *D* and through the repeating coils *A* and *B*, also the transmission of generator current for ringing purposes, is done in the regular way with only a slight cutting

down of efficiency, this loss being practically all due to the presence of the repeating coils.

Stations *E* and *F* will also work with practically no ill effects, due to these repeating coils, for the reason shown in Fig. 35. This diagram illustrates the middle portion of Figure 34, between windings 1-4 of the two repeating coils, when a telephone conversation is taking place or when a telephone generator is being operated to signal another station. For example, if an electrical impulse is originated in the telephone *E* and passes to the tip of the line, it will find a ready path through the telephone at *F* and back to *E* through the sleeve of the line as indicated by the arrows. It will also find paths through the windings of the two coils *A* and *B* as indicated by the small arrows. These leakage paths, however, will not be of any consequence as the impulses of current through the two windings 1-2 and 3-4 of the coils are in the same direction so that they will act together as one winding and give high impedance to the fluctuating voice or signal current. Furthermore, there will be no tendency for these currents to be diverted through the earth return path, consisting of the telegraph sets *G* and *H* as the latter are tapped from the middle points of the repeating coil windings as clearly shown in Figure 34.

Figure 36 illustrates the condition of the previously described circuit when an impulse of current is set up by closing the telegraph key at *H*. The current from battery *K* will divide at *x*, one-half going through the winding 1-2

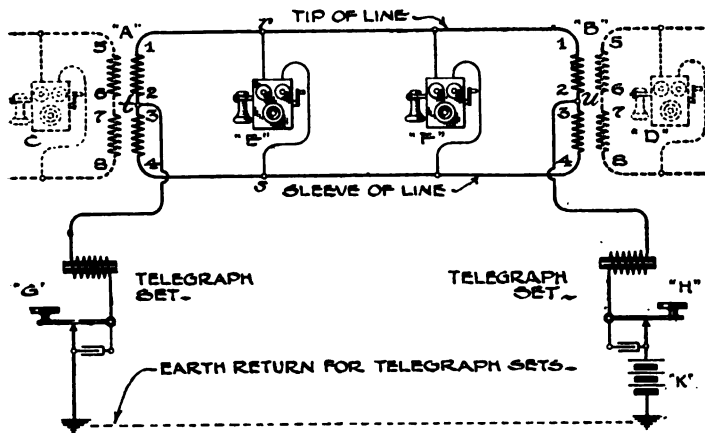


Figure 34. Diagram of a simplex circuit showing how a repeating coil is used to make the telegraph circuit from a metallic telephone line.

and the remainder through 3-4 of the coil *B* to the tip and sleeve, respectively, of the line. After passing through the two windings of coil *A*, the current is united at *y* and finds a return path to battery through the telegraph set *G* and the earth. The current in the winding 1-2 of the coil *B* is in the opposite direction to that in winding 3-4, as indicated by the small arrows, thereby neutralizing the magnetic effect or retardation so that the telegraph current is opposed only by the actual "ohmic" resistance of the copper wires of these coils. The resistance to the telegraph current is still further reduced as these two coil windings are in multiple to the telegraph circuit, therefore, offering but one-half of the resistance of one winding.

There will be no noise caused in the telegraph sets, due to the current changes in the telegraph circuit, provided the resistance of the coil windings is equal and the resistances of each side of the line are the same. Under these conditions there is a zero difference of potential between the tip and sleeve line wires at any point as at *r* and *s* of Figure 34, the same as in a balanced Wheatstone bridge.

Two of the balanced arms of this bridge are represented by the resistance of the circuit from *t* to *r* through winding 1-2 of coil *A* and from *t* to *s* through winding 3-4 of coil *A*, while the two other balancing arms of equal resist-

ance are represented by the circuits *u* to *r* and from *u* to *s* through windings 1-2 and 3-4 respectively of coil *B*. The bridge battery is represented by the telegraph battery *k*, which is connected to the point *u* and through the earth return to the point *t*. The bridge galvanometer is represented

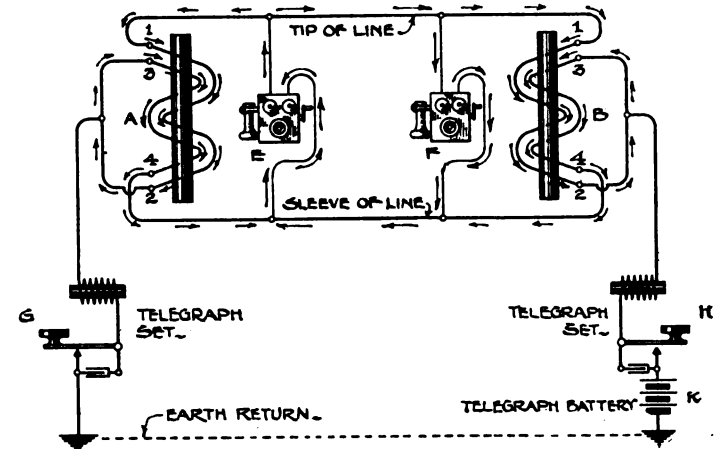


Figure 35. Diagram of the middle portion of Figure 34, illustrating the retardation effect of the repeating coil windings for telegraphic transmission or signaling current when connected across the metallic circuit.

by the telephone at *E* and has no current passing through it, due to battery *K*, as the arms of the bridge are in a balanced relation.

In practice it is impossible to obtain perfect balance of the line resistances, therefore, slight disturbances will be produced in the talking circuits when the abrupt electrical signals of the telegraph are impressed on the circuit, but this can be eliminated by using a condenser around the contact of the telegraph key, or around the key and telegraph relay coil, so as to smooth out the telegraph current. The first method of locating condensers seems to be preferable as it does not slow down the operation of the telegraph relays. The condensers will also serve a second purpose, to prevent arcing at the key contacts.

Ordinary rolled tin foil and paper condensers of one or two microfarads capacity, such as are used in telephone circuits, are employed for this purpose, but it sometimes requires as great as ten microfarads to produce the proper results. The exact capacity necessary is best determined by experiment and can be obtained from several smaller capacity condensers placed in multiple.

Figure 37 shows in diagram a simplex circuit including

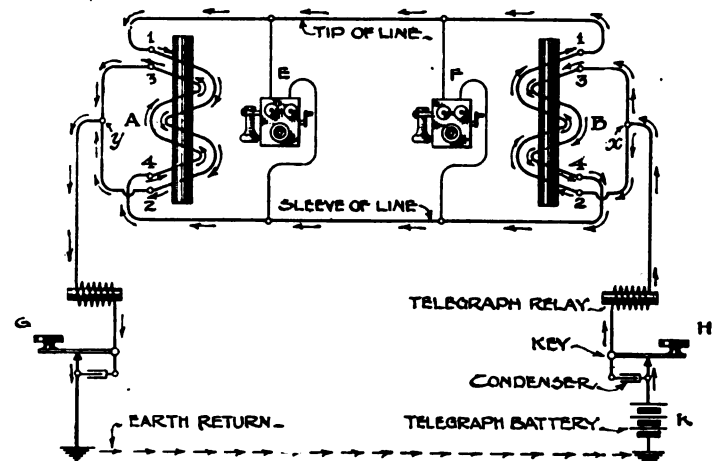


Figure 36. The same diagram as Figure 35, showing the absence of retardation in the repeating coils to the telegraphic currents.

four exchanges and three inter-connecting toll lines arranged according to the foregoing principles. It is necessary that all of the telegraph stations be connected in series



and that no earth returns be provided, excepting at the extreme ends of such a circuit.

The telegraph system used in this illustration of the simplex circuit is of the so-called Morse closed-circuit type in which the current is normally flowing at all times when the circuits are connected and not in actual operation. The signals are produced by opening the circuit at one point with a key in accordance with the standard Morse code.

The telegraph instruments for each station in the simplex circuit include a main line telegraph relay with adjustable magnets, a sounder, and a telegraph key with side

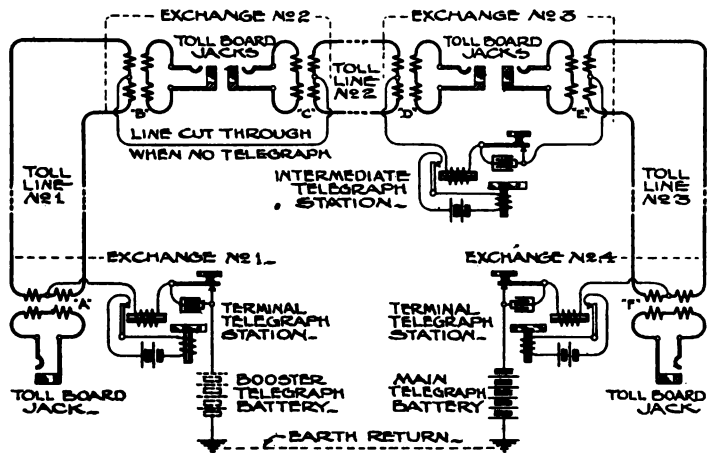


Figure 37. A simplex circuit made from three toll lines and provide with two terminal and one intermediate telegraph stations.

switch. All of the relays in any one circuit must be of the same resistance in order to work uniformly, this resistance being usually taken at 150 ohms. The sounders, however, can be of low or high resistance according to the source of direct current available to operate their local circuits. When a separate battery is necessary for this purpose a four-ohm sounder will give excellent results, but when a high voltage direct current can be obtained, a twenty or fifty-ohm sounder is used, current regulating resistances being provided as subsequently described.

One authority on telegraphic subjects gives the approximate amounts of current required for best results for the various telegraph instruments as twenty-five hundredths of an ampere for a four-ohm sounder, one-tenth of an ampere for a twenty-ohm sounder, and two-hundredths of an ampere for a 150-ohm relay. These amounts are based on the magnet windings of the various instruments having a total of about 950 turns, 1,870 turns and 8,650 turns, respectively. From these figures the necessary voltage required in the main line and local sounder circuits can be readily figured by Ohms' Laws, a factor of safety, however, being necessary in the case of a main line circuit due to line leakage.

The current for operating the main line relays can be obtained from any reliable direct current source, such as a 110-volt lightning or power circuit, a small dynamo, a storage battery or a closed circuit type of primary battery. When small dynamos or batteries are used their electro motive force should be from 30 to 150 volts according to the character of the lines served.

The high internal resistance of the gravity of crow-foot type of primary cell (standard closed-circuit telegraph battery), which is about two ohms, limits the number of main line telegraph circuits which can be successfully worked from one set of these cells to not more than two or three. From thirty to two hundred gravity cells are often necessary to give the proper voltage and current to operate a telegraph system, these cells being arranged in series and located at either one or both ends of a connected circuit.

When the local sounder circuit is operated from a gravity battery, its resistances can be four ohms, thus requiring two

cells for best operation. The total resistance of this local circuit, including the internal resistance of the cells, will be practically eight ohms, and with two cells in series an electro motive force of two volts is obtained so that the current in the circuit will be practically twenty-five hundredths amperes. As has been previously stated this is the proper amount of current for best results in a four-ohm sounder circuit.

The storage battery with its extremely small internal resistance serves as an excellent source of current for main line telegraph circuits, but both regulating resistances and fuses will be necessary for protecting each tap to a local or main line circuit. In other words, each circuit must be individualized so that what happens in one line will not affect the others. The storage cells are arranged in series with taps brought out so as to give the several different voltages necessary for the various line conditions. In some cases as high as 150 volts might be necessary but the lowest electro motive force would probably never be less than thirty volts.

It is standard telephone practice to ground the positive terminal of the central office battery so that the flow of current will be to earth rather than to line, thereby doing away with electrolytic action due to line leakage. This same practice is applicable in the case of the main line telegraph battery and can be used in the simplex circuits herein described, although the diagrams are shown with a reversed polarity of battery.

The resistances for protection purposes are made at least two ohms per volt so that in case of a short circuit or cross in the telegraph windings the current is limited to less than one-half an ampere. These resistances are best non-inductive in character, incandescent lamps, wire wound non-inductively on spools and wire embedded in enamel, being used for this purpose. They are adjustably arranged in the

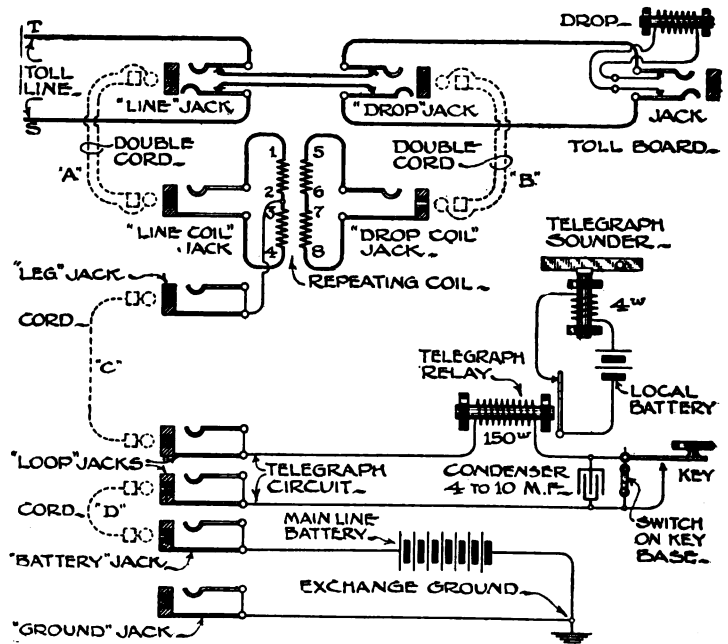


Figure 38. Diagrammatic wiring for a test station equipment. All of the elements of such an equipment terminate in spring jacks, thereby allowing any combination of circuits to be readily and quickly made.

battery taps to the main line telegraph circuits so as to admit of ready change in order to fit the conditions of the various connected circuits.

When current from small direct current dynamos or from the 110-volt lightning mains is used on the telegraph circuits, fuses and regulating resistances must be provided, the same as for storage batteries. This is also true of the local sounder circuits, when any of these sources of current are available. In the latter case, however, fuses and regulating

resistances are necessary in each tap to the individual circuits for safe working.

If a four-ohm sounder is used on one cell of storage battery, a non-inductive protection resistance of four ohms will limit the current in the circuit to that of best operation, twenty-five hundredths of an ampere. This protection resistance will also limit the current to one-half of an ampere in case the circuit should become crossed or short circuited.

When a main line source of current or a convenient 110-volt lighting circuit is available, a twenty-ohm sounder or one of even higher resistance can be used to advantage. The current for best operation in a twenty-ohm sounder circuit has been previously given as one-tenth of an ampere, so that the two protection resistances should be sufficiently high to give this result. For example, if current from a 110-volt lighting circuit is used, 550-ohm incandescent lamps should be inserted in the two leads, thereby giving 1,100 ohms external resistance and limiting the flow of current one-tenth of an ampere.

If the connected telegraph circuit is very long it is sometime advisable to have two sources of direct current, one at each end of the line, the two being connected in series so that one will act as a booster to the other. In extremely long circuits, it becomes necessary to install repeaters at intermediate points thereby insuring positive signals by dividing the line into comparatively short sections, each with its main line battery.

Figure 38 illustrates what is known as a toll test station equipment which is a very convenient arrangement of wiring the toll lines at a long distance office so that any combination of the same can be quickly connected and the proper apparatus inserted for a telegraph circuit, without interfering with the regular telephone service. This equipment also allows the lines to be readily opened for testing purposes.

It will be seen that a test station equipment makes it possible to establish a telegraph connection between two different points through many different toll line routes so that a good through circuit can be assured at all times, regardless of any local line troubles. The fact that the toll lines must always be kept in the best of condition for speech transmission purposes renders them especially reliable for telegraphic purposes, and, therefore, readily leased for news-

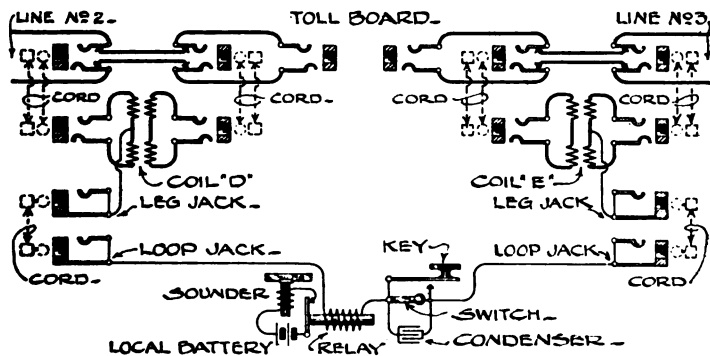


Figure 39. Test station connections for intermediate telegraph circuit such as shown in exchange Number 3, Figure 37.

paper and broker use in preference to the regular telegraph lines.

Each toll line terminates at the test station, shown in Figure 38, in a cut-off jack, called the line jack, and through its platinum contacts is connected to the platinum cut-off contacts of a jack which extends the line to the switchboard, the latter jack being known as the drop jack.

A sufficient number of repeating coils are provided at the test station to allow any combination of terminal or through telegraphic connections to be made with the toll lines. Each of these coils terminate in three jacks, two of which are of the two-conductor variety and serve as connections for each half of the coil winding, while the third is a single conductor jack and is tapped off the middle of one of

these windings. The first two jacks are known as the line coil jack and drop coil jack respectively, and the third jack, connected to the middle point of the repeating coil winding, is known as the leg jack.

Battery and ground jacks are also provided for convenience in building up the telegraph circuits. For example, if the terminal telegraph circuit shown at exchange Number 4 in Figure 37 is to be built up with this test station equipment, the double plug-ended two-conductor cords, *A* and *B*, Figure 38, would be inserted in the jacks as illustrated by the dotted lines, thereby connecting the repeating coil into the toll line circuit without interfering with its use for telephonic purposes. Now the leg jack of this coil is connected to a terminal jack of a telegraph circuit by a double-ended single-conductor connecting rod *C*, and by means of a similar cord, *D*, the remaining jack of the telegraph set is connected with the main line telegraph battery and to ground. If no main line battery is necessary at this station, the con-

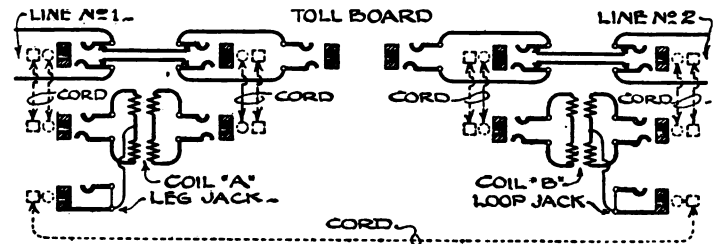


Figure 40. Test station connection for a through circuit at an intermediate point in a simplex circuit such as illustrated at exchange Number 2, Figure 37.

nection can be made from the leg jack to the loop jack and from the other loop jack directly to ground through the ground jack. Also if the station is an intermediate one, as at exchange Number 3, Figure 37, no battery or ground is necessary and the telegraph set is connected in series between the leg jacks of the two inserted repeating coils *D* and *E* as illustrated in Figure 39.

When the telegraphic circuit is set up for a thorough connection by means of this test set equipment, the intermediate exchanges have their toll lines directly connected as in a case of exchange Number 2, Figure 37, by inserting repeating coils *A* and *B* in the line and connecting the two leg jacks by a single conductor cord as illustrated in Figure 40.

When the exchange has but a few toll lines all of these test station jacks and repeating coils can be conveniently mounted in a small wall cabinet, but in the case of an important switching point or larger terminal station, this equipment takes on elaborate proportions and is housed in a large upright cabinet together with a complete set of wire chiefs' testing instruments. In any event, a testing bridge or other testing instrument can be readily connected to the toll line circuit, clear from all local connected equipment, by inserting a two-conductor plug into the line jack of the test station circuit.

Simplified as well as more elaborate arrangements of test station circuits are used in connection with simplex circuits but in every case the results to be secured are a flexible arrangement of apparatus and a convenient and reliable means for opening the toll lines for testing purposes and for inserting the telegraph circuit equipment.

According to official returns, the total capital cost of the telephone exchange system throughout the commonwealth of Australia is about \$7,000,000. In 1905 the revenue was \$1,500,000 and the expenses \$850,000, leaving a balance of \$650,000 to cover interest and depreciation. It is expected that \$250,000 per annum will be expended during the next five years on new instruments and switchboards in Melbourne, in connection with the adoption of the measured rate. An entirely new common battery exchange is to be installed in Melbourne, with a capacity of 10,000 lines.

# DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

836,202. Telephone Receiver Switch; McMahon. Switch springs are located between the legs of the permanent magnet and a part of the receiver casing is hinged and forms an operating lever. Patent unassigned.

836,204. Telephone System; Parker. A ground is provided at each substation and a signaling device is associated with the line at the central station so that it operates over the metallic circuit of the line when no connection is made with the line thus giving a signal for connection, and over a grounded return when connection is made with the line thus giving the signal for disconnection. The substations have local batteries. Patent unassigned.

836,407. Telephone Attachment; Silverman. A vertical rod is attached to the casing of the telephone and has pivoted thereto an arm which in its depressed position holds the switch hook down and in its elevated positions allows the switch hooks to rise. Both positions are made positive by a spiral spring connected to the arm off the pivotal center. Patent unassigned.

836,489. Testing System for Telephone Lines; Dean. The tip strand of the cord circuit has a testing device normally connected therewith and when testing a switch is operated to open the strand in the rear of the connection of said testing device so as to put the operator's telephone set in condition to receive test impulses. Patent assigned to the Kellogg Switchboard & Supply Company.

836,514. Telephone Cord Circuit; Libby. A shunt around the generator is closed by the relay mechanism so that the generator current does not affect the relay mechanism. Each relay has a winding of 100 ohms resistance and another winding of approximately 100 ohms resistance, both connected in series for magneto work and for common battery work to be connected on either side of the battery thereby making only 100 ohms resistance or the usual amount of resistance on either side of the battery through which to feed the talking current. Patent assigned to Kellogg Switchboard & Supply Company.

836,581. Means for Eliminating or Reducing the Influence of Disturbing Currents on Telephone Circuits; Jacobs. The receiver of this system has a phonopore winding and an inductive resistance is placed in a shunt around the receiver. Patent unassigned.

836,611. Regulating Device for Telephone Relays and Transmitters; Shreeve. The carbon button in the transmitter has a thermostatic regulating device connected in series therewith so as to effect such an expansion and contraction as will rearrange the carbon granules automatically. Patent assigned to American Telephone & Telegraph Company.

836,612. Regulating Device for Telephone Relays and Transmitters; Shreeve. The local circuit of the transmitter includes a magnet, a condenser, and an impedance coil. The magnet is inserted adjacent an armature carried by the movable wall of the carbon button so that any actuation thereof will assist in preventing any packing of the carbon granules. Patent assigned to American Telephone & Telegraph Company.

Reissue 12,560. Telephone Exchange System; Davis. The line conductors are utilized for the line relays. The plug serving to include these conductors inserted with the line relays upon their insertion in the spring jack. The battery employed for the line indicators is also used in the operation of the relays. Patent assigned to Stromberg-Carlson Telephone Manufacturing Company.

Reissue 12,565. Semi-Automatic Telephone Exchange

System; Thomson. A plurality of indicators or sets of indicators are included in the circuit passing through the plug circuits and are actuated by inserting the calling subscriber's plug into the jack. By removing the plug the indicators are cut out of the circuit. Patent unassigned.

836,668. Operator's Key; Carliss. This is a ringing and listening key having the rollers mounted upon an arc shaped member and the contact springs positioned oppositely with the listening spring so formed that it locks the key against retrograde movement until operated. Patent assigned to American Electric Telephone Company.

836,674. Sound Sensitizer; Frank. A pad is made of feathers or other similar or suitable material and is held over the receiver by a skirt which may be attached to the receiver by a string. The inventor claims that the pad of feathers cuts out extraneous noises and makes the transmission clearer. Patent unassigned.

836,848. Telephone Apparatus; Wilson. An induction carries the main diaphragm of the telephone receiver opposite the pole pieces thereof. The induction coil forms the basic element and operates the diaphragm of the receiver. Patent assigned to Geo. W. Kretsinger, Chicago, Ill.

836,904. Automatic System of Intercommunication; Van Wagenen. In this system non-inductive resistances are utilized to cause the calling transmitter at each substation to work a switch corresponding only to the calling station and to prevent it from operating other switches of stations on the same line. Patent unassigned.

837,097. Electric Alarm; Morrer. An alarm circuit is bridged across a telephone circuit and is provided with window operated and thermally operated circuit closers which complete the circuit or break it to control an alarm which notifies central of the fire or burglary. Patent unassigned.

837,251. Telephone Apparatus; Roberts. The substations in this system are provided with selector instruments having a primary magnet and a holding magnet. One limb of the line extends from central to the first station selector and to ground. Extensions of this limb go to the different selectors of stations along the line. The other limb of the line is open at each substation. The disconnected sections are united by means of relays so that all other substations whose relays do not operate are locked out. Patent unassigned.

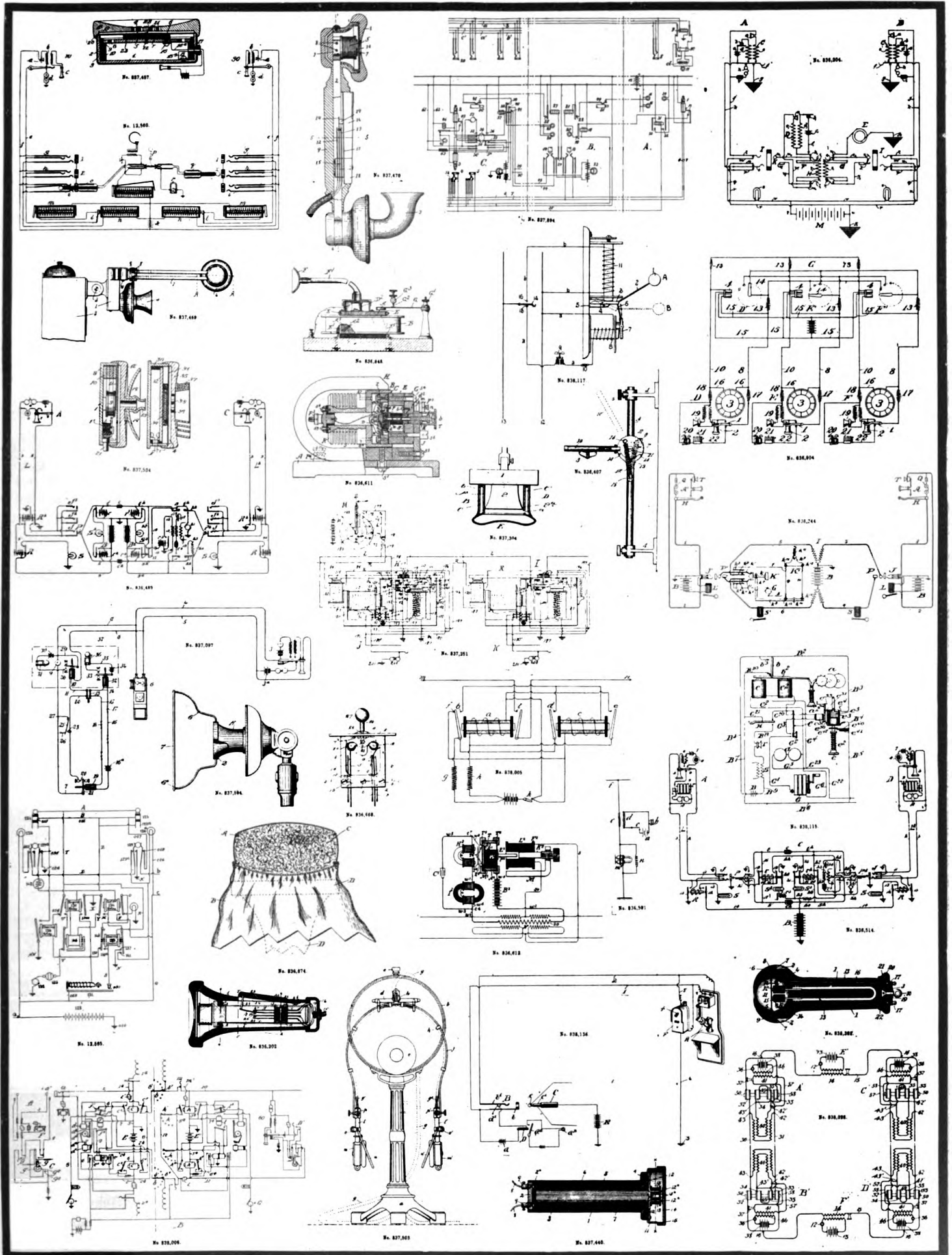
837,304. Attachment for Mouthpieces of Telephone Transmitters; Kitchell. Two concentric tubes forming an air space between them and provided with a supplemental mouthpiece are carried over the mouthpiece of the transmitter so that parties using the telephone will not have their conversation overheard by outsiders. Patent unassigned.

837,440. Receiving Device for Bond Detectors; Watson. A forked tube with contacts mounted in each and is adapted to bridge the ends of railroad rails and a receiver is connected to the wires which pass up through the tube from the contact. The receiver carries an induction coil and the contacts carried by the tube form terminals of the primary thereof. Patent unassigned.

837,457. Telephone Transmitter; Fahrenfeld. The electrodes of the carbon button are supported directly upon the diaphragm and the bridge respectively and are both corrugated so as to present points toward each other. Patent assigned to The Simplex Telephone Equipment Company.

837,469. Telephone Receiver; Houghton. The perma-





nent magnet of the receiver projects from the casing and forms a support therefor which is secured to the transmitter so that it may be turned to either side thereof for use with the right or left ear. Patent assigned to the Wire & Telephone Company of America.

837,470. Hand Telephone; Houghton & Potter. The permanent magnet of the receiver forms the supporting member for the transmitter and a switch is located between the legs thereof and is operated by a hinged section of the handle surrounding the magnet. Patent assigned to the Wire & Telephone Company of America.

837,503. Telephone; Port. An ear suspension apparatus is provided with two receivers and is made adjustable upon a tubular stem with the receivers connected to each other by an U shaped holder adjustably connected to the stem. Each tubular stem forms a passage for the conducting wires. Patent unassigned.

837,534. Telephone Apparatus; Babcock. The receiver in this apparatus has a spring clamp secured around it with extension arms adapted to clamp the transmitter therebetween. A switch carried in the receiver casing is operated when the transmitter is inserted therein so as to break the circuit. Patent assigned to the Simplex Telephone Equipment Company.

837,594. Telephone Mouthpiece Safety Guard; Sempel. A wire guard is secured to the mouthpiece of the transmitter so as to adjustably regulate the distance the user's mouth should be from the transmitter mouthpiece. Patent unassigned.

837,894. Telephone System; Aven. In this system a third board is used between the annunciator and the multiple connecting board. The operator at the third board has only to answer the calls of the subscribers and communicate with the operator at the multiple board the number of the called subscriber and that of the trunk line employed. Signals are used to indicate whether the operators are busy or idle. Patent assigned to Deutsche Telephonwerke R. Stock & Company, G. M. B. H., of Berlin, Germany.

838,005. Electrical Circuit Interrupter; Bullard & Mathies. Two relays each having a heavy copper tube driven over its iron core and with a small wire winding wound around the copper tube are provided so that their armatures approach and recede from the pole pieces with marked sluggishness. These relays control each other and each other's circuit and are alternately energized and de-energized. One of the relays controls an external busy tone circuit so that it is throbbing in character rather than a continuous hum. Patent assigned to Western Electric Company.

838,006. Automatic Exchange Circuit; Bullard. In this system a key is provided at the substation which when operated causes ringing current to be applied directly to the trunk line to operate a signal at the manual exchange so that an automatic subscriber may get in conversation with the operator at the manual exchange to make a complaint or for other purposes. Patent assigned to Western Electric Company.

838,028. Phantom Telephone System; Jordan. Phantom circuits are connected with the main circuits at points of approximately equal potential and inductive devices are connected in local circuits for causing silence in the receivers thereof whereby cross conversations and disturbances between the main circuits and phantom circuits are eliminated. Patent assigned to E. H. Carry of Dallas, Texas.

838,115. Telephone Meter; Holland. The circuits of this device are so arranged that the calling subscriber is assured of proper connection before his meter has been operated. The operation of the meter, however, is necessary before the conversation can be carried on with the other party, but the called subscriber's meter can be prevented from operating by a device which opens the circuit

of the operating magnet. Patent assigned one-half to Chas. Bate.

838,117. Telephone Signal; Jordan. In this device a weighted signal lever is controlled by a magnet in the ringer circuit so that when a subscriber is called and has two telephones in his office he knows immediately by the position of the signal which line he is called upon. The device is restored to normal by a magnet whose circuit is closed when the receiver is removed from the hook. Patent assigned two-thirds to Geo. A. Carden, Dallas, Texas.

838,136. Combined Telephone and District Messenger System; Nolen. A call box is bridged across the line and has a ground tap so that either the subscriber may signal to central or central may signal the subscriber to indicate that the call has been answered. The signal in the alarm box is so constructed as to be irresponsive to telephone currents. Patent assigned one-half to Frank B. Cook.

838,244. Automatic Ringing Device for Telephone Exchange Systems; Dean. A thermic relay is associated with the generator and the ringing key in such a way that when the ringing key is depressed and locked it remains locked until the subscriber removes his receiver from the hook. A low resistance path is then formed which heats up the thermic relay and closes the circuit of a release magnet. Patent assigned to Dean Electric Company.

838,362. Receiver for Telephones; Steinberger. The permanent magnet and the terminals of the receiver windings are all cast within the body of the receiver which is solid. The receiver has an outer casing of metal. Patent unassigned.

#### NEW ENGLAND CONVENTION.

The fourth convention of the Vermont and New Hampshire Independent Telephone Association will be held during the afternoon and evening of January 8, 1907, at Hotel Low parlors, Bradford, Vermont.

After the business meeting in the afternoon a number of gentlemen will be present from other states and will talk on the Independent telephone situation in different parts of the United States.

At seven o'clock a banquet will be served to the members and friends of the association. Every member is expected to invite all his telephone friends and the companies with which he is connected to be present and help to make the convention a success.

It is of very great importance that every Independent telephone company in Vermont and New Hampshire should be represented at this convention and it is likely it will be largely attended.

#### DEATH OF ARTHUR VAUGHAN ABBOTT.

Arthur Vaughan Abbott, one of the most widely known and prominent engineers of this country, died of pneumonia, December 1, at St. Luke's Hospital, New York, after a short illness. Mr. Abbott, who was a son of the late Benjamin Abbott, was born in New York in 1854. He had been a member of the American Institute of Mining Engineers since 1882, vice-president of the American Institute of Electrical Engineers, and chief engineer of the Chicago Telephone Company and engineer of Westinghouse, Church, Kerr & Company since 1902. He wrote several books. Among his works are "Electrical Transmission of Energy," "The Evolution of a Switchboard," "History and Use of Testing Machines," "Treatise on Fuel" and "Telephony."

Business men of Lansing, Michigan, are much wrought up over the telephone question and are discussing methods of combatting the proposed advance in rates by the Michigan State (Bell) Telephone Company. The druggists are the latest to join the objectors.

# MANITOBA VOTES AGAINST MONOPOLY

*The Telephone Users and Citizens Come Out in Favor of Telephone Competition*

By E. M. Rothelle

**T**HE Union of Municipalities, consisting of the chief officers of all the cities, towns and villages of Manitoba, at its annual convention last year passed strong resolutions favoring public ownership of telephones and calling upon the government by unanimous vote to pass necessary legislation making it possible to secure the result desired. The last legislature, also by unanimous vote, passed Acts 89 and 90, which gave the people of the province an opportunity to ratify or reject the proposition.

The provincial government secured the services of Mr. Francis Dagger, whose past work in the telephone field made

Quebec, spoke in French. J. B. Ware of Michigan, C. B. Cheadle of Illinois, ex-Mayor Dyke of Fort William, N. F. Wing, Michigan, and Mr. Dagger himself were on the stump during nearly all of November.

With this large array of talent, it is only natural that the Bell company would select its best men to combat the issue. Among the speakers sent out by the Canadian Bell were Louis Belcourt of Montreal and Royal Lawer of St. Boniface. On his return from Manitoba Dr. Demers paid TELEPHONY office a call and related an incident characteristic of the campaign.

On the morning of November 26th, Dr. Demers was to take a train from Winnipeg for La Broquerie, a town about sixty miles away in a southeasterly direction. He stood near the entrance of a railway coach when the Bell agents previously named took a similar position farther forward, expecting to take the same train, provided the doctor would do so. Dr. Demers had not purchased a ticket, because he did not care to have the Bell agents know where he was bound for. When the train started, all of the parties swung aboard and entered the same coach, Dr. Demers taking a seat at one side and the Bell agents immediately opposite. When the conductor called for the fares Dr. Demers requested that he be seen in private, and after a parley it was so decided. After confiding his mission to the conductor with the promise of keeping it secret, the transaction was satisfactorily terminated. At Ste. Anne Dr. Demers put on his great coat and grabbed his traveling bag, on pretence of making a hurried exit. The Bell agents proceeded to the opposite end of the car with their luggage, but all three hung about the car until it started. When Dr. Demers made an effort to grab the moving train the Bell agents did likewise, but none of the parties entered the coach, remaining on the steps and watching each other as the train gathered speed. When a speed was attained that was bordering on the danger, the doctor made every pretension that he would leap from the train, and the Bell agents were so busy doing the same thing that they quite forgot the possibility of pretext. They were firmly of the belief that there was no pretension in Dr. Demers' acts, and when they saw over their shoulders a glimpse of the final swing they instantaneously took the leap. They were thrown end over end into the snow as the coach carrying the doctor whirled past. It is needless to say that Dr. Demers gave the Bell agents the merry ha-ha as his coach passed his luckless consorts.

It is twenty-six miles from Ste. Anne to La Broquerie and the country was covered with snow. The Bell agents had no knowledge in their sad plight just where Dr. Demers was billed to speak, and not having access to another train, were obliged to go overland in the direction he had taken in their efforts to intercept his meetings for that day.

Dr. Demers enumerated a great many other laughable incidents and reported that it was a campaign of strategy from start to finish. The publications in the province did not attempt to translate the doctor's speeches, but he occupied the platform on an average of twice a day for ten consecutive days, explaining in detail his connection with the work of various systems in the province of Quebec. He said that conditions for commencing municipally owned telephone systems in Quebec at that time were far inferior to what

## PROVINCIAL TELEPHONE LEGISLATION INFORMATION FOR RATEPAYERS

1. By voting "YES," you do not necessarily give your Council power to build and operate a telephone system. Such power is to be given by the Government when it is satisfied that the municipality's plans are such as will enable it to carry on a telephone business without loss to the ratepayers; NOT BEFORE.

2. The Provincial Government before endorsing the telephone bonds, will insist that the service shall be provided at as near cost as possible, but NOT BELOW cost. Hence no ratepayer, not having a telephone, will contribute one cent towards the telephone undertaking.

3. Every person in the municipality will be free to take a telephone or not take one, as he may decide in his own interest; but the man who takes a telephone will be the only one to pay for it.

4. Before the Government's consent to a municipal system can be obtained, the municipality must have enough subscribers, at a rental sufficient to cover all expenses, interest and sinking fund. As the telephone rentals will be a lien upon the telephone subscribers' property, just as taxes are, there will be no bad debts, and can be no loss.

5. The borrowing powers conferred under the telephone legislation do not affect the borrowing powers for ordinary municipal works. In other words, your municipality, after the building of a telephone system, and the issuing of its telephone bonds, will still be able to borrow for local improvements up to the amount at present allowed under the municipal law.

6. The borrowing powers for telephone service will be at all times limited by the Government to such amounts as may be required from time to time to provide telephones and build such extensions as will produce a guaranteed revenue sufficient to pay all expenses, sinking fund, and interest on the amount of each issue of telephone bonds.

7. If 60 per cent. of the qualified ratepayers, actually voting, vote "YES," your Municipal Council MAY, AT ITS OWN OPTION, take up the consideration of establishing a municipal telephone system, and will be afforded by the Government every assistance in formulating a practicable scheme. The actual authority to proceed with the work, however, is given by the Government, not by your vote; but if you vote "NO," the Government cannot, under this legislation, give this authority, nor can it endorse your telephone bonds.

8. If you vote "YES," you make it possible to obtain for yourself a telephone service suited to your requirements, at cost.

9. If you vote "NO," you perpetuate the "BELL" telephone monopoly, and thus will be at all times in that corporation's power, in regard to rates charged and service provided.

One of the Large Posters Used During the Campaign.

him naturally desirable, to take charge of a campaign of education along non-political lines and at government expense. Mr. Dagger was to advance the interests of public ownership of telephones, and he set about systematically to secure the services of men to aid him who had large influence in telephone affairs. J. B. Ware of Grand Rapids, Michigan, was selected to act as assistant to Mr. Dagger, and the entire organization was conducted very similarly to political campaigns with which we are familiar.

Besides the office routine of letters and circulars, speakers of prominence went before the voters advocating government ownership of telephones. J. F. Demers of Levis,



Manitoba had to offer. In the former case, every enterprise had to be undertaken with lack of funds and lack of confidence among the people, who pretended to know very little about the telephone business. He pointed out the large success that had been made in his province in the face of all difficulties, and showed where important systems were being operated in fourteen different constituencies. Dividends of 12 per cent per annum on the capital invested were not unknown quantities, and 7 per cent and 8 per cent were quite common. Rates for the farmer do not exceed twelve dollars per annum and it was emphasized that if this could be done under favorable conditions in Quebec it ought to be very easy to accomplish equally as good results in the municipalities of Manitoba where the people and the government co-operated.

Ex-Mayor Dyke proved a tower of strength in the campaign that has been brought to a successful close. He has for the past twenty-five years traveled as a preacher over the province of Manitoba and those adjoining, and is well and favorably known in every city and town. It was owing to his efforts while mayor of Fort William that that city and Port Arthur, both situated at the head of Lake Superior, established municipal telephone plants, which now have more than 1,800 telephones satisfactorily installed.

The speech-making campaign was formally opened October 26 at Maleta, in the extreme southwestern corner of the province. Meetings were held during the following week at Brandos, Minedosa, Birtle and Donathan. The meeting at Birtle was the occasion of the annual banquet of the grain growers' association, which was attended by some two hundred men and women, and which lasted until about one o'clock the following morning. In the second week was held the annual convention of the Union of Municipalities in Portage la Prairie, at which more than one hundred and fifty officers from the municipalities of the province were present, the government paying the railway expense and two days' hotel bill of two representatives from each town. Wednesday was "telephone day," and papers were read by all of the gentlemen that have been previously named, together with one by E. H. Moulton of Minneapolis. The papers occupied the entire day. In the evening the members of the Union had a very exciting and earnest discussion on the merits of the telephone acts and the government's plans, which resulted in an adjournment until the next day, before it could be finished and voted upon. The vote resulted finally, 89 to 16 favoring a strong resolution which adopted an endorsement of telephone legislation, urging all rate payers to vote "yes" on the proposition which would be submitted at the elections to be held in Winnipeg December 11, and the rest of the province December 18.

In addition to the gentlemen we have named, who entered actively into the campaign, J. H. Shoemaker of Waterloo, Ia., contributed valuable service. Mr. Wing arrived in Winnipeg November 8, and was followed about a week later by Mr. Shoemaker.

A resumé of the meetings shows that Mr. Dagger, in addition to his supervision of the entire campaign, addressed four meetings as an individual speaker, and participated with other speakers in sixteen different meetings. Ex-Mayor Dyke addressed a total of forty-five meetings, being unassisted in thirteen of them. N. F. Wing addressed forty-one meetings, holding seventeen of them without other assistance. Mr. Cheadle addressed a total of ten meetings, being alone in three of them. Mr. Ware spoke at twenty-eight meetings, being the only speaker in half of them.

The telephone campaign was conducted during a most exciting campaign for city officers, and the fact that during all of the time the country was storm-ridden with

intensely cold weather prevailing, a large attendance of voters at any meeting, was not disappointing.

The result of the election in Winnipeg December 11 was 2,970 votes for and 961 votes against the public ownership of telephones. Only the rate payer having assessment of a minimum of \$400 was permitted to vote, and the result is regarded as most flattering.

The campaign of education as it involved the telephone and as it was conducted in the province of Manitoba was unique, to say the least. It is safe to assert that nothing like it has ever been known since the telephone was invented. Following the convention of municipalities held at Portage la Prairie November 9th, the Winnipeg Telegram issued a four-page supplement entirely devoted to the proceedings of the convention. In this supplement are printed the addresses of ex-Mayor Dyke, Messrs. Dagger, Ware and Cheadle, besides a vast amount of statistical information.

There are one hundred and twenty-three municipalities in the province. These municipalities are made up of cities, towns, villages and rural settlements, four classes. Each rural municipality embraces from four to twelve townships.

According to the Winnipeg papers of December 19th we learn that the returns from the municipalities, including the city of Winnipeg, show that the telephone by-law has carried by a substantial majority. These returns show that 7,835 votes have been cast for the by-law and 3,622 against it. In nearly every municipality people have shown themselves in favor of municipally owned telephones. These votes naturally show, in addition to the foregoing sentiment, that the people are decidedly opposed to Bell telephone monopoly. Of twenty town and village municipalities reporting complete returns, eighteen have decided for the principal of municipally owned telephones; five by a majority vote, and thirteen by passing the by-law on the average vote of 77 per cent, and two deciding against public ownership.

We have recently pointed out that only those rate payers assessed at a minimum of \$400 were entitled to vote at this election. A total of all votes that were reported in the Winnipeg papers show that the by-law has carried by sixty-three per cent of the votes cast in the province. Owing to the very severe weather and heavy snowfall the rural municipality vote is in doubt, because it will require considerable time to hear from the isolated district.

As a fitting conclusion to the splendid achievement on the part of the voters in the province we print an editorial which appeared in the Winnipeg Telegram December 19th:

The outstanding fact in the incomplete returns of the telephone plebiscite is that the public sentiment of the province is overwhelmingly in favor of a public-owned system of telephones. There have been many victories and a few, a very few, reverses.

Generally speaking, and with the notable exception of Portage la Prairie, the larger centers have declared unmistakably in favor of public ownership of telephones. The other exceptions apply to places in which peculiar conditions existed and in which the Bell Telephone Company with its political allies succeeded by special effort in recording a negative vote.

Of twenty-six municipalities definitely heard from, or about one-sixth of the total number of municipalities which had voted on the question, seventeen have declared in favor of a public-owned telephone system. Five recorded a majority of affirmative votes, but not enough to come within the conditions of the plebiscite, and only four gave a straight majority against the government's telephone policy.

The proportions revealed in this analysis give promise of a sweeping majority in favor of public ownership of telephones. The probability is that the returns received cover those places where the Bell Telephone Company has been most active and that the municipalities which were not heard from last night represent largely those districts in which the Bell Telephone Company was unable to concentrate its efforts. This is a surmise which later returns will repudiate or confirm. The central fact is that the province has committed itself to public ownership of telephones and to an extent which not only ensures the success of provincial long distance lines

but guarantees these trunk-line feeders important to the general system and to the municipalities as well.

Bell telephone apologists may endeavor to make something of the fact that isolated communities have failed to make themselves eligible to a municipal telephone system. They cannot get away from the general significance of the vote which indicates public approval of the government's telephone policy. Nearly sixty-three per cent of the vote recorded has affirmed the popular desire for a municipal telephone system and this is something of which the promoters of the public ownership campaign may well feel proud.

There is no getting away from the fact that the vote yesterday ensures a public-owned telephone system in the province and while unfortunately a few municipalities have voted themselves out of immediate participation in the benefits of a people's telephone, a large majority have declared strongly and unmistakably against telephone monopoly.

That the municipalities which have rendered negative answers on the telephone plebiscite have made a mistake there can be no doubt. The experience of those municipalities which have declared for public ownership of telephones will soon convince the minority of their error and bring them ultimately, and the Telegram believes very soon, into the advantages incidental to public control of a great utility.

While the negative votes of the few municipalities that have declared against a system of public-owned telephones are to be deplored, their motives are not subject to criticism. The worst that can be said about them is that they allowed themselves to be deceived by the misrepresentations of the Bell Telephone Company.

It was stated and restated by the Bell Telephone Company's agents that the general taxpayer would be made responsible for obligations incurred by a municipal telephone system. While this falsehood was authoritatively and officially denied from one end of the province to the other, the deception seems to have had sufficient influence to secure negative verdicts from a few isolated municipalities.

Portage la Prairie seems to be one of the municipalities which listened to this brazen deception. Brandon on the other hand gave a magnificent endorsement of municipal telephones. The vote in the city of Brandon is an impressive tribute to the popularity of the telephone policy of the Roblin government. It is also a crushing blow to the prestige of Mayor Fleming whose efforts in behalf of the Bell Telephone Company were in evidence from the beginning to the end of the fight.

The vote in Manitoba yesterday is first and foremost an expression of confidence in the telephone policy of the Roblin government. It is a rebuke, straight from the shoulder to the business and political influences, which have allied themselves with the Bell monopoly. Last but not least it is a tribute to the work of Mr. Francis Dagger, provincial telephone expert, who has so ably organized the campaign against telephone monopoly. Mr. Dagger has carried on an educative campaign which bore fruit in the returns of yesterday's polling. The results are not only a tribute to his organizing ability, but to the intelligence of the electorate which responded with such an impressive confirmation of the merits of public ownership of telephones.

#### THE TELEPHONE AS A MEASURING INSTRUMENT.

A good deal has been heard of late about the use of the telephone for measuring small electric currents, says the Electrical Review. In this connection it is always the telephone receiver that is implied, and its value depends upon its sensitiveness; a very small amount of energy is sufficient to produce an audible click in a sensitive instrument. For certain purposes the telephone receiver is a reliable and sensitive device. It may be used with good results for comparing electrical quantities, if the proper conditions be secured. When it is possible to arrange the measurement so as to use a null or zero method the telephone works very well. It serves here merely as a means of balancing two quantities. It will indicate by its silence a slight unbalancing one way or the other, serving to produce a sound in the receiver. For such uses it is necessary that the energy which actuates the receiver be pulsating; otherwise no sound will be produced. The earliest use of the instrument was to compare inductances and capacities, an alternating current being employed; and later it was used in an adaptation of the potentiometer, measuring electromotive forces. The circuit containing the receiver in this case was periodically opened.

But the telephone receiver is now being used to some extent in another way, the accuracy of which may be questioned. It is sought to measure by means of it small

amounts of electrical energy by comparing the intensity of the sound produced in the telephone receiver with that produced by energy supplied from a second source. The latter supply is varied and the connections alternately thrown from one circuit to the other until the experimenter decides that the sounds are equal. In this use very much depends upon the judgment of the experimenter. He must determine the relative intensities of two sounds. Anyone who has done any photometric work knows how difficult it is to decide when two surfaces are equally illuminated if the color of the lights be not identically the same. Although it is possible that the eye may be somewhat more erratic than the ear, it is not probable, and unless the two sounds produced in the telephone are exactly alike in all respects, both in intensity and quality, it will be just as difficult to decide when a balance is secured as it is in the photometer. And when using the telephone there is this additional difficulty as compared with the photometer: In the latter case two things are compared which are seen simultaneously, but in the former two sounds are compared which are heard alternately.

There is also another chance of error. The sound produced in the telephone undoubtedly depends not only upon the quantity of energy passed through, but the manner of its passage; upon the form of the electric impulse; and until this phase has been tested it is a little risky to accept quantitative results when obtained by means of the telephone receiver. Under proper conditions it might give satisfaction for qualitative results, but even here there is ample opportunity for error.

#### CEDARMEN'S CONVENTION.

The eleventh annual convention of the Northwestern Cedarmen's Association will be held at the Spalding Hotel, Duluth, Minnesota, on Tuesday, January 8, 1907. The meeting as usual will close with a banquet, which will be tendered the visiting delegates. The association has many members in the Duluth district, but up to this time no meeting has been held north of Minneapolis. The cedarmen in Duluth and surrounding points are making every effort to make this meeting the largest in the history of the organization.

The officers of the association are: M. H. Coolidge, president; P. W. Raber, vice-president; and W. B. Thomas, treasurer. These gentlemen, with A. T. Naugle and W. T. Watkins, comprise the directors. M. O. Nelson of Minneapolis is secretary.

#### FIRST NEBRASKA DISTRICT MEETING.

At the meeting called for December 10 at Kearney, of the First District of the Nebraska State Telephone Association, the following members and delegates were present: W. J. Stadelman and Warren Pratt of Kearney, Joseph Carlos of Hastings, W. J. Smith of Shelton, R. E. Mattison of Lincoln and E. C. Krewson of Elmcreek. Dr. J. N. Lyman of Hastings was elected president, Fred W. Ashton of Grand Island vice-president, E. C. Krewson secretary-treasurer. Much was said regarding the toll clearing feature of the state association by Mr. Mattison, as well as on the matter of a state directory, which was endorsed.

#### TELEPHONE SERVICE.

"Say, Central, what's the matter? This is the rottenest service imaginable. Give me the chief operator."

"Hello! Is this the chief? Well, I've been trying to get my wife for ten minutes and can't. I'll have my telephone taken out."

Thus speaking, the irate man went home on a car and told his telephone troubles to his wife.

"Don't talk so loudly, dear," she whispered, "I muffled the bell to keep it from waking the baby."

But the little telephone girl was still hurt and nervous.

**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done. TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

Copyrighted, 1908, by The Telephony Publishing Company. All rights reserved.

# Telephony

With which is incorporated The Telephone Magazine. Published on the Twenty-eighth of each month preceding date of issuance by

THE TELEPHONY PUBLISHING COMPANY  
301-336 Manhattan Bldg., Chicago, Ill.

H. B. McMeal . . . . . President and Editor  
Ed. J. Mock . . . . . Secretary and Treasurer  
W. H. Graffis . . . . . Advertising Manager  
H. A. Downey . . . . . Subscription Manager

VOL. XIII. TELEPHONY No. 1.  
VOL. XXIX. THE TELEPHONE MAGAZINE No. 1.

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each. In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

Entered at the Chicago Post Office as second class mail matter.

## EDITORIAL DEPARTMENT

*AN IMPORTANT SERIAL.*

IN THIS number TELEPHONY presents the first installment of "The Story of the States," which will describe the marvelous development of the Independent telephone movement in the various states of the Union. Illinois is treated in the initial article of the series, and it is the purpose to describe the Indiana situation in the February number. The cold facts about Independent telephony are calculated to astonish even those who are supposed to be well acquainted with its growth, but every time the story is told the wonderful strides made burst on the mind with added force, and compel one to admit that he hasn't fully comprehended the scope of the movement after all. As in all other states, the Independents of Illinois have had to defend themselves against a bitter, unrelenting warfare waged by the Bell trust, Chicago, the metropolis of the state, and containing a third of the entire population, has been the Bell stronghold and until recently the trust has had things all its own way in that city. Out on the free prairies, however, the Independents have multiplied and prospered, advancing steadily to the very borders of Chicago, until now they are storming the Bell's Illinois citadel and forcing the trust to fight on the ground it has considered exclusively its own for many years.

Not only the number of Independent telephone exchanges but their enterprising progressive spirit augurs well for the future of the movement to Illinois. Independent lines are extending in every direction throughout the state, and the Bell is realizing more keenly every day that it can no longer sleep on its arms. And Illinois is only one state in the federal sisterhood, the same spirit dominating and waxing constantly stronger the country over. That is why, wonderful as has been the history of Independent telephony, it faces still more marvelous progress. In years to come

therefore the present "Story of the States" may read like a primer, for, looking forward toward new successes, the far-sighted Independent telephone man realizes that the industry is really only on the threshold of its career.

*THE BELL BRANDED AS A TRUST.*

THE Bell monopoly is daily finding it harder to conceal the fact that when left undisturbed it displays all the hateful qualities and instincts of a trust. It is often unpleasant for the Bell concern to have these monopolistic earmarks exposed, but they are bound to be so long as it claims the exclusive right to the telephone business in a particular community. No doubt the Bell would much prefer to enjoy such a monopoly and yet escape being branded as a trust, but the old saying, "You can't have your cake and eat it too," is as true to-day as ever. The Bell can't pursue the policy of a trust and make people believe it is a benevolent institution. There is no case on record of anybody mistaking a Bell company for a charitable enterprise.

The latest authority to designate the Bell combine correctly is John G. Carlisle, former speaker of congress and former secretary of the treasury. He was arguing against the board of estimates of New York city granting the Bell company the exclusive right to the telephone business of Greater New York, and declared that if this demand were granted it would establish a monopoly in direct violation and defiance of the state law. Mr. Carlisle's contention made such an impression on the board that it held the Bell application in abeyance until the question can be adjudicated. This action encourages the Atlantic Telephone Company in its efforts to obtain an Independent franchise in the territory now monopolized by the Bell.

In this connection Mr. H. P. Nichols, the engineer of the

### TABLE OF CONTENTS

Story of the States—Illinois.....E. J. Mock	1-8	Manitoba Votes Against Monopoly.....E. M. Rochelle	31-33
Multiple Test Box.....C. H. Coar	8-9	Editorial Mention.....H. B. McMeal	34-37
Modern Toll Switchboard Equipment.....		Prolonging the Life of Telephone Poles.....	38-40
.....J. E. Hilbish, J. B. Thless and G. A. Joy	10-13	Decisions Affecting Telephony.....G. W. Hand	41-42
Questions and Answers.....J. C. Kelsey	14-15	Rural Telephones.....A. F. Wilson	42-44
Sags and Stress in Overhead Wires.....T. Fletcher	16-17	They Don't Answer.....J. P. Boylan	44-45
Independent Telephone Development.....J. B. Hoge	18-23	Manufacturers' Department.....W. H. Graffis	46-54
Elimination of Danger.....A. L. Stanton	23	Operating .....G. F. Staite	55-58
Manson's Practical Suggestions.....R. H. Manson	24-27	Progress of the Month.....H. A. Downey	59-69
Digest of Telephone Patents.....E. E. Clement	28-30	In the Rural Districts.....O. H. Brandenburg	70



New York bureau of franchises, has made a report of his investigation into the telephone proposition, which shows that there are many advantages in the dual systems. Competition, he points out, insures lower rates in every city where an independent company is given a chance to measure swords with the Bell. What is more, Engineer Nichols bears witness to the well-established fact that wherever the Independents operate, the public receives better telephone service, as competition puts the Bell on its mettle and compels the giving of improved facilities. The more the question is studied the more apparent becomes the fact that competition is the only restraining influence that keeps the Bell trust within bounds and at all amenable to public demands. As such it is a distinct boon to all communities that have felt the weight of the Bell yoke.

#### CONCERNING POLE MATERIAL.

AN interesting insight into the wonderful development of the telephone business is furnished by the year-book of the United States Department of Agriculture which devotes a chapter to the timber needed for poles, cross arms and insulator pins. Government statisticians estimate that there are fully 800,000 miles of telephone and telegraph pole lines in operation in this country, and figuring forty poles to the mile that there are 32,000,000 in use. The figures are overwhelming, but undoubtedly wholly within the bounds of fact. Reduced to cubic feet, on a basis of 20 to a pole, there is 640,000,000 feet of timber represented in the pole lines, and this, be it remembered, does not include the material for cross arms and pins. Naturally, the idea which occurs to the government's forestry expert is "How long will the supply of poles last and what can be done to postpone the day when the timber will be exhausted?" It is a subject of vital importance to builders of telephone lines, and is treated in detail on another page of this number of TELEPHONY.

Investigation by the government, which was aided by both producers and consumers of poles, shows that while there are yet large quantities of suitable timber in various sections of the United States the day is not far distant when the supply will run short. The cedar of Wisconsin and Michigan, it is estimated, will not last much longer than 10 or 15 years at the present rate of consumption. In the southern and western states there is yet considerable pole timber, but the cost of transportation to the north and east is an item of expense that must be reckoned. And yet it is only a question of time when these sections also will be denuded of the bulk of their forests, for the world of commerce and construction moves fast these days. It is reassuring to learn that the government is making practical tests for the preserving of poles, and that the results up to date encourage the belief that chemical treatment will make the present supply go further and prolong the life of the pole. The experiments, however, have not yet entirely satisfied the bureau of forestry just which method is best adapted to accomplishing most effectively the desired result. Figuring the average life of a pole at twelve years, the statisticians argue that 2,650,000 poles, containing 53,000,000 cubic feet, are needed every year to maintain the lines now in operation. As this does not include the new lines in process of construction and the many yet to be laid out in the extension of the rapidly growing business it is evident that the question of timber supply is one that well may lead the forestry experts to take thought for the future.

#### RESIDENCE TELEPHONES MULTIPLY.

THE convenience of having more than one telephone instrument in the home, business office or factory is becoming more generally recognized every day. Of course, the absolute necessity of maintaining telephone exchanges in large establishments is now admitted by all, and their

utility is demonstrated every working hour. The up-to-date business man would not think of getting along without a system which enables him to communicate with every branch of his concern. But now the advantage of having more than one telephone in one's residence is becoming more prominent than ever before, and the idea is sure to be adopted almost universally in the future.

In the city of Wichita, Kan., there are more than two hundred subscribers who have two telephones. Mayor Ross early saw the advantages of having more than one instrument in the home, and his example has led many others to try the experiment. The result satisfied all who adopted the plan. Nearly every subscriber for a residence telephone has experienced the inconvenience of having to walk to another floor of his home in order to answer a telephone call. Of course, the benefit of having a telephone in the house far outweighs the exertion, for one telephone is infinitely better than none at all, but with an instrument on every floor much stair-climbing and often valuable time might be saved.

In one of the smaller cities of Indiana a resident has no less than fourteen telephones in his home. No matter where he may be in the house he has but to step across a room or hall-way to reach a telephone and promptly respond to a call. He is enthusiastic in praising the convenience of having an instrument at his elbow wherever he may be, so long as he stays under his own roof-tree.

The tendency of the times is in favor of the argument, "You can't have too much of a good thing." Of course, this isn't literally true of everything, but it comes pretty near being true of the telephone. The palatial homes of the rich are not considered complete unless equipped with telephones in the halls, the library, the drawing-room and the servants' quarters. By a system of signals the party called is notified that he or she is wanted at the telephone and, by stepping to the nearest instrument, is able to speak to the person calling at once and without a long walk. Even the owners of more modest homes have discovered the advantage of two telephones in the house and warmly commend the improvement.

Usually the extra cost is small for an additional instrument. The certain effect of this growing custom will be to make business for telephone manufacturers and operators, but the greatest benefits will be derived by the telephone users.

#### POOR SERVICE IN CHICAGO.

SINCE the agitation for an independent franchise in Chicago began the telephone users of that city have been crowding to the front with bitter complaints of the wretched service furnished by the Bell company now in the field. It seems as though while there was no prospect of escape from the Bell monopoly the people were inclined to submit in silence to a service not only indifferent but shamefully slow and inadequate, but at the prospect of competition that they awoke and demanded the improvement which had long been their just due. Business men and users of residence telephones alike are pouring out their grievances against the Bell company, and the latter's officials are being kept busy explaining and promising better things in the future.

The miserable service in Chicago, it is needless to state, is due directly to the monopoly which the Bell concern has had in that city for years. So long as there was no competitor in sight the company metaphorically snapped its fingers in the faces of the complaining patrons and asked: "What are you going to do about it?" The Bell felt secure and carried out its policy of giving as little as possible for the money. And all the telephone user could do was to grit his teeth, slam the receiver back on the hook and swear loud and deep.

Chicago business men endured the miserable service until human patience was exhausted, and it was largely through

their protesting activity that the movement for an Independent franchise was started. They were charged exorbitant rates to begin with and found the service had steadily deteriorated. The Manufacturers' association went into the courts to fight for the reduced rate established by law and found the Bell there to contest every inch of the way. When the legal battle was won there was another fight to collect rebates, and so all along they found it necessary to compel the Bell by sheer force to yield every concession no matter how small. Everything had to be wrung from the octopus. It conceded nothing.

It has not been claimed that the equipment of the Chicago company is at fault. Switchboards, wires and apparatus have not been criticized, but the service and the attitude of the management towards the public have nagged the people until their dander is up. We usually are willing to make allowances for faults if they are acknowledged and a spirit to remedy conditions is shown. What makes the average American enraged is to be ignored or insulted and told to go to Jericho when he has a well-founded complaint to make. This is precisely why the Bell company has aroused the wrath of the Chicago telephone public.

The chief complaint made by Chicago business men is that the "busy" signal is resorted to much too often. Patrons have called up other concerns and been put off with the signal when investigations showed the line was idle. Blame for this is laid upon the operators, but Chicagoans go still further back and assert that the operators would not disregard the patron's rights unless there was a similar spirit among the officers of the company. That is to say, that the operators merely reflected the attitude of the Bell management toward the telephone public.

The situation has finally forced the Chicago Tribune to come out in a strong editorial condemning the overworking of the "busy" signal and warning all persons desiring to talk to the Tribune office not to be deceived by this excuse. The Tribune, like most Chicago concerns, is tired of the Bell service and has invited all business firms to send in their complaints against the telephone company so they may be investigated in connection with the negotiations now pending before the city council, which has been asked to grant a franchise to the Manufacturers' association. Having thirty separate lines the Tribune refuses to believe that the "busy" signal is often necessary, and charges that the Bell company simply refuses to attend to business and furnish the service for which it is paid.

Officials of the Chicago Bell have tried to explain the faults of the service by blaming them on the telephone users, but the public refuses to accept such excuses. The chances are that the agitation now on will compel the Chicago company to treat its patrons more considerately and furnish them with a better service.

#### HEROISM OF TELEPHONE GIRLS.

THE value of the telephone as an aid on occasions of emergency is demonstrated time and again in every day life, and frequently the proof of its efficiency is accompanied by a story of the bravery and unflinching fidelity to duty of the telephone operator. This is not to be wondered at, for if the telephone is to be an "ever present help in time of trouble" it is imperative that the operator must be at her post ready to perform her work speedily and well. And the ranks of the telephone girls contain genuine heroines as self-sacrificing and devoted to duty as any that ever won a Carnegie medal for an act of signal bravery. No book is large enough to record the instances of aid and relief supplied through the agency of the telephone, but some day a volume should be written in commemoration of the deeds of daring done by the "Hello" girls in the performance of their daily task.

In the little city of Hagerstown, Indiana, there is such a

heroine, whose prosaic name—Hattie Cheesman—deserves a place on the roll of honor. Miss Cheesman is the night operator—if she has not since been promoted, as she deserves—of the local exchange which is situated over the bank. In the middle of the night, while the whole town was asleep, a gang of desperate robbers broke into the building in an attempt to loot the bank vaults. The operator kept her nerve and pluckily sat at her switchboard calling up every citizen who had a telephone to give warning of the raid, even while the gang was at work under her very feet. The robbers exploded seven charges of nitroglycerin in their efforts to blow open the vaults, but, although the building rocked and trembled and threatened to collapse, the brave girl stood at her post arousing the town until the sound of shots outside advised her that the citizens had acted on her timely warning. She didn't faint then, either, as might have been supposed—and pardoned for doing—but performed another wise act in calling up the neighboring towns and telling the officers of the law to watch for the robbers. Although the thieves escaped from Hagerstown with \$6,000 they were apprehended in an adjoining township, thanks to the bravery and good judgment displayed by the night operator. Down in LaPlata, Georgia, a Miss Annie Mairens, another night operator, saved the town from destruction by fire by sticking to her post and arousing the citizens, although the building she was in was aflame at the time. The girl "stood on the burning deck"—and this literally—until the firemen had been routed out of bed and summoned to the rescue. In both these cases a consideration for one's safety alone would have led the operator to desert her post of duty and run no personal peril. But a sense of duty held her at the switchboard and impelled her to leave nothing undone to guard the interests of the community.

Extraordinary coolness and intelligence are displayed by telephone operators every day and it is only when some notable example is brought to notice that they are given the credit due them. Almost invariably they are found equal to any occasion. The ability of the police and fire departments and of the physician to render aid at times of stress and danger is multiplied tenfold by the faithful work of the telephone operator. Her efficiency enables them to do their work of mercy and protection, and too often the part played by the telephone and the "Hello" girl is overlooked. Not always are the operator's exploits so spectacular as those cited, but in times of emergency her duty is invariably performed unselfishly and capably. Take off your hats to the Grace Darlings of the switchboard.

#### CONVERTED BY TELEPHONE.

EVANGELISTS who are conducting revivals in Illinois have reached the conclusion that the telephone is destined to become a soul-saver as well as a time-saver. At the little town of Neponset revival services were held last month, and Evangelists Hicks and Galloway were confronted with the problem of reaching the farmers who lived too far from the village to attending the evening meetings. The editor of the local paper and the manager of the Empire Telephone Company put their heads together, and solved the difficulty. The religious meetings were held in the town hall, and immediately in front of the platform was placed a gigantic megaphone into which the exhorters spoke. Attached to the small end of the megaphone was a telephone wire leading to the exchange switchboard that served twenty six-party lines extending for miles into the country in every direction.

When the revival services began the subscribers to the rural lines went to their telephones and were able to hear the sermon and music nearly as well as though they had been sitting in the hall. While the meeting was in progress all other telephone service was suspended and the farmers

voted the plan a success. They were able to enjoy the revival without leaving their homes, and it is asserted that nine persons were converted to religion who were miles away from the "mourner's bench," but hearkened to the call of conscience awakened by the telephone service.

Instances of the telephone being utilized in churches in the large cities are of frequent occurrence, but so far as known this is the first case of the kind in the rural districts. It shows that the rural line subscriber is not a whit behind the city dweller in utilizing the advantages of the telephone.

#### GOOD TELEPHONE RULES.

A WRITER who has evidently suffered much from those who abuse the telephone, submits the following rules for the guidance of the telephone user:

1. Don't call a man to the telephone for social chat during business hours.
2. Don't waste the time of other people by talking longer than necessary.
3. Don't visit with the operator and keep others waiting. Give your number only. Anything more is an imposition on the other subscribers.
4. Don't use the office telephone for personal conversation.
5. Don't use the telephone at all unless you have something to say.
6. Don't relate gossip over the wire.

The observation of these few simple rules would greatly facilitate the work of the central and render the telephone more valuable.

#### TELEPHONE MANNERS.

THE telephone is no longer a new or a novel institution, and crudeness, even rudeness of manners, is no longer tolerated on the grounds of unusualness of situations, says the Memphis Commercial Appeal. The "Who is that?" of the man or woman at the other end of the line who has just called you from your occupation, not at your convenience, but at his or hers, is just too exasperating for words.

What right is there in the fellow at a distance first to call you with a harsh and jingling bell and then to greet your "hello" with a suspicious query? Why should you leave your chair, drop your work and hasten to the impatient rattle of a bell, and then patiently subject yourself to a catechism from some unknown party?

If respect for oneself does not demand resentment at the query from the unknown, common prudence ought to teach the advisability of declining to answer questions over the telephone until the party calling shall have announced his personality. Whoever heard of a visitor butting into a man's office and greeting him with the query, "Who the deuce are you, anyhow?"

The right to question is plainly in the man called upon; the duty of explanation clearly with the caller. But there are many brusque, not to say impertinent persons, who think that the tables are turned when using a telephone. They seem to think that because the exchange has connected them with your telephone you and your servants and all that are of your house are their victims, but that to them is permitted a degree of caution as to identity and freedom as to speech which would not be tolerated for a moment in personal converse.

"Ting-a-ling-ling-ling"—"Well, hello?"—"Hello, who is that?" Now, don't you feel like saying, in the most dignified manner imaginable: "Look here, sir; I didn't call you. You have caused the exchange to ring my number. Presumably you have something to say to some member of my household. Will you be considerate enough to designate who it is you wish to converse with and courteous

enough to declare your identity, that I may judge as to the advisability of permitting further communication?"

But you don't use language of this sort. In the embarrassment of being asked who you are in your own quarters you either grow confused and answer the insolent question, or else you lose your temper and try to contribute to the embarrassment of the wretch at the other end of the line.

These inconsiderable interrogators have a way, too, of ringing up a residence in the night time, and without discovering their own identity, breezily inquire if the man of the family is there. For obvious reasons these queries should not be answered until the caller has disclosed himself fully.

No doubt there is the prerogative of immediate response attached to the telephone call just as there is the courtesy of immediate attention to a caller to your office, but in both instances the right of inquiry remains with the party called upon. The caller may, with perfect propriety, after your questioning hello or your look of inquiry, ask if this is Mr. So-and-So, but should he throw a brutal and suspicious "who the deuce are you?" at you he deserves to be kicked out; so the "Who is that?" from the caller at the other end to the party called ought to be rung off promptly and repeatedly enough to inculcate better manners in his use of the telephone.

#### THE TELEPHONE GIRL.

THE following tribute to the telephone girl is so true that we give it editorial prominence and request our readers to peruse it carefully. It is from an eastern daily paper:

A New York man was "if-you-please and yes-sired" so politely by a telephone operator that he called up the manager and said a good word for the girl. It was so very unusual, he said.

"Unusual?" responded the manager. "Certainly the operator's politeness is not more unusual than your own. I have been in this business a good many years, and you are the first man who ever took the trouble to say a good word to me for an operator. But complaints? Why, there seem to be a million women in this city who have nothing else to do."

It is no temper-soothing job—that which the telephone operator holds.

She is held responsible not only for her own mistakes, but for the thousands of mistakes made by other people.

You carelessly call for 1985 when what you really want is 1895, and because you get the wrong party you petulantly blame the "fool operator," and upon your severely informing her that she gave you 1985 when you asked for 1895, and that if she ever does it again you will make complaint against her, you feel slighted because she does not say "thank you."

You roughly jar your telephone and your nerves if she does not answer instantly; you think she is teasing you when she tells you the line you want is busy; and perhaps you more than half suspect she is listening to all you say over the line.

She is a sadly misjudged girl. Her work is difficult and her errors are marvelously few. She has no time for unnecessary words, though she is as polite as the public will permit her to be.

She knows that you never think of her service except when it goes wrong., and never speak of her except to "knock."

Yet she patiently does the best she can for you, and that is often better than you deserve.

Don't imagine you are distinguishing yourself by complaining against her. Thousands have been ahead of you. But say a word in her favor at the right place and you stand alone with an approving conscience.



# PROLONGING THE LIFE OF TELEPHONE POLES

*From the 1905 Year Book of the Department of Agriculture.*

THE extraordinary increase in the use of the telephone and telegraph during the last few years, combined with the fast-diminishing supply of timber used in pole-line construction, has led the telephone and telegraph companies to take great interest in experiments to find the best and most practical method for increasing the length of service poles and cross-arms. Bulletin No. 17, "Telephones and Telegraphs, 1902," recently issued by the Bureau of the Census, Department of Commerce and Labor, shows that in 1902 there were approximately 422,000 miles of telephone and 238,000 miles of telegraph pole lines in operation in the United States (not including telegraph lines owned and operated by railroads). A report lately published by the Bell telephone system shows that since 1902 its subscribers' stations have increased from about 1,000,000 to 1,800,000, and all indications point to an equal if not a more rapid increase in the near future. Reports of other companies also show large growth for the last three or four years. It is, therefore, probably safe to assume that there are at the present time fully 800,000 miles of pole line in operation in the United States.

Of the timbers used for poles, chestnut and northern, southern and Idaho cedar easily rank first. Longleaf and shortleaf pine, red cedar, cypress, redwood, locust, catalpa, and several of the oaks are used, but in much smaller numbers, and their employment is generally confined to the region of their growth. Still other timbers are used, but in numbers insignificant in comparison with those mentioned above.

For cross-arms longleaf, shortleaf and loblolly pines of the south and Norway pine of the north are most largely used, while the demand for cedar, cypress, spruce, and red fir is but little less. Again, as in the case of pole timbers, a third group may be formed of those timbers used in small numbers and very locally.

Black locust is admitted to be the best of all woods used for insulator pins, but of late years, because of overcutting and damage by insects, the supply of black locust has been greatly depleted, and other woods are being brought into use. Among those which will probably prove satisfactory as substitutes for the black locust are Osage orange, various oaks, yellow birch, gum, hard maple, elm, etc.

Assuming that the 800,000 miles of pole lines are constructed on a basis of 40 poles per mile, and that each pole contains an average of 20 cubic feet, it will be seen that there are now in use 32,000,000 poles, representing 640,000,000 cubic feet of timber. If the average length of life of these poles is twelve years, there are annually needed, for the maintenance of the present lines alone, over 2,650,000 poles, containing approximately 53,000,000 cubic feet of timber; and if it requires sixty years to grow a pole, to maintain the supply there should be five poles growing for every one in use, or 160,000,000 poles for renewal merely, besides what the extension of business will call for.

Two years ago the Bureau of Forestry sent out a large number of letters requesting both producers and consumers of poles, cross-arms and insulator pins, to answer certain questions relative to the kind and supply of timbers used in various parts of the country. Replies to these questions represented a very fair expression of opinion from all the large timber-producing sections of the United States; while there was some variation in the answers to questions regard-

ing the probable length of time the present supply would last, the consensus of opinion was that the supply of the timbers most in demand was being rapidly exhausted.

Michigan and Wisconsin lumbermen agreed that from ten to fifteen years would see all the available pole-size cedar cut out. They looked to Canada and the northwestern states to supply poles after that time. Pole producers throughout the southern states were of the opinion that the cedar would soon be cut out and that cypress and pine would take its place. It may be noted here that at the present time considerable quantities of creosoted pine are used in the gulf states, where owing to climatic conditions, not only that part near the ground line, but the whole length of untreated poles decays with great rapidity.

Throughout the chestnut regions the outlook was no better, though there are still some bodies of chestnut in the more inaccessible parts of the southern Appalachians.

There is a large supply of pole timber in the western states, but the heavy freight rate on shipments of poles to the east, where by far the greatest mileage is built and maintained, has precluded the possibility of making much use of this supply.

At present there is no great cause for alarm over the cross-arm situation, for there are still considerable available supplies of the timbers used in their construction. The price is advancing, however, and it is very probable that this fact will lead to increased energy on the part of the consumers to find better methods for preserving the arms against decay.

In the case of insulator pins, however, the outlook is not so encouraging. The supply of black locust—the wood almost exclusively used in their manufacture—is practically exhausted, and up to the present time no general effort has been made to find a suitable substitute. The result of this lack of foresight is that experiments which must extend over a number of years have only now been begun, to determine which, among the several woods that suggest themselves, possess the requisite qualities.

Such, then, is the situation confronting pole-line companies—a rapidly increasing business, demanding timber for poles, cross-arms, and insulator pins, and a far more rapidly decreasing supply of the timbers now in use.

Here, as in the very similar problem of railroad-tie supply, the use of measures to lessen the effects of decay promises substantial relief. This relief is likely to be felt in two ways. Preservative treatment will doubtless add new species to those now in use, and will thus augment the supply. It will also make the present supply go farther, by lengthening the term of service. Experiments to determine the comparative merits of different treatments to lengthen the life of poles have been undertaken by the Forest Service, and the general plan of these experiments will be described in the present article. Although sufficient time has not yet passed to disclose the conclusions which the experiments will yield, it will be seen that when completed they should furnish a conclusive test of the commercial practicability of specific methods of treatment.

That a treatment shall be cheap and that it shall at the same time materially prolong the life of poles is essential to its commercial adoption. The Forest Service experiments were, therefore, confined to those methods which were cheap and which promised in some measure to prove satisfactory.

The method of treatment commonly employed with other timbers involves treatment of the whole pole in an air-tight cylinder permitting the application of pressure, and is therefore expensive. For this reason it was not considered. For the larger part of the country the portion of the pole above the ground does not readily decay, so that treatment of the entire pole is not necessary. In those sections of the country where the climatic conditions make it desirable, the treatment of the entire pole has given excellent satisfaction.

The investigations were confined to the consideration of various methods for protecting that part of the pole most subject to decay, i. e., the part immediately above and immediately below the ground line. Of these methods, the two referred to later as the first and the third methods of treatment were the only ones used to any extent. Either of these methods is likely to pay well. The cost of a green pole at the setting hole may be put at \$5, and of a treated pole (calculated on the basis of fair prices for labor and a good preservative) at \$5.40 and \$5.65, respectively, for brush-treated and tank-treated poles. The average length of life of a green pole is about twelve years, and an increase in length of service due to treatment of four years in the case of poles treated by the first or brush method, and eight years in the case of poles treated by the third or tank method, is probably a very conservative assumption. Calculating the annual charge on an expenditure occurring now and recurring regularly, we find that with interest at 4 per cent the annual charge for a green pole is \$0.5328, for a pole treated by the first method \$0.4634, and for a pole treated by the third method \$0.4157. A comparison of these annual charges shows that by using a pole treated by the first method instead of a green pole an annual saving of about 7 cents is effected, while of a pole treated by the third method is used the annual saving will be about 12 cents. The difference between the annual charges for poles treated by the first and by the third method is 4 cents.

These small savings may seem insignificant in themselves, but if we apply them to the 32,000,000 poles in use we have the following figures as the annual saving by using treated poles instead of green poles:

By the first method.....	\$2,240,000
By the third method.....	3,840,000

These savings represent the value at the setting hole of 415,000 poles if treated by the first method and 678,000 poles if treated by the third method.

The first or brush treatment can be applied at any place and to practically any number of poles without affecting the cost of treatment in any appreciable amount, for the apparatus needed for this treatment is simple and is easily hauled from one point to another. The third or tank method could be most economically applied at concentrating yards, where a large number of poles are kept on hand. In such yards permanent tanks could be constructed and various labor-saving devices for handling poles, not practicable where the apparatus had to be moved from one point to another, could be installed. For treating small numbers of poles at separate points, portable tanks could be constructed at comparatively small cost. The size and elaborateness of the tanks and other apparatus will depend upon the number of poles to be treated and the permanence of the treating yard, and the larger the number of poles to be treated the smaller will be the cost per pole.

Seasoning.—In August, 1902, the Forest Service entered into co-operation with the American Telephone and Telegraph Company, and later on—in 1904—with the Postal Telegraph-Cable Company. The main purpose of this co-operation was to determine which of several methods of applying preservative treatment is most practical. A careful preliminary study was made of such points as the effect upon the length of service of seasonal cutting and of soaking in water, and the time required for seasoning the tim-

ber to an air-dry condition. Several stations were established in New Jersey, Pennsylvania, Michigan and North Carolina, at each of which fifty poles were cut at monthly intervals for one year. Poles were weighed as soon as cut, and then placed on skids about two feet above the ground to season. These poles were weighed again at monthly intervals until they ceased to lose weight, indicating that they had reached an air-dry condition.

The results of these preliminary or seasoning experiments have established many important facts regarding the seasoning of timber, and have suggested new lines of work which, it is hoped, will result in largely increasing our knowledge of the subject. It was shown, for example, that though poles cut in the spring and summer lose weight more rapidly during the first three or four months than those cut in the winter, the latter dry more regularly and at the end of six months are better seasoned. Soaking in water for from two to four weeks was found to hasten materially the rate of subsequent seasoning. The degree of shrinkage which takes place during air seasoning was also investigated. It was shown that contrary to a somewhat common opinion among users of poles, the considerable shrinkage which is known to take place when wood is thoroughly dried by the application of artificial heat does not appear in the case of telephone poles dried out of doors, the decrease in the circumference amounting to little more than one-half of one per cent.

Treatment of Poles.—When poles at the several stations have reached an air-dry condition, they were ready to receive treatment. Several different kinds of preservatives were applied by one or more of three distinct methods.

The first method consisted of applying from one to three coats of preservative to the outside of that part of the pole between two feet and eight feet from the butt. The time between applications varied from a few hours to two days, according to the directions given by the manufacturers of the preservatives. Careful notes were made of the condition of the poles as regards seasoning, checks, knot holes, etc. The temperature and weight of the preservative were recorded before and after each treatment, and the amount of preservative absorbed by each pole was accurately determined. In addition, holes were bored into the poles in different parts of the treated portion, and a close examination was made to determine the depth to which the preservative had penetrated.

The second method of treatment consisted of forcing the preservatives into the butt of the pole by means of a steel cap fitted to the butt and connected by a pipe with a hand-pump, while another pipe led from the pump to a large pot in which the preservative was heated. But little difficulty was experienced in forcing the preservative for several feet into the solid portions of the pole, but owing to the presence of seasoning checks the penetration was not uniform, and when high pressure was applied the preservative spurted from these checks with considerable force. Numerous preliminary trials with this apparatus having proved the practical impossibility of obtaining a uniform penetration, none of the poles treated by this method was afterwards set in the experimental lines.

The third method consisted of soaking the butts of the poles in tanks so constructed that the poles lay at an angle of about 20 degrees. The butts of the poles were immersed for a distance of about eight feet in a tank containing cold preservative, which was gradually heated by a fire underneath the tank until a temperature of from 240 degrees to 270 degrees F. was reached. This temperature was maintained for about five hours, when the fires were drawn. The poles were left in the tank for several hours after the preservative had become cold, so that the entire treatment consumed about 24 hours. By this method a penetration of about one-half an inch was obtained.

The first treatments were begun at Wilmington, N. C.,

in April, 1905, where white cedar poles that had been seasoning for about two years were treated with seven different preservatives. The second series of treatments was made at Hominy, N. C., where seasoned chestnut poles were used. The third series of treatments was made at Mount Arlington, N. J., where chestnut poles that had seasoned for three years were used. The tank method of treatment was tried for the first time at this station. The fourth and last series of treatments was made at Thorndale and Paoli, Pa., where seasoned chestnut poles were used. The treatments at this station were practically the same as those at Mount Arlington.

**Setting the Experimental Poles.**—To test the effects of the different preservatives 300 seasoned 30-foot cedar poles from Wilmington and an equal number of chestnut poles from Hominy, N. C., some of them treated and some untreated, were shipped to Savannah and nearby stations in Georgia, to be set in the standard Savannah, Abbeville and Eastman toll line of the Southern Bell Telephone and Telegraph Company, together with green poles cut in the immediate vicinity of the line. This section of the country was selected primarily because of the rapidity with which timber there decays, thus insuring the obtaining of results in the shortest possible time. Several years, however, must necessarily elapse before definite conclusions can be drawn from the experiment.

The poles were set in 24 series, 34 poles in each, and were so arranged that in every case a treated pole stands

between a green and a seasoned pole. In this manner soil conditions were obtained as nearly identical as is possible in pole-line building, and the data secured will afford an excellent basis for comparison when determining the relative merits of the various preservatives and of the seasoned poles on the basis of the life of a green pole. Exact descriptions of the character, composition and depth of the soil and subsoil, and general notes of the immediate locality and of the equipment of the line, were made for each pole.

A second experimental test was undertaken near Warren, Pa., by setting 600 chestnut poles from Thorndale and Paoli, Pa., and 368 chestnut poles from Mount Arlington, N. J., in the Warren and Buffalo line of the American Telephone and Telegraph Company. The plan followed was similar to that used on the Savannah, Abbeville and Eastman line. The Warren and Buffalo line runs through a varied country, and all types of locality, from high, rocky ridges to low, murky swamps are represented in the sixty miles throughout which the experimental line extends.

Several experiments have at various times been undertaken by telephone and telegraph companies with a view to solving the problem of treating poles in a cheap but thorough manner. From one cause or another, however, they have either failed entirely or the records are so incomplete as to render them practically valueless. The experiments now being carried on are of importance, therefore, in that they will add very considerable and definite knowledge to our none too extensive understanding of the seasoning and preserving of timber.

## DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

RIGHT OF COMPETING COMPANY TO QUESTION AUTHORITY OF ANOTHER TO USE STREETS AND HIGHWAYS.

**A**N INSTRUCTIVE case directly in point on the above question has been decided by the court of appeals of Kentucky, and owing to its interest to the Independent telephone companies of the country a considerable portion of the opinion will be set forth verbatim. The facts were that the Merchants' Police & District Telegraph Company, the owner of a franchise to operate a telephone plant in the city of Covington, had begun suit to enjoin the Citizens' Telephone Company from operating a telephone plant in that city. The contention on which the former company asked for this order was that the latter had no authority to do business as provided by section 164 of the constitution of the state. This section provides: "Before granting such franchise or privilege for a term of years, such municipality shall first after due advertisement receive bids therefor publicly," etc. It was conceded that the former company had complied with all the requirements of law to authorize it to do business in the city; it was also shown that the latter company had no right other than a permissive right received by the city council for an indefinite length of time. It did not claim its right to operate by reason of the purchase of a franchise as provided by the aforesaid constitutional provision. The latter company defendant on the ground that the Merchants' company could not maintain the action since its rights were not exclusive under the law and that it did not show any special injury by the acts of the defendant.

The court discussed the questions presented as follows: First, "Did the Citizens' company obtain a legal franchise to operate a telephone line in the city by the ordinance making an indefinite grant to it for that purpose? . . . Second, If not has the Merchants' company the right to

maintain this action to prevent it from exercising this illegal right?" . . . The court then quoted the section of the constitution above set forth, saying: "this section became operative upon the adoption of the constitution. It did not require an ordinance of the general council to make it binding and obligatory. Therefore any effort or act of the council in granting a franchise or privilege contract to this section of the constitution is absolutely void, and conferred no right whatever upon the party securing the grant. . . . We will now consider the grant under which the Citizens' company is operating. It is conceded that the ordinance making the grant was enacted in 1895, more than ten years since. Its right to operate under the franchise was without right or limit, except as the city council gave the authority. This is a clear attempt to avoid the privileges of the constitution. . . . In our opinion the latter company is operating its telephone without authority. The second question is more difficult. The defendant company conceded, that if the other owned or had purchased the exclusive right to operate a telephone line in the city, and the former grant is void, then the Merchants' company could maintain this action to prevent its interference with this exclusive right; but as the Merchants' company does not own the exclusive privilege, it has no right to prosecute this action." The court refused to pass upon the question suggested by the contention as presented by the defendant company, but held as follows: "it is conceded that the plaintiff is a citizen and taxpayer of Covington, and in our opinion as such it should have the right to prevent the further continuance of the wrong perpetuated by the council of that city, in granting illegally the franchise to defendant, by stopping it from the further exercise of its pretended rights under it. The plaintiff is interested as other citizens in saving the city from loss . . . of a valuable franchise . . ." It will be



noted that both points were decided against the Citizens Telephone Company.

*Merchants' Police and District Telegraph Company v. Citizens' Telephone Company, 93 S. W. 642.*

INJURY FROM GUY WIRE BEING PLACED TOO NEAR ALLEY.

In another Kentucky case the facts disclosed that the Louisville Home Telephone Company had a guy wire strung in a certain alley only a short distance inside the side line of the alley, but near enough to obstruct a passing vehicle on that side of the passageway. Plaintiff, John D. Gasper, was walking in the alley and when adjacent to the guy wire in question on the opposite side of the alley was severely injured by being crushed under a heavy wagon which was overturned on him by being caught on the wire. There was negligence alleged against the company in maintaining the wire so near the roadway in the alley and also negligence against the driver of the vehicle. The court of appeals said that if the company was in fact negligent that the intervening act of the driver of the vehicle would not excuse it from liability. A judgment obtained in the lower court for \$2,000 was accordingly affirmed.

*Louisville Home Telephone Company v. Gasper, 93 S. W. 1057.*

AUTHORITY OF ONE OWNING TELEPHONE LINE TO CONNECT WITH ANOTHER IN WHICH HE HAS MERELY AN INTEREST WITHOUT LATTER'S CONSENT.

A case setting forth the law on the question above presented has recently been decided by the Missouri courts. The facts were that the Western Union Telegraph Company owned or had the controlling interest in a certain telephone line from the town of Omaha to Unionville. C. J. Ulrich owned a certain line connecting the town of Omaha with the town of Chapel and claimed that he had been a contributor to and had an interest in the line from Omaha to Unionville. He insisted that he had authority to connect his line with the Unionville line, thus giving the people at Chapel connection with the county seat at Unionville. Mr. Ulrich at various times connected his line with the Unionville line and as often the connection was severed by the company. Finally the latter asked for an injunction to restrain Ulrich from further persisting in the acts here referred to. The Kansas City court of appeals in deciding the case said: "Admitting that the defendant had an interest in the Unionville line, he had no right to attach the Chapel line to the same, as it was under the control of the plaintiff. Therefore, it is plain that when he made such connection and the same was removed by the plaintiff, that he was persisting in his unlawful act—in other words, continuing it. The defendant sought by the strength of his own hands to enforce his supposed or actual right to free communication over plaintiff's line. This, the law does not permit. He was required to enforce whatever right he had in a peaceable manner." An order was entered restraining the defendant from further continuing the course pursued by him.

*Western Union Telegraph Company v. Ulrich, 97 S. W. 192.*

PRESENCE OF POLES AND WIRES ON LAND NOTICE TO BUYER THAT OWNER OF THEM HAS RIGHT TO USE THE PROPERTY.

One Denton purchased certain real estate in the county of Henderson, Kentucky, at a "decretal" sale. At the time the Cumberland Telephone & Telegraph Company had erected thereon a line of telephone poles and wires. Denton alleged in asking for an order to compel the company to remove the poles and wires that when he purchased the property there was no record in the office of the register of deeds of any right of the company to place the poles on the land in question. The company demurred to the petition, contend-

ing that the fact that the poles and wires were in fact on the land when Denton bought it was notice to the latter that the company had some right of occupancy; that the presumption of occupancy is that the occupant does so under legal right. Denton did not allege that the company was wrongfully in possession or that it entered on the land without right. The court said that to invest the owner of the poles with the right of use of the land, it was not necessary that the instrument conveying this authority should be re-recorded and accordingly sustained the ruling of the lower court dismissing the petition for the order above referred to. It was also remarked that if the company was wrongfully in possession this matter could be decided in another and proper proceeding.

*Denton v. Cumberland Telephone & Telegraph Company, 96 S. W. 1112.*

TELEPHONE CONVERSATIONS AS EVIDENCE—HEARSAY RULE APPLIES.

In an assumpsit action in the Michigan courts a circuit judge had permitted the following testimony to be given: Plaintiff had testified that a certain station agent had told him that defendant had said certain things over the telephone relative to the alleged contract; that he requested the station agent to call up defendant and ask him if plaintiff should haul the goods for him, "So he called him up and then came to where I was unloading and said Ferwerda (defendant) wanted me to take the load up there, so I did." The supreme court of the state has said that this testimony was not admissible and was merely hearsay; that the testimony of the station agent relative to the alleged conversation would have been proper had he instead of plaintiff been called to relate the statements. The courts of this state recognize the admissibility of telephone conversations in evidence but restrict their admission to the established rules of evidence. It is plain that plaintiff's statements above referred to were clearly within the hearsay rule and it is not easy to discern how the ruling of the lower court could have been made in view of this fact.

*Duwall v. Ferwerda, 13 D. L. N. (Mich.) 659.*

TAXATION—TELEPHONE EASEMENTS IN TUNNELS HELD TO BE ASSESSABLE AS REAL ESTATE.

The revised statutes of Illinois (1903) declare that in tangible property of corporations similar to telegraph and telephone companies shall be assessed by the state board of equalization, and that tangible property including real and personal property of such corporations shall be assessed by the board of local assessors. The statute defines personal property for the purpose of taxation as not only the land itself with things contained therein, but also all permanent fixtures of whatsoever kind and all rights and privileges belonging or in any way pertaining thereto, except as otherwise defined in the act. In a case decided during this year it has been held that the rights of certain telephone, telegraph and tunnel companies to use tunnels constructed by them in the streets of Chicago as conduits by virtue of the act of the city authorizing the maintenance of them for thirty years, were assessable for taxation against such companies as real estate and not as intangible property.

*People v. Upham, 77 N. E. 931.*

The Commercial Telephone Company of Warsaw, Indiana, has purchased the Missionary block, in which it occupies four up-stairs rooms with its offices and exchange. The building is two stories. The company is adding 200 lines to its multiple switchboard and 500 multiple jacks in sections already in service. Also an addition to its main rack to accommodate 600 cable pair. It is adding 200 lines to its present board and having multiple cables put in and fanned out for the full capacity of the board, which is 1,200 lines.

# THE RELATION OF RURAL TELEPHONES TO TOWNS AND CITIES

*Abstract of a Paper Read before the Union of Canadian Municipalities at Halifax.*

By A. F. Wilson

THE policy of the Bell companies, under whatever name known, apparently has been, and from the very nature of a centralized corporate organization must continue to be, to endeavor to control a sphere of action beyond the operation of a single management. It will always be to develop the most profitable business, namely, long-distance traffic, and the large centers which yield high rentals and are susceptible to centralized management and operation. The origin and policy of the Independent—that is, the non-Bell—telephone systems are exactly the reverse of the Bell system. It is a people's movement, in the truest sense, causing and propelling a social revolution in farm life and business and in home life in urban residences. The Bell policy is the quintessence of commercialism; solely with a view to dividends; its one aim, the greatest profit on the smallest possible cash investment; its tactics, bluff and the non-publicity of its list of stockholders. It will give only so much of the less profitable service as is forced on it to meet or prevent competition and, while professing to meet every demand, asks, when it dares, prohibitive rates in rural parts—once as high as \$90 a year. The policy of the Independent telephone movement, on the contrary, is that which best serves the subscribers. The subscribers are largely local stockholders, content with a reasonable return on their individually trifling investment in addition to satisfactory local telephone service. As to the organization, it varies in legal form to meet the local requirement, but has no large and popular telephone subscription and usage, both the cause and result of low rates. Local management and proprietorship meet at first hand local requirements, responding freely to every demand. The above are the primary and vital considerations, profit being secondary.

To the country physician, the most progressive and best educated business man of rural Canada, belongs the credit of originating rural telephony, adapting it to the requirements of his exigent profession and starting it on its swift evolution of progress. Out of eighty-five Independent telephone systems in Ontario with which the writer has had communication—and almost daily new ones are brought to his knowledge—over forty-five have been started by country doctors for the benefit of their practices. He builds some miles of cheaply constructed line, placing a telephone here and there where customers can conveniently go to telephone him for emergency directions, to get him quickly to the sick bed and to keep him in touch with his patients. Having tasted telephone, the farmers desire it in their homes and to oblige them he installs and connects other telephones with his line. Soon the party line is overloaded; it is divided into lines of ten to twenty telephones each; standard poles and equipment are utilized; a switchboard has to be used and a central established. The line is turned into a co-operative system, branching still further out, the subscribers generally taking stock, a few renting telephones, all acting as agents in getting their relatives and neighbors to join in. Then becoming incorporated as a limited company they desire to obtain access to the nearest postoffice and village business places.

The farmer with a telephone in his house finds it most valuable and, once having one, will not do without it. A

horse has indigestion; immediate aid will cure and delay kill. The farmer telephones to the veterinary, has speedy treatment given and saves \$150. He wants a repair for a machine; to drive to town means half a day's loss of time; he telephones the implement agent, who sends the article, and working at home he saves a field of cut grain. He calls up the grain buyer, ascertains prices and can decide whether to sell or not without taking the produce first to the market. In the evening the cattle or hog dealer calls him up and next morning the farmer delivers the stock at the car. A fire occurs and he calls his neighbors and, with their aid, saves property.

No one needs the telephone—no one appreciates it—as much as the farmer, except the busy city office man. The former isolation of farm life passes. With a dozen friends on his party line, a system within a system, he has social relations at any hour, night or day. Thus, one understands the phenomenal growth of the rural telephone under favorable treatment, and also its permanency. Listen for an hour to a party line and you may hear the whole of the drama of life, as I have. The greatest marvel, the greatest romance, is the telephone. It throbs with the quick, full current of life.

The village merchant, to hold the good will of his farm customers who have local telephones, wishes the same telephone; likewise the village doctors, lawyers, veterinaries, banks, implement agents, etc. The villagers drift into the business quickly, and, construction being cheaper through local labor and a full knowledge of local factors, the rates are much lower than the Bell rates. The telephone is recognized as a virtual necessity and so the local telephone system becomes general and permanent. The demand for town connection follows, and thus all over Ontario the numerous rural lines come knocking at the gates of our towns and cities for entrance, and will not be denied; and these, in order to prevent their competing towns acting first and stealing the trade which follows the rural telephone, must respond to the Independent telephone movement. Within twenty miles of the Toronto market up to within three miles of the city limit, rural companies are making rapid growth; on some roads every other farmer has his telephone from the rural company, owned by himself or his neighbors, while old Bell subscribers are throwing out their instruments and taking stock in the local companies with entire satisfaction.

Strong and rapidly growing rural lines approach near to the outskirts of London, St. Thomas, and St. Catharines, and have already reached Woodstock, while other towns are becoming similarly besieged. Peterboro and Brantford have competing systems. The same tale is being repeated in Canada which has been unfolded in the States. Take, for instance, Indiana, a state equal in population and wealth to Ontario, but having a large foreign element, and probably not equal to that province in education. There, rural lines started about nine years ago, passing through a similar process of development. Indiana has to-day over 200,000 Independent telephone subscribers, and 400 companies having no connection with the Bell company. The latter, notwithstanding its start years before under a monopoly entrenched behind patents, with unlimited capital, and all the

combined advantages of centralized and highly organized management, has only from 30,000 to 40,000 telephones, as claimed, one telephone to every ten men, women and children in city and country. Iowa has over 200,000 Independent telephones, Ohio 248,000, with none in Cincinnati, against the Bell's 120,000, including that city. Toledo has three Independent to two Bell telephones; Cleveland about 23,000 on each system; Louisville six Independents to five Bell; Rochester, New York, in January, 1906, had about 10,000 Independent telephones, and the Bell about 8,800. Buffalo then had about 11,000 Independent telephones (to-day it has about 14,000) and the Bell about 20,000. Baltimore, St. Louis, and other cities, large and small, have the competitive systems. Detroit, which, having two systems once, had gone back to a monopoly, is reverting to competition, and an Independent plant is being installed. San Francisco, Seattle, Washington, D. C., Milwaukee, and others of the great American cities have granted franchises to Independent companies. Chicago, in Illinois, near Indiana, Ohio, Iowa, and other Independent telephone states, has so felt the competition of cities having Independent systems that in order to save their trade the manufacturers and wholesalers of Chicago attacked the Bell franchise and have organized an Independent company. A fight is on in New York city with first blood to the Independent company, which is seeking to establish the validity of its franchise. This, when accomplished, will give the 3,000,000 Independent telephones of the United States connection with the American metropolis and place them on an equality with the two million and a half of Bell telephones.

All this represents the strength, virility and magnitude of the Independent telephone movement, and you, urban municipalities of Canada, are up against the same problem.

Let me repeat that you are face to face with the problem, and have to choose your policy. You may declare to the rural and Independent telephone people that you will have nothing to do with their organizations and enterprises; refuse to recognize the latest conditions of country life in relation to telephony; will deal only with their rich, arbitrary competitor, and aid it, financially, by yielding to its non-competitive rates—morally, by granting to it a monopoly within your walls, over your highways, preventing rural and Independent systems from reasonable use of your streets and denying them the privilege of speaking to your business men and your citizens. Or you may accept the new situation and go along with this great movement, which, created spontaneously, adapting itself to every circumstance, has in a few years given such an impetus to popular telephony that, though kept back for years by the power of a monopoly, to-day bids fair to work the most startling and rapid industrial revolution of modern times.

The great argument urged by the Bell people is that telephony is a monopoly from the nature of things. Consider, however, not what is the nature of the telephone, but what is the nature of a monopoly. Can the leopard change his spots, or the Ethiopian his color? Can joint stock monopoly, by whomsoever administered, any more than autocracy, ever yield one single concession except under force, or can such a concession, ever endangered by a corrupting hand, continue unless guarded by eternal vigilance, backed by superior force?

The best test of an argument is, What does experience teach? In this matter you are referred to the history of telephones in the United States and its cities. The answer is loud and plain. Urban municipal governments, subject as they are to the electorate on direct vote, and thus subject to popular will, should be able to give better service than any private corporation. But, if they will not take up the municipal operation of telephones, then they should no more prevent the individual citizen from having a choice as to whose telephone he will use than it should say whose livery stable or whose telegraph line he must exclusively use. The

ordinary process of business and the choice and action of individuals will ultimately decide after competition which shall be the most satisfactory purveyor to local telephone wants. If competition does not give better results than monopoly has given, the public will be judge and executioner.

In Ontario these are limited to five years, but a popular vote is not required, and the individual's natural freedom of trade in telephone accommodation is taken away without him having a voice until after it has been infringed. The Bell company has made haste to get such franchises, and, strange to say, has been fairly successful. In spite of the advantages of remaining open and retaining the possibility of competition as a lever, municipal councils have bought in a monopolistic market and thrown away the possibility of competition or of relief, all for considerations which from a company like the Bell are utterly inadequate. Esau got a snap compared with these municipalities. Every time the Bell ties a town up it affects more than that town; it hurts the chance of competition elsewhere, especially within a radius of several miles from the town and in other large centers. What this advantage is worth to the monopoly should be weighed, not against a few free telephones, or the use of poles for municipal service, the cost of either to the Bell being a few dollars, but against tens of thousands of dollars, since the effect is not simply in the municipality granting the monopoly, but actually and morally against competition all over Ontario. By having municipalities bound here and there by agreements expiring at different times, competition is seriously handicapped. The municipality throws away its chance of regulating charges to its citizens, for monopoly does not give prices on a competitive basis. It throws away the chance of having the equipment and service kept up-to-date; it throws down the possible chance of competition when the exclusive franchise expires—at least makes it more difficult—thus helping to perpetuate monopolistic conditions. What interests the rural parts most is, it hinders and flouts at rural telephone systems and the Independent movement.

Small, isolated lines were the rule, with energies diverted to self-defense against Bell opposition to any reasonable development—poor construction and equipment—no union or organization—no Independent manufacturers in Canada, thus entailing 25 per cent duty on all equipment, besides the annoyance to the farmers of customs and heavy transportation. Until a few months ago there were no telephone travelers on the road, no expert labor or telephone experts, an absence of knowledge of the business; untried business methods not intended for commercial enterprise, limited in everything; absence of trunk line connection except on conditions enforced by a competitor, which strangled development, and finally turned the isolated local enterprise into the hands of the giant competitor. Opposition and obstruction exerted by the transportation companies, which were in open alliance with the Bell, by every method worked to discourage local lines.

Under the stimulus of the inquiry started by Sir William Mulock, the hero of Canadian Independents, and by reason of the publication of the information obtained under such investigation through the conscientious work of Mr. Francis Dagger, the Canadian people have arrived at such a state of knowledge of telephone affairs that they know pretty well the possibilities of Independent and municipal telephones. Last September, for the first time, the Independents met and organized an association, whose objects are: "To make more popular, and to improve telephone systems; to defend and spread the Independent movement in Canada." To this organization all municipalities have welcome admission as members. This association has been actively at work carrying out its objects from Winnipeg to Cape Breton, though more especially in Ontario, Quebec and New Brunswick. To show the present strength of the



movement I quote from a telegram sent to Sir Wilfrid Laurier towards the close of the session, signed by some of the prominent Canadian Independent men, representing several provinces: "Over ninety absolutely Independent systems, with about four thousand Canadian stockholders and over two millions cash invested." This, I find, understates the facts.

Three obstacles to Independent telephony in Canada are: 1st. Bell opposition, which, while it is all that ingenuity can devise, is always in the end futile, having against it the greatest asset of the Independents, viz., public good-will.

2nd. Long-distance connection, which, however, with local or rural lines, is not an essential, 95 per cent of the subscribers' conversations being with their immediate neighbors, and another  $4\frac{1}{2}$  per cent being held with similar connecting lines which exist over large areas. The average long-distance calls which the ordinary man will have will not exceed half a dozen a year, except those whose business is with distant parts. The ordinary man can go to a Bell office and use its long-distance service, paying just the same as a Bell subscriber. In the United States long-distance lines connect the local companies with copper circuits.

Proposing to follow the same method, the Provincial Long Distance Telephone Company last May obtained, with the support of the premier, a charter from the Ontario legislature, and will at once construct the highest standard trunk line for long-distance business, leaving the municipalities and local companies to supply local service, and dividing with them equitably the long-distance revenue. This company is a quasi-government institution, as connection can be compelled by any person, company or municipality on terms to be agreed upon or imposed by the Ontario municipal board, which has control of the rates, and will settle all difficulties that may arise between the company and the public. The company has all the merits of government ownership without its faults. Under the late legislation at Ottawa the Bell can be compelled to give connection so far as long distance traffic is concerned.

It is doubtful if the rural lines will, after mature consideration, accept this provision if they can have long distance connection through other sources, for the reason that friendly alliances with the Bell will, as they have done in the past in Ontario and over the border, result in the stagnation of the connecting company and its ultimate absorption secretly or otherwise. It is only reasonable to suppose that a company such as the Bell, doing everywhere a local

business, cannot afford to encourage any operating systems which do business more cheaply, thus discrediting its higher rates. Also it must, if possible, keep down other companies for fear that the stronger ones may break away and compete over a large district, a well-known tendency for a local company through necessity to extend its territory, thus making inevitable a conflict between the Bell and the local company. On the other hand, a purely trunk line company is a non-competing complement to a local company.

3d. Railway hostility, denying admission to stations, obstructing crossing tracks, refusing to give information to shippers over Independent telephones. Legislation has improved this a little, but only in a half-hearted measure. Next session the fight will be resumed. Our strength is developing in rural parts so much that soon no parliament will dare to say "no" to our reasonable demands.

Rural lines have now been accepted by banks as worthy of credit for reasonable requirements. Our revenue, we find, is sufficient to justify extensions with profitable results. People no longer hesitate to invest in them, believing these systems are established and permanent. Existing stockholders soon desire to keep the stock to themselves. The same condition is here as in the United States, where there are about 5,000 Independent companies, with fewer failures among them than among American banks. The companies which have failed have almost all been Bell subsidiary companies, or Bell connecting companies, having received Bell chloroform.

A factory has just been started in Toronto which will make the highest grade standard instruments and equipment. The American factories are alive to the Canadian market, and many are establishing agencies. All of these have to push their goods, and the telephone business will be developed systematically. In all probability within five years there will be more Independent than Bell telephones in Canada. This is not prophecy, but a calculation from present conditions in view of the known result across the line, which, in less than five years, was practically thus. In Ontario last year companies did well to start with ten subscribers; this year it is usual to start with 100 to 600 subscribers. In Quebec in 1905, Dr. Demers tells me, his four companies installed 1,200 telephones, all rural, against 12,035 by the Bell in all Canada. In the first forty days of 1906 he put in 300 more. That is at a rate of 2,400 a year. He is now invading Quebec City and his trunk lines are unexcelled in America. This is the best indication for the future.

## THEY DON'T ANSWER

By J. P. Boylan

**T**HIEF among the traffic complaints received in a large telephone exchange is that of a subscriber taking issue with the operator on receiving the report "they don't answer." He is sure someone is there to answer the telephone, and indignantly calls for the chief operator or exchange manager to file his protest.

Then again a subscriber will send a strong letter to the company stating that Mr. Blank called his office and was told he did not answer, when according to his statement, the bookkeeper was within a few feet of the telephone at the time, and as a result of not receiving the call he had lost a valuable order. A thorough test of the telephone and a careful inspection of all wires and apparatus would probably show that no mechanical trouble existed, and a close observation for several days would not throw any light as to the cause of the irregularity complained of.

The matter would, as far as the company was concerned, resolve itself into one of two things; either the person who claimed to have made the call did not do so, or the clerk who claimed to be in the office at that particular time was really out of hearing distance of the bell.

A notable instance of this kind occurred recently in Cleveland. The manager of a large laundry establishment complained that he was losing business due to the telephone operators informing his patrons that he did not answer the telephone. The usual tests and inspection indicated that there was nothing mechanically wrong.

The complaining subscriber was then asked to furnish the telephone number and name of the party who was unable to reach him by telephone, and a representative of the telephone company was detailed to interview the calling party. The representative had no sooner explained his mission than

the other began to laugh, and replied, "Well, to be frank in the matter, I did not call him at all. That fellow, who happens to be an acquaintance, has pestered the life out of me to give him some of my work, and to get rid of him the other day, I told him I had called him by telephone and was unable to get him. Of course, I would not wish you to mention this matter to him, and I didn't realize when I took this means of getting rid of him that I would cause the telephone company any trouble. Yet, it's clear to me now, and you may be sure it will not happen again."

Numerous other instances have come to light of where forgetful husbands and neglectful employes have placed the blame on the telephone company, when asked why they had not called up as arranged. Then again, the prevarications of others claiming to have been within hearing distance of the bell, and insisting that it had not rung, have caused the company no end of trouble.

In Cleveland, the Cuyahoga Telephone Company average fifteen hundred "don't answers" per day, which is about 1.3 per cent of the total originating calls made, and while not above the average experienced by other large companies, it was thought that by making a careful study of this item, and investigating each instance for twenty-four hours, something might develop which would tend to reduce this number.

Accordingly, printed slips were furnished each of the "A" operators, and they were instructed to fill in the telephone number which did not answer, the number of the calling party, the number of pair of cords used, the position number, the operator's number, the date and time. A messenger girl was detailed to collect these slips every few minutes, and turn them over to the record clerks, who would first determine whether the number called for was a working line. In case the number was recently vacated, the slip was referred to the chief operator to investigate whether monitor mark was omitted from multiple, or whether the operator had failed to notice monitor mark.

As each batch of slips was received from the messenger, the record clerk would number each slip serially, so that on referring the slips to different departments, they could be charged by number, to guard against loss.

The record clerk, after noting name and address on the back of each of the remaining slips, referred same to trouble department, and if line was known to be in trouble, notation to that effect was made and slip returned to record clerk. In the event of the trouble department having no record of line being out of order, a test was made, result noted in space provided, and slip returned to record clerk.

On all slips where tests indicated that line was clear, the number was called out on twice the same day and twice the following morning, by the record clerk, and in all cases where parties admitted that no one was at home at the time when "don't answer" occurred, the slips were excluded.

Following this, the record clerk referred to the subscribers' record, arranged alphabetically according to streets, and called the next door neighbor of the party who did not answer. In most cases the record clerk would be informed that the house in question was vacant, or that it was locked and all the folks were away.

The remaining slips were referred to the district troublemen, who investigated, and after entering findings on slips, returned same to record clerk, where they were assembled.

The result of the twenty-four-hour record of "don't answers" is shown in the following statement:

	Calls.	Telephones.
Number of don't answer calls due to subscriber..	947	673
Number of don't answer calls due to operator....	34	25
Number of don't answer calls due to maintenance	166	118
Number of don't answer calls due to miscellaneous	141	100
Total .....	1,288	916

DATA OBTAINED BY CALLING SUBSCRIBERS.

	Calls.	Telephones.
No one there to answer telephone.....	518	388
Stepped out; in yard; other part of the house, etc	75	63
Telephone "out of order".....	124	68
Too busy to answer telephone; theaters, etc.....	91	14
Subscriber slow in answering telephone.....	49	35
Subscriber asleep; did not hear bell.....	8	6
Public places—waiting rooms, pay stations, apartment houses.....	12	9
Cannot hear bell; due to telephone in booth or poor location.....	2	2
Party moved; neglected to notify telephone company .....	2	2
Private branch exchange; anybody answers.....	1	1
Drops did not operate; fault of subscriber; had fastened same.....	1	1
Answered Bell telephone, mistaking it for Cuyahoga Operator had trouble collecting nickel; called party refused to answer again.....	1	1
Plugged bell at night; forgot to remove in morning .....	1	1
No such number; fault of subscriber.....	98	86
Telephone taken out; operator failed to observe monitor mark.....	16	11
Telephone number changed; operator failed to observe monitor mark.....	14	10
Telephone number changed this date; monitor mark not on board.....	4	4

DATA OBTAINED BY SENDING TROUBLE MAN.

Nothing found; all apparatus found O. K.....	141	120
Telephone "out of order".....	42	30
No one there to answer telephone regularly.....	33	28
Stepped out; in yard; other part of house, etc....	21	15
Subscriber moving.....	19	13
Cannot hear bell; due to telephone in booth or poor location.....	8	6
Public place; elevator boy to answer telephone; did not hear.....	1	1
Switch on telephone placed improperly.....	1	1
Saw mill; cannot hear bell.....	1	1
Answered Bell telephone in mistake for Cuyahoga telephone.....	1	1
Too busy to answer telephone.....	2	2
Total .....	1,288	916
Branch exchanges; don't answer calls on outgoing trunks; not investigated.....	147	
Total, representing 1.3% of the originating calls .....	1,435	916

A BLIND OPERATOR.

One of the most rapid and accurate operators in the Virginia City (Nevada) telephone exchange is Miss Susie Davis, a 20-year-old girl, who is totally blind. A few months ago Miss Davis took up telephone work, and in spite of the prediction of friends that she would be unable to do the work, she soon mastered all the numbers on a large switchboard. She works as fast as any of the other young women, and her record shows that she makes fewer mistakes than many of the employes. For a number of years she has been attending the school for the deaf and blind at Berkeley, Cal.

A STUNNING REQUEST.

"Nerve," "gall" and "cheek" are some of the names it is called, but a man who has an office in New York has found a brand which hasn't been named.

He has a telephone, and the man next door to him has none. The man next door came in recently and asked:

"May I use your telephone a minute?"

"Certainly; go ahead. Help yourself."

The man next door looked up his number, then turning to the owner of the telephone, said:

"Will you please step out in the hall a minute?" It's a private matter I want to talk about."

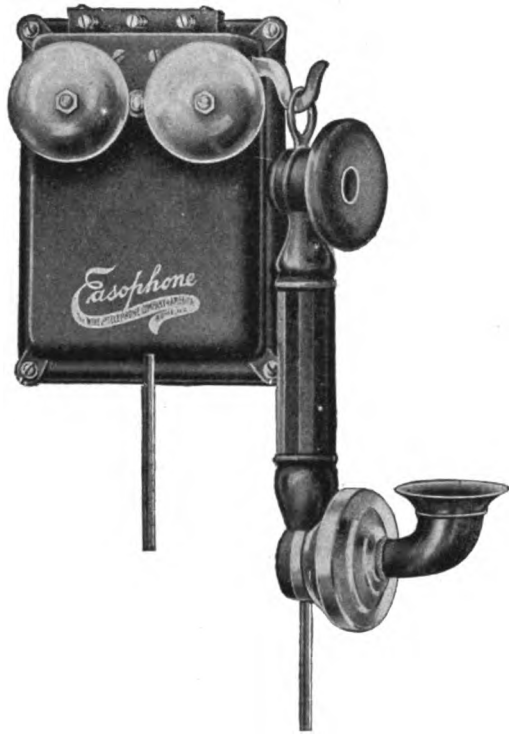
The owner was stunned for a minute, then picked himself up slowly from his desk and walked out in the hall. Easy? No, he's simply too good natured.

# MANUFACTURERS DEPARTMENT

## NEW TYPE OF HAND TELEPHONE AND BELL BOX.

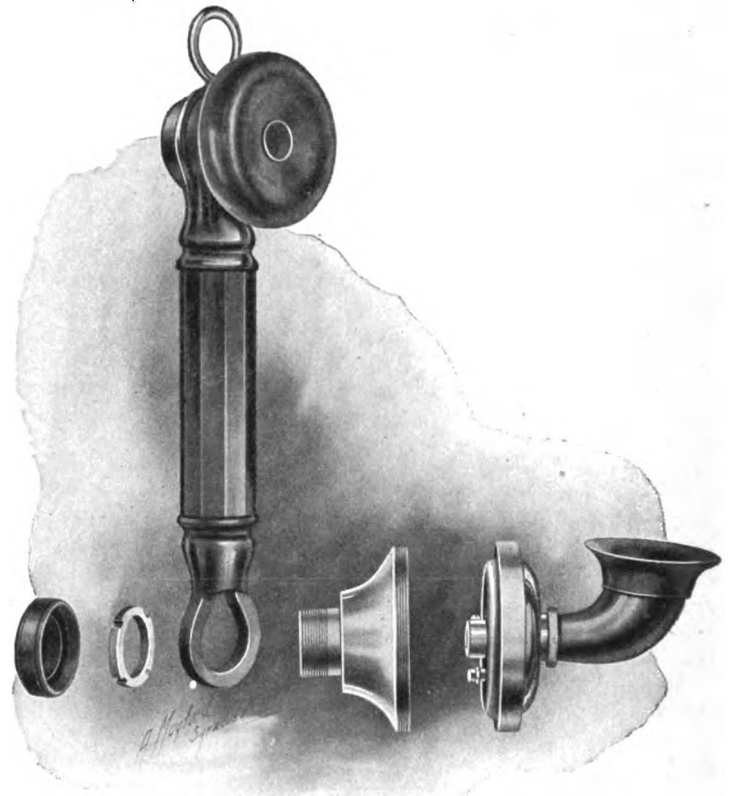
Since the organization of The Wire & Telephone Company of America, at Rome, New York, some eighteen months since, considerable interest has been displayed in the telephone field regarding the output of this company, it being generally known that at the organization it had acquired valuable patents as issued to Messrs. Houghton and

an instrument which is not only handsome in appearance, but practically indestructible. This instrument is provided with a long horseshoe type of receiver magnet, which forms the base of construction over which is molded in one piece the handle and receiver case. The instrument is also provided with a solid back long-distance type of transmitter, which is locked rigidly to the annular heel of the horse-



Easophone Equipment No. 100.

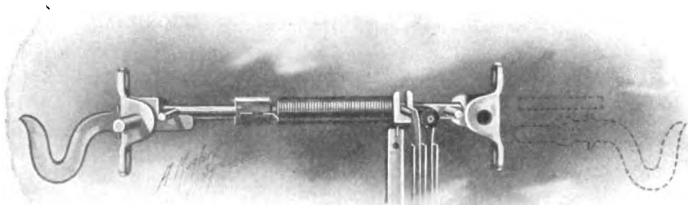
Potter, since which time the company's modernly equipped new plant has been devoted to the development and perfecting of telephones and telephone apparatus, to be manufactured under these and other patents and to be known under the trade name of "Easophones." The Wire & Telephone Company has been reticent regarding giving information concerning its product until the apparatus had demonstrated its value in practical service for a period of time; however,



Easophone Parts.

shoe magnet, affording a solid backing for the transmitter cup. By this construction it will readily be seen that not only is the long horseshoe magnet type of receiver attained, doing away with the watch-case type of receiver, but also a construction of the greatest rigidity and strength is secured.

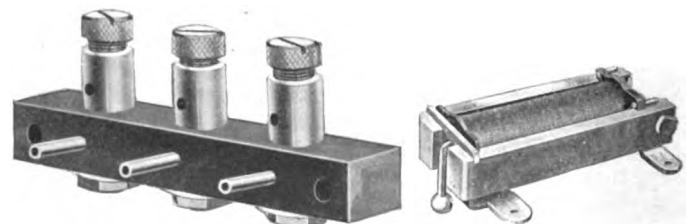
The solid ring support of this instrument, the two electro-magnet cores, together with the metal covering between the two arms of the permanent magnet are firmly riveted together into one solid part. The vulcanized hard rubber



Easophone Hookswitch.

the company presents this month a description of its new hand telephone and bell box, which is designated as Easophone equipment No. 100, and we believe that owing to the many original features embodied in this equipment it will have the serious consideration of telephone men generally.

In this hand type of telephone many objectionable features have been eliminated, in addition to the production of



Easophone Binding Posts and Ringer.

covers the entire upper part of the instrument, and it is only necessary to use slip coils over the electro-magnets projecting from the molded receiver case, which coils are held in fixed position by means of nicked plates.

Between the arms of the permanent magnet is provided a channel of ample dimensions to permit of easy introduction and withdrawal of the cords which go directly through



the instrument to the connecting studs of the receiver, to which they are soldered.

The transmitter used is of the solid back long-distance type, and by a novel method of assembling the parts, a large number of screws heretofore used in transmitter construction have been eliminated. The construction of the entire transmitter is such as to bring about exceptional solidity and simplicity in the design. The back of the transmitter is rigidly fastened to the heel of the horseshoe magnet by a lock-nut, over which a rubber cup is screwed. All connections are made internally and are so few in number that annoyance and expense from this source are entirely done away with.

The hard rubber horn-shaped mouthpiece is held in position by a friction washer that permits it to be held in any required position and prevents accidental removal. The receiver shell and handle are made of the best grade of hard rubber and finished in a high polish, the transmitter and supporting ring being finished in extra heavy nickel.

The small and compact bell box is made of cold-rolled steel, finished in black enamel of brilliant luster, and is very handsome in appearance. It contains complete equipment, including ringer movement, switches, induction coil, condenser and cord terminal blocks. The ringer movement has but one coil, for which a patent has been asked, and The Wire & Telephone Company of America claims that owing to its simplicity it is less subject to troubles than the old type having two coils.

The vibrating armature passes through the core of the single coil and requires absolutely no adjustment. It is made extremely light in order to give a minimum moment of inertia and adapts itself freely to any frequency of current.

The hook switch can be readily placed on either side of the box in the location desired by removing the draw pin, which can be done without the use of tools. The company also supplies a hook switch which can be mounted on a desk or wall independent of bell box, permitting the Easophone to be placed wherever most convenient without regard to the location of the bell box.

The core of the induction coil is made up with soft annealed iron wires, the windings being of the best quality of "Romeoid" silk insulated magnet wire of its own manufacture, and is covered with heavy glazed pebble linen cloth to protect it from injury. It is held in place by means of metal springs, which are riveted to the bell box, making it exceptionally convenient to remove or replace.

The circuit contact springs consist of five flat German silver springs provided with platinum contact points, and are rigidly mounted with hard rubber insulation throughout, separated with hard rubber insulators to hold same in fixed relative position. All contact points are in plain view for inspection.

The condenser is put up in sealed Japanned metal case and forms the back of the bell box, being held rigidly in position in frame work in connection with springs shown in illustration.

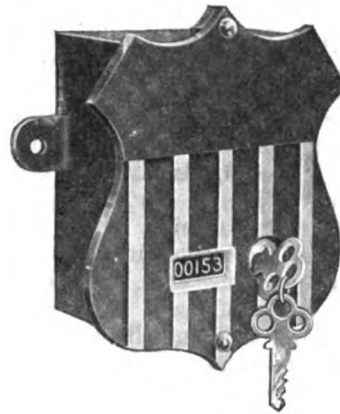
The cord terminal block is of polished hard rubber and the line terminal block upon the top of the bell box is equipped with Houghton patented binding posts, which prevents the creeping or cutting of the wires, and to the bottom of the binding posts are affixed tubes which are inserted through the bell box for making connections.

A new method of adjusting the bells is provided for on the outside of the box, bells being adjusted by the turning of two set-screws. It will also be noted that the bell striker is protected from any liability to injury from external sources of any kind.

Telephone users will be interested in obtaining The Wire & Telephone Company of America's Bulletin No. 101, which describes and illustrates in detail this equipment, which will be mailed by them for the asking.

### NEW MEASURED SERVICE REGISTER.

Following the adoption of "the shield" by Independent telephone companies as their standard emblem, the Gray Telephone Pay Station Company of Hartford, Conn., has



recently designed and placed upon the market a pay station in the shape of a shield, finished in red, white and blue. As these pay stations are distinctive of the Independent service, the sales have been large. The Gray company now comes to the front again with a measured service register which in shape and color also is patterned after the badge of the Independents. A large order for this design has been recently placed by the Mutual Telephone Co.

These registers can be used on any ordinary wall or desk telephone of either common battery or magneto type, and in operation are entirely mechanical. They are intended for service on either private or party lines. Where they are installed the subscriber calls in the usual way and when the connection is made the operator requests the signal. With the turn of the key by the subscriber, the signal is sounded and the counter actuated. The user has at all times before him an accurate statement of the service and at certain periods the account is taken from this register in the same manner as with gas or water meters.

With the tendency for measured service growing, especially in the residential districts, this device should meet with much favor. Design patents on this register have been obtained by the Gray Telephone Pay Station Company.

### DANCING LUCIFER.

An immense image of Lucifer, the insignia of the Sons of Jove, will be first shown at the Electrical Show at the Coliseum, January 14-28, 1907.

This device is built of a solid background fourteen feet wide and fifteen feet high, and contains approximately 800 lamps ranging from 4 to 50 candle power. Contrary to appearances, there is nothing movable about the device. It is absolutely stationary in every part, no lamps move in any form, the entire effect being created by a flasher. It might be called a combination of a talking sign and a moving picture machine with incandescent lamps taking the place of an illuminated film. It has never before been exhibited in public and involves a combination of features never before shown in the art. Egbert Reynolds Dull is the originator and the work is executed by the firm of which he is the head, the Reynolds Dull Flasher Company, Chicago.

The operation is as follows: From a perfectly black background there appears the outline of his satanic majesty, in red lamps, in salute position, his right hand to his forehead and the forked tail wagging to and fro. Then as he disappears, instantaneously in its place appears a skeleton in white lamps fifteen feet high, standing in the same position. The skeleton salutes, and immediately proceeds to dance a jig after the order of the "split," half a dozen times, when he again straightens up and salutes, takes his head off his shoulders, holds it in his right hand, then throws it into his left, and throws his head back and forth from one hand to the other half a dozen times. He finally puts it back on his shoulders, salutes, and dances the "Highland Fling." He next straightens up again, takes his head off his shoulders and holds it in his left hand, then throws it down on his left knee, kicks it over his right knee, picks it up with his right hand, and puts it back on his shoulders, and in-

stantly reappears again as his satanic majesty in red lamps.

#### R. E. WILLARD.

Mr. R. E. Willard, who has recently joined the staff of the Long Distance Telephone Manufacturing Company of South Bend, as its Southern representative, is a loyal Independent in every sense of the word. Before associating himself with the Long Distance concern, Mr. Willard was connected with a large supply house in St. Louis, where he formed an extensive line of acquaintance among the telephone men of the south and southwest. Mr. Willard is financially interested in Independent telephone properties in Wisconsin and in addition to his wide experience as a salesman he has a practical working knowledge as an exchange constructor. His experience in all branches of the telephone business well adapts him to his new field, where he will be of undoubted value both to the Long Distance Manufacturing Company and its patrons.

Mr. Willard will have his headquarters at Memphis, Tennessee, where he will be pleased to meet prospective investors in the Independent telephone field.

#### LONG'S PATENT MUFFLER FOR TRANSMITTERS

There being a demand for any device that will add to the efficiency of the telephone or the comfort of the user, the Gray Telephone Pay Station Company of Hartford, Conn.,



Long's Patent Muffler.

has placed on the market a patent muffler feeling that it will give entire satisfaction.

It is a well known fact that extraneous sounds acting on the transmitter while a message is being received tends to confuse the listener. This is especially true on long distance connections. Many telephones are now being used in offices

and such places where with open windows the noise of street traffic interferes considerably with the telephone service, for all such places these mufflers should prove indispensable.

Quite often a person using the telephone for business purposes desires during the conversation to ask for some information not intended to be transmitted over the wire, for such cases these mufflers are well adapted, allowing the user to open or close the transmitter at will.

We believe this to be the first device that has been provided that can be operated with facility and effectually shut off all sound action at any desired moment. The fact that it is common practice to place the hand over the transmitter while receiving a message proves conclusively that something of this sort is needed. These mufflers can be used upon any telephone in present use.

#### NEW SWITCHBOARD IMPROVEMENT.

The Swedish-American Telephone Company, Chicago, has recently placed on the market a switchboard improvement worthy of special mention, as shown by the following illustrations. Figure 1 represents a self-contained, self-restoring type of drop and jack which can be removed as a unit from the switchboard by unscrewing two nuts, as shown. Figure 2 represents a drop and jack of the same type as above described, showing method by which the coil

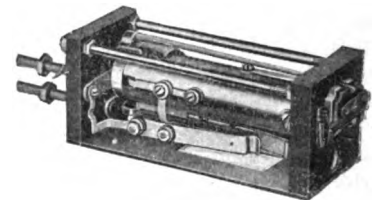


Figure 1.

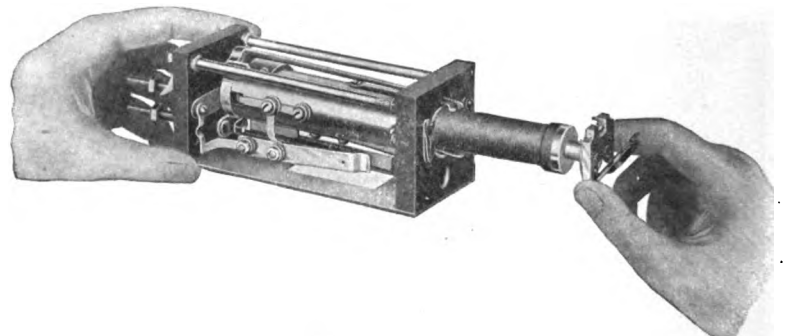


Figure 2.

can be instantly removed and showing the coil being removed. This is accomplished by releasing a small spring which is mounted on top of the drop tube and which is directly below the armature. This spring is in no way a part of the circuit, its function being only to hold the coil in position. As shown in the illustration the shutter is mounted

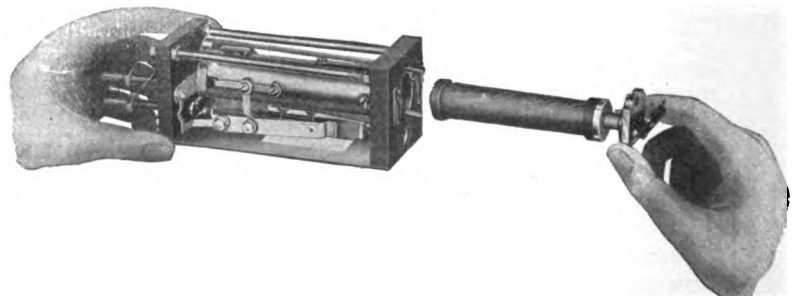


Figure 3.

on the end of the coil core and is removable with the coil. Figure 3 shows the coil completely removed. It is impossible to return the coil to place without making good permanent contacts. The removal and replacing of the coil is accomplished without in any way disturbing any other part of the equipment. All chance of leakage or poor contact is entirely eliminated.

## TRADE NOTES.

THE STOLZ ELECTROPHONE COMPANY and Mears Ear Phone Co. will exhibit devices for enabling the deaf to hear, in space 15 F, at the Chicago Electrical Exposition, Jan. 14-26.

AN ARTISTIC SOUVENIR POSTAL CARD, showing its extensive factory, has been issued by the Swedish-American Telephone Company. The card is printed in colors and is a most attractive advertisement of the Chicago plant of the company.

MCRoy CLAY WORKS mailed the trade a blotter containing a calendar for the last month of the year and the usual poem, which was "Folks in Ruts." The company invites its correspondents to address all communications to 445 Rookery, Chicago.

THE SEMI-MONTHLY STOCK SHEET and price list of the Commercial Supply Company of St. Louis has been sent to the trade, and gives full information on the wire and cable market. The company will send a sample of its "Commercial High Grade" rope, which it claims to be the best, on application.

THE ILLINOIS ELECTRIC COMPANY, Chicago has just issued a new net price list and discount sheet, applying to its telephone catalogue Number 17 which will be sent to anyone upon request. Catalogue Number 17 contains everything required by a telephone company. It contains over 200 pages and is fully illustrated.

THE SWEDISH-AMERICAN TELEPHONE COMPANY will be located in Section E, space 12, at the coming Electrical Show to be held at the Coliseum, Chicago, Jan. 15 to 26. The company reports that it has heard from many of its friends and customers, saying they will be in attendance. The space occupied by this company is in the same location as last year.

THE GRAY TELEPHONE PAY STATION COMPANY of Hartford, Conn., has a very handsome new 80-page catalogue now ready for distribution. One of the late Gray products is a hotel pay station for automatic. Chief Engineer Long is constantly working on something new to meet every possible requirement of telephone progress. The catalogue will be sent on request.

THE ROLFE WIRELESS ELECTRIC CURLING IRON HEATER, manufactured and sold by the Rolfe Electric Company, Rochester, N. Y., fits over the ordinary 16 candle power lamp and is not only useful but ornamental. The makers are finding a ready sale for the heater which is sent post-paid anywhere in the United States for \$1.50. No knowledge of electricity is required to utilize it, and it is already for use.

FRANK F. HOWE, CLEVELAND, O., patentee and manufacturer of telephone apparatus, sends a clever calendar to the trade, on each monthly page of which is illustrated one of his devices. A trial sample of any instrument will be sent on order and specifications, and full descriptive leaflets can be had of the manufacturer by addressing Frank F. Howe, 502 Arcade, Cleveland, O. He has also issued a circular giving full details of the working of the Howe telephone, and a description of the "Howefonearm" and its advantages, chief of which is the fact that it gives free use

of both arms and hands to write orders, turn pages in books, refer to memoranda, etc.

THE BUSINESS of C. H. Thordarson has been taken over by the C. H. Thordarson Electric Manufacturing Company, Chicago, incorporated under the laws of the state of Illinois with a capital of \$100,000 and is located at 153, 155, 157 and 159 South Jefferson street, Chicago. The officers are C. H. Thordarson, president and director; Joseph W. Watkins, vice-president and director; John A. Brennan, secretary and treasurer and director.

THE BIGLEY TELEPHONE COMPANY, 56-58 Van Buren street, Chicago, has issued its bargain bulletin No. 2, giving latest quotations on telephones, switchboards and all kinds of supplies. The company assures the trade that the apparatus offered is not "second-hand" and that care has been exercised in selecting only standard and modern makes. The announcement is made that special attention is paid to winding and rewinding coils of all makes.

ROLFE ELECTRIC COMPANY, Rochester, N. Y., is offering its fuse box No. 2, which is said to keep dangerous currents outside and insure operators of telephone exchanges against damage suits. The box, which has been approved by the National Board of Fire Underwriters, is of extra heavy glazed porcelain, and requires no bushings or insulations of any kind. The cover is of galvanized iron held firmly in place by a screw in the center that threads into an upright brass binding post in the box. The fuse is the regulation approved type of line fuse which this company has so long manufactured. Every box is thoroughly tested before shipping and is guaranteed to give satisfaction.

THE AUTOMATIC ELECTRIC COMPANY, Chicago, is circulating two unique advertising folders calling attention to the progress of the Independent telephone movement. One is entitled "Now, on to Chicago!" and explains that the acquirement of the South Bend Telephone Company means the connection of Chicago with the Independent long-distance service. The other folder quotes extracts from Wisconsin and Arkansas newspapers showing the poor service given by the Bell companies. The Automatic Electric Company attributes the faults largely to inefficient operators and argues that the only remedy is to "patronize the Independent companies that can and will adopt the automatic system."

THE BLAKE SIGNAL AND MANUFACTURING COMPANY, 246 Sumter street, Boston, Massachusetts, has issued several instructive circulars showing how valuable the Blake signal system is for electric and steam railroads. Special advice is given the management of each class of railroads as to the advantage of using the Blake system. It is intended for use in connection with the telephone and to enable the interurban line dispatcher to signal to any telephone point when he wishes to communicate with the passing train crews. In other words, the Blake system is designed to give the electric road dispatcher the same command of train crews that the telegraph gives the steam road dispatcher. The literature sent out by the company fully describes its working. Testimonials from railroad managers who have adopted the Blake system are given and show that the system works successfully. The Boston & Worcester, Worcester Consolidated, Indiana Union Traction Company and all of the roads in the McKinley system,



including the Illinois Traction Company, use the Blake system, and are loud in their praise of its efficiency.

FRANK B. COOK has again made a big increase in his factory space, having added 12,000 feet of floor space December 1. This addition, Mr. Cook hopes, will enable him to materially increase his output and help take proper care of his rapidly growing business. His office has been moved and improved and all the latest office systems and appliances installed, and the same improvements have been made all through his shop. Mr. Cook thinks the outlook for a larger business in 1907 than in any previous year is very bright, and he is therefore preparing for the increase.

THE COMMERCIAL ELECTRICAL SUPPLY COMPANY, St. Louis, Mo., has mailed a very large edition of its 1907 diary for telephone men. For a utility advertisement this diary is most desirable for prospective users. The work is bound in full morocco with gold edges and contains a special telephone supplement which gives valuable tables and suggestions for operators. We are advised by the company that it will continue from year to year to distribute this important work and that it will be necessary to make application a long time in advance in order to make sure of receiving a copy of the work. The edition issued during the past month was exhausted long before all who made request for it were supplied.

JOHN W. KELLY, JR., well known as a member of the committee of standardization of equipment of the International Independent Telephone Association, has resigned his position as superintendent of equipment of the Keystone Telephone Company, of Philadelphia, to become the superintendent of the General Acoustic Company, with headquarters in New York City. Mr. Kelly has been doing a large amount of work in devising and developing means to enable telephone companies to give their subscribers church, theater and election returns service. He has successfully transmitted concerts by telephone and distributed them to subscribers from sixty to one hundred miles away. He is especially interested in the "Dictograph," the latest innovation in the telephone line.

THE EUREKA ELECTRIC COMPANY of Genoa, Illinois, has recently put on the market a novel magneto drop and jack and a common battery target signal, which in most respects is new in its construction. It constitutes a great departure from any other drop on the market. It is a tubular lateral pole arrangement which is different from the usual practice in drop construction. It dispenses with the trunnion screws and consequent delicate adjustment when replacing coils. Nothing but the coil is handled when removing same. Its accessibility for inspection is claimed to surpass anything in this line. Its acceptance by the telephone people was demonstrated at the National telephone convention in Chicago last June where a model was exhibited and orders were received for over 1,000 the first day it was shown.

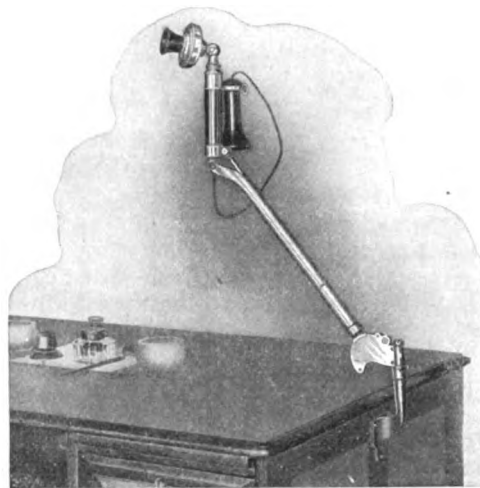
THE SWEDISH-AMERICAN TELEPHONE COMPANY, Chicago, has issued a handsome booklet containing letters of recommendation from telephone companies using its equipment. Accompanying the letters, which are reproduced in fac simile, are portraits of the writers, who are the secretaries, managers of the various operating companies represented. The large number of Independents who patronize the Swedish-American Telephone Company is well demonstrated by the symposium and the warm praise given the apparatus proves completely the satisfaction it has afforded the users. The booklet also contains pictures of a number of new exchanges equipped by the Swedish-American, and descriptions of the company's "New Swedish Beauty No.

88" and its 100-line switchboard and 100-line combination lightning arrester cabinet.

### THE FLEXIPHONE.

It is not often that a newcomer in the telephone field lands at the top of the heap at one single bound and the fact that the Oliver Manufacturing Company of Philadelphia, Pa., has been able to present to the telephone public as their first effort the "Flexiphone," an instrument not only novel in general form, but perfectly developed in its internal and external construction, embodying features of constructive details that are of unusual merit, is undoubtedly largely due to the earnest co-operation of the well-known makers of high-grade telephone apparatus, the Holtzer-Cabot Electric Company of Brookline, Massachusetts, who will participate with the Oliver Manufacturing Company in the manufacture and general sale of the Flexiphone in the United States as special licensees. The readers of TELEPHONY should look into this new instrument with more than passing interest, as it is a remarkable conception of a new concern, possessing new blood and new ideas, unhampered and untrammelled by the conventions and ruts of "the way we used to do it," these conceptions being rounded out and carried to completion by the addition of a new frame hook and switch mechanism designed by the Holtzer-Cabot Electric Company, which mechanism we shall describe more fully further on.

We illustrate here a general view of the Flexiphone attached to the end of a flat top desk. The attaching device is provided with an angle head, adapting it to any kind of a flat top or roll top desk, to the wall or in almost any conceivable position. The adjustable arm is of cold rolled steel with a handsome hard rubber finish, trimmed in full nickel; the arm is carried by and longitudinally slides on an inner supporting rod; a double cam at the base imparts just sufficient end-wise



The Oliver Flexiphone.

motion to the tubular arm to maintain the pedestal portion always in an upright position during the vertical swing of the arm, which also has a horizontal movement on the supporting stud of the desk attachment. A most unique and very convenient feature of this invention is the revolving head carried on a hollow vertical stud at the upper end of the pedestal, this head supporting the transmitter and permitting a two-thirds rotation of same in a horizontal plane, making the mouth-piece accessible at either side or in front of the arm—"it always faces you." This rotative movement of the transmitter, together with the horizontal and vertical swinging of the adjustable "self-balancing" arm, makes this indeed a flexible telephone; hence its name, the Flexiphone. In this one instrument, the company claim, is a perfect desk or a perfect wall telephone with none of the faults and disadvantages of either; no fallen and broken instruments, no tangled or broken cords, no trouble and but little maintenance cost. The Flexiphone takes almost no room. You can put it anywhere, the biggest thing about it is the transmitter and what is better yet, it fits everybody, from the shortest to the tallest, either when sitting or standing.

We now come to the parts that interest the inspector or trouble man. Remove one screw near the head of the pedestal and the transmitter and transmitter switch springs and switch hook lift from the upper casing, all self-contained. The outer casing may now be removed, the transmitter head put back in position and we have a complete operative telephone in which all spring contacts, cord connections, etc., are in full view, easily and instantly accessible. These cord connections are made to terminals fitted on a hard rubber block, securely fastened to the frame on which the switch springs are mounted. Hard rubber is the only insulating material used. The contact springs are of german silver with pure platinum points which in assembling by the inspector make long sliding contacts, keeping points clean and bright. These contact springs rest against stops under tension and the hook lever being independently supported and operated by an auxiliary steel spring, the full elasticity of the contact springs is used in making perfect contacts. This switch hook acts directly on the contact springs and absolutely has no lost motion.

With the exception of the two platinum contacts of the switch springs, there are no unsoldered contacts between

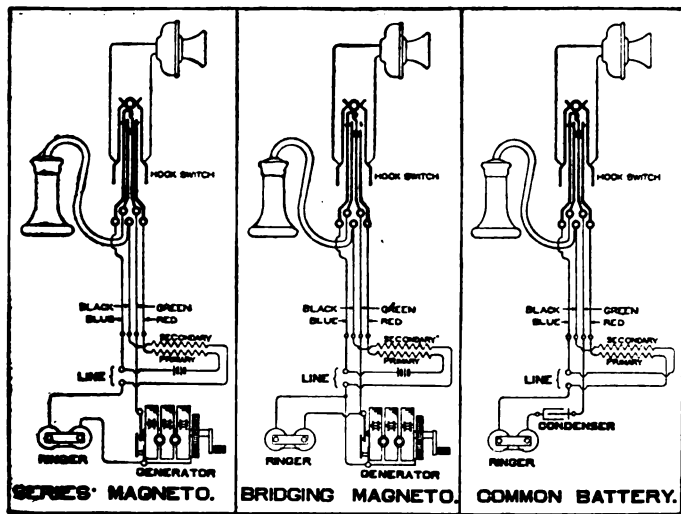


Diagram of Flexiphone Circuits.

the desk terminals and the transmitter. This will be instantly appreciated by the practical telephone man. The foregoing are unusually strong features and are worthy of the most careful consideration of telephone buyers and users. The Flexiphone will be supplied to the trade equipped for Common Battery Series or Bridging Magneto circuits. TELEPHONY readers should make it a special point to see this new telephone during the Electrical Trades Exposition in Chicago, January 14-26. It will be exhibited in space 1, section E.

You will note by the advertisement of the Oliver Manufacturing Company in this issue that the Flexiphone can be purchased through regular jobbers and manufacturers of standard telephones equipped with their individual forms of transmitters and receivers when desired. In conclusion, the remarks of an old telephone man, well known to the trade: "It is the greatest improvement in telephones that has been put on the market in the last two years."

### IMPROVED FORM OF PROTECTION.

A novel arrangement of the carbon lightning arrester in connection with line fuse protection is that shown in the illustration, manufactured by the Rolfe Electrical Company, Rochester, N. Y., for use in its approved line fuse box No. 2.

The carbons are mounted on the end line fuse and the inner or large carbon being insulated from the fuse ferrule by a hard rubber washer or bushing. The two carbons are

separated and insulated from each other by a dust proof dielectric and are held in place by a clamping nut on the end. Thus when testing, the fuse and lightning arrester are cut out of the line at one move.

This fuse box is approved by the National Board of Fire Underwriters and companies using it are secure from dam-



Rolfe Line Fuse and Carbon Protection.

age suits arising from loss of life or property when foreign currents are carried over their lines. Full description, prices, etc., will be cheerfully sent on application to the Rolfe Electric Company, Rochester, N. Y.

### NEW OLIVER DISTRIBUTING DEVICE.

The A. F. Oliver Manufacturing Company of Buffalo have brought out a distributing fixture for which they claim features that may prove of interest to those who are using small cable terminals.

The desirability of a fixture for use in connection with terminals having a capacity of twenty-five pairs and yet of such compactness that its use is fully warranted with a much smaller terminal, will, it is felt, prove in itself a recommendation.

The device itself consists of two circular split collars, which have their ends bent outward. Holes are drilled in the ears so formed and a bolt is passed through the holes in each ring.

Attached to the inner circumference of these bands are seven other pieces of iron which are bent in the form of an elongated U. These U-shaped pieces are drilled and attached alternately to the circular iron bands by means of bolts. That is, if the first U-shaped piece is bolted to the upper band, the second one is bolted to the lower band and so on around the circle.

This serves to hold the ring together and the U-shaped pieces in place until the fixture is placed upon the pole.

After the fixture is pushed down over the pole, fetter drive screws, better known as lag bolts, are driven in through the holes not previously filled with the bolts holding the fixture together. For instance, should the first U-shaped piece be bolted to the upper ring, the fetter drive screw is passed through a hole in the lower ring and the first U-shaped piece and into the pole. The second U-shaped piece would then have a fetter drive screw passing through it and the upper ring and into the pole.

This method not only attaches the fixture to the pole in such a manner as to preclude the possibility of its ever coming loose, but further helps secure the various parts of the ring to itself. When the ring is in position porcelain insulators of the well-known knob pattern are attached to the horizontally extending ends of the U-shaped pieces by means of stove bolts, washers being placed under the nut to prevent cracking of the porcelain insulator when tightening up on the bolt.

Attached to the pole and arranged around the ring are bent straps of iron which serve to act as a duct for retaining the wires leading from the fixture to the cable terminal. This insures that the wires will run down the pole at one point and keep them in a compact space.

The Oliver Manufacturing Company is placing this fix-

ture upon the market in two ways, complete, including insulators, distributing rings and necessary bolts for attachment, or without the insulators and round washers.

The purchaser can in this way provide his own insulators and attach them as required, not unlike placing glass insulators upon cross-arm pins. Also by providing his own insulators, the user insures uniformity of appearance with a lower first cost of installation.

The round washers are of the same size and dimensions as the ones now almost universally placed under the head of the bolt which attaches the cross-arm brace to the cross arm.

The capacity of this device is twenty-eight insulators, one twisted pair distributing wire can be attached to each insulator, in which case twenty-eight loops can be attached to the fixture. Should it be desired, however, to use single wire without rubber insulation, only one wire should be attached to each insulator and the capacity would be but for fourteen loops.

A pole line equipped with these fixtures having an aerial cable strung along it presents a much more sightly appearance than the older method which involved cross arms with their usual attendant mass of open wires.

When subscribers are close together a fixture of this class placed upon each pole and the cable brought to a small cable terminal as in the now familiar multiple tap system, reduces the amount of wire used to a minimum, not only saving much labor for installation of separate telephones but reducing the always present troubles which result from the use of open wires.

These fixtures have been carefully tested by experienced men and from the tests made under actual working conditions the various parts were found to be strong enough to successfully withstand many times the breaking strain of the wires attached. All of the various pieces are of the best material and all metal parts are thoroughly galvanized.

The A. F. Oliver Company have descriptive matter which they will gladly furnish to anyone upon application, and they believe that in placing this device upon the market, the man who builds and the man who pays will each be mutually interested.

#### ELECTRICAL EXPOSITION.

Chicago's second annual electrical show, which will be held in the Coliseum from January 14 to 26, 1907, will be the banner trade booster of the United States. More than 30,000 square feet of the main floor of the Coliseum has been sold to 150 of the leading manufacturers and jobbers, many of whom will make displays for others as well as themselves. Not a single branch of the electrical field will be neglected and the exhibits, as a whole, will be greater and more elaborate than they were in the show of a year ago. At this writing there are but five spaces left on the main floor.

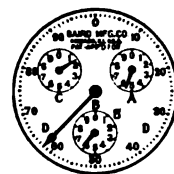
Following the precedent established by the directors of the Electrical Trades Exposition Company a year ago, no expense or effort is being spared in making the coming show the greatest and most interesting trade exposition ever held in Chicago. It will be more than liberally advertised and special inducements will be offered to attract the attention of the public to the affair. The 201st anniversary of the birth of Benjamin Franklin will be marked by a special program Thursday, January 17, and handsome souvenirs will be distributed. Monday, January 21, will be "telephone" day and another appropriate souvenir will be given away. Thomas A. Edison day will be observed Wednesday, January 24, an occasion for another souvenir. During the two weeks of the exposition there will be several important meetings of electrical organizations, notably the Northwestern Electrical Association, which has its annual convention at the Coliseum January 16, 17 and 18. This affair is usually

held in Milwaukee, but as a compliment to the Chicago members of the organization, many of whom are identified with the electrical show, the meetings are held in Chicago. The Sons of Jove will have a rejuvenation Wednesday night, January 16, and the Illuminating Engineers' Society will meet Thursday, January 17. The American Electrical Salesmen's Association will have its annual meeting Wednesday, January 24.

Ellery's Royal Italian Band has been engaged for afternoon and evening concerts throughout the two weeks of the show and the Coliseum Annex will be converted into an electrical "midway," several new and interesting amusement features along electrical lines having been secured.

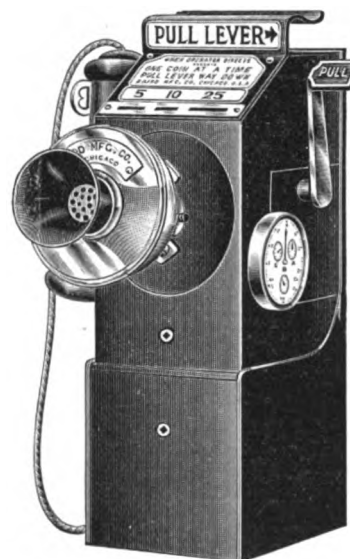
#### BAIRD SHEET-STEEL CASH-REGISTER PAY-STATIONS.

The Baird Manufacturing Company, 1503 Briar place, Chicago, is just placing on the market a new model pay-station which has many new and striking features.



This new machine is a pressed steel product throughout and is made from very fine dies and tools so that every part is interchangeable. The finish is exceptionally fine and evidences painstaking care in the perfection of every detail.

Every part of the mechanism is accessible by simply re-



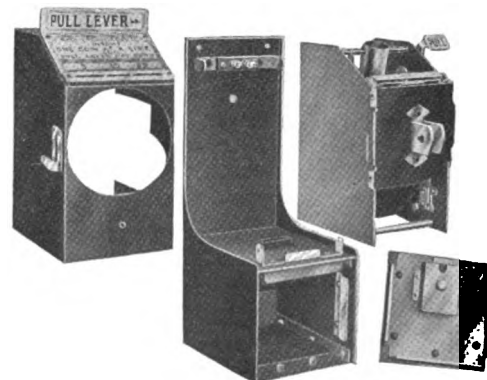
Baird Portable Set.



Baird Wall Set.

moving the cover which has a separate lock from the cash box.

A striking new feature of this machine is a cash-register



Showing Baird Pay Station Disassembled.

which counts nickels, dimes or quarters, and while safeguarding the integrity of the collector also protects the company's cash.



The signals in this machine, while corresponding with established signal codes are unique in several ways. Where a signal is composed of two or more bell tones a transmitter shunt gives a click between each and thus prevents mistakes or confusion. The bells used are made from a special metal, and have superior resonant and carrying qualities. Each signal stroke is absolutely uniform whether for nickel, dime or quarter.

An air valve controls the striking of signals so that a wide space is given between each signal stroke which with the click on the line make each signal unmistakable.

All mechanical noises are eliminated as the transmitter is shunted when the lever is pulled.

The company claims the machine is so well constructed and has so many unique features that engineers unhesitatingly commend it. Owing to the strength and simplicity of its construction the cost of maintenance is bound to be reduced to a minimum. It is made in various styles for wall, desk and portable use.

#### NEW PEIRCE SPECIALTY COMPANY PLANT.

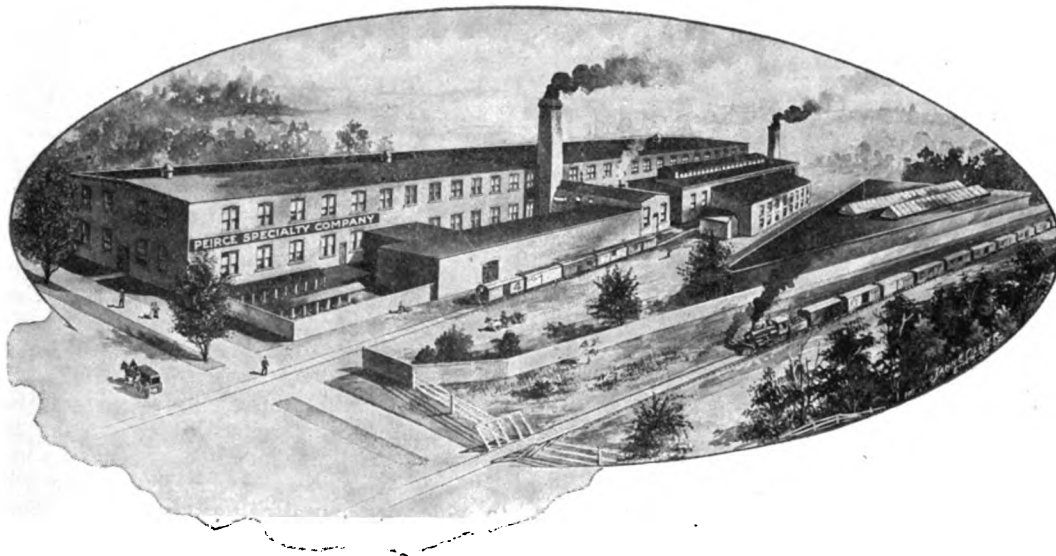
In the accompanying illustration is shown the new plant of The Peirce Specialty Company at Elkhart, Indiana.

The growth of this company has been phenomenal even in the annals of the electrical industry. Starting in an obscure

ana, was chosen as a permanent home for the Peirce Specialty Company.

From a shipping standpoint Elkhart is ideal, as from the standpoint of freight rates it is practically the center of the United States. The buildings shown in the accompanying illustration will be large enough to take care of the company's growth for several years; should it then be necessary, the company can purchase sufficient ground to make the necessary additions.

The specialties manufactured by the company which have proven so popular with the telephone and lighting companies are the well-known Peirce house brackets of all descriptions, corner irons, Peirce transposition brackets, Peirce expansive lead bolts, Peirce hammer-drills, and Peirce test connectors, and with the enlarged space now at the command of the company it is the intention to enter into the manufacture of the complete line of general construction material for electrical uses, to be of the same high quality as its present product. The company has on the press a handsome catalogue of goods of its present manufacture which will be sent for the asking. It has also issued a second edition of its booklet, "Transposition Methods." This little brochure is practically the only book printed today which treats of transposition. It shows the relative value of different methods now in general use, together with



New Factory Peirce Specialty Company, Elkhart, Indiana.

way in 1902 at 218 East Washington street, it soon found that it would need larger quarters; the company then moved to 12 and 14 South Jefferson street. The year 1904 found the company occupying still larger quarters at 42, 44 and 46 North Peoria street; again in 1905 the company found that these quarters were not adequate for its purpose and it removed to 105 South Jefferson street. Occupying these quarters but a short while, it was enabled by the purchase of one of the large telephone manufacturing plants to secure sufficient capacity so as to be able to, for the first time, manufacture its entire product complete. This found the company occupying premises at 241-247 South Jefferson street. It was soon apparent that even with the increased facilities the space would not permit the company to keep up with the demand for its well-known line of construction specialties, so the company caused plans to be drawn for a plant of sufficient size to warrant in locating permanently at one point. There were two things to be considered: first, power facilities; second, geographical location. Manufacturing sites from all over the country were submitted and after due consideration on the part of the officers, Elkhart, Indi-

the manner of stringing practice, and is a valuable addition to any engineer's library. It will be mailed upon request.

The general offices will be located at Elkhart, Indiana. The factory and experimental departments will have the personal supervision of Mr. C. L. Peirce, Jr. Mr. Peirce is the inventor of the different specialties which bear his name and as the head of the engineering staff, the company will from time to time introduce a number of new specialties of practical value to the telephone field.

A Chicago office will be maintained by the company, with a sales and purchasing department, at 241 South Jefferson street. The purchasing for the entire plant will be done from this office. The office will be under the supervision of Mr. A. L. Haase, who has been identified with the company since its inception.

Mr. C. L. Peirce, Jr., president of the company, to whose insight and practical knowledge of the telephone field is due the rapid growth of the company and the general adoption of its different specialties by the telephone and lighting engineers throughout the country, will continue to direct the policy of the company.

### DIAGRAM OF HARGIS JOINT.

In the September, 1906, TELEPHONY, we published illustrations of the Hargis cable splicing joints. We show herewith a drawing that gives a very clear idea of this clever labor and money saving specialty. The Hargis cable splicing joint is in reality a vertical sleeve that has many good points, which, it is claimed, are not to be found in the horizontal wiped joint.

By the use of this joint the company claims one can be absolutely certain that splices will be weather-proof under any and all conditions. It is said this is not true of the horizontal joint as it is so very difficult to make a perfect "wipe" because there are so many conditions under which it can be defective. By the use of the Hargis splicing joint it is not necessary to have an expert cable splicer whose expertness depends upon his ability to make a safe wiped joint. A regular lineman can do the work better and

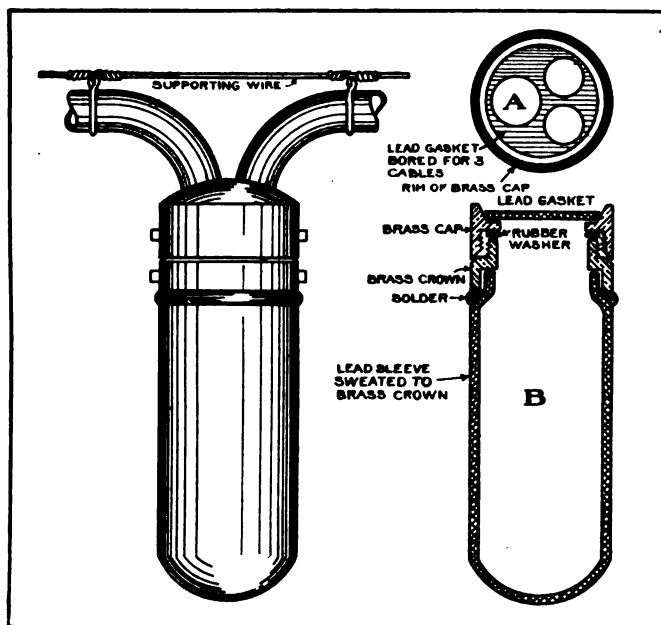


Diagram of Hargis Joint.

quicker with the Hargis splicing joint and he will save six to eight inches of cable on every joint.

W. N. Matthews & Brother of 226 North Second street, St. Louis, the manufacturers of the Hargis joint and Callahan cable roller, state that they are meeting with very gratifying success in the introduction of the Hargis joint, and expect a very large business this year. They have been somewhat handicapped in the past by their inability to get material fast enough to supply the demand for either Hargis joints or Callahan rollers.

### ANOTHER STEP FORWARD.

The Central Telephone & Electrical Company of St. Louis, after repeated requests for a nearer supply point from which to make shipments to its large and growing trade in the southwest, have met this demand by the organization of the Central Telephone & Electrical Company of Texas. This concern commenced business at Dallas, Texas, January 1, in charge of Mr. Royal Smith, well known to the telephone operating trade in the southwest, and Mr. George F. Poertner, who has successfully traveled that section for the St. Louis house.

The Central Telephone & Electric Company of Texas has been incorporated with ample capital, and will carry in Dallas stock not only a complete line of the well-known "Central" telephone apparatus for both magneto and central energy exchange, rural line, hotel and intercommunicating installations, but a complete stock of all standard telephone

construction materials, maintenance, supplies, tools, etc. Its buying facilities and mill connections are such that it will be enabled to quote attractive prices, and from the many expressions already received, it will no doubt meet with success from the start.

Carloads of goods have already gone forward and inquiries or orders addressed to the Dallas office will receive prompt attention.

### TELEPHONES IN RESTAURANTS.

The following story from New York on the use of telephones in restaurants shows that the eastern metropolis is adopting the restaurant telephone, which has been in use in Chicago for a long time.

A man accompanied by two women entered an uptown restaurant and sat down at a table near the wall, toward the rear of the room. After the man had given his order to the waiter he added:

"Oh, yes; and bring me a telephone."

"A telephone?" repeated one of the women. "How can you eat a telephone?"

"It's the latest wrinkle," responded the man. "Wait and you will see."

Sure enough the waiter returned in a few minutes with a desk telephone and several yards of silken electric cord. The telephone was placed on the dinner table, and the waiter then attached the silken cord to a socket in the side wall.

The man of the party picked up the receiver, moved the telephone into a convenient position and then asked central to give him the box office of a Broadway theater. After ordering three seats for the performance that night he asked the women with him if they had any message they wished to send to anyone.

One of the women telephoned to her hotel about some rings she had mislaid, and the other telephoned to a friend relative to a shopping engagement for the next day. By the time they had finished with the telephone the waiter had returned with the dinner. Before serving it he disconnected the silken cord from the wall socket and carried the telephone away.

"These portable telephones," said the head waiter of the restaurant, "are novelties which are fast becoming popular. We have just introduced them here."

"Each table is so arranged that there is a socket handy to which we can attach a portable telephone. The wires all lead to a private branch telephone exchange which we maintain in an upper room. Each wire and socket has a number, and a guest at a table can arrange to have a friend call him up on the telephone while he is at dinner."

### NO DOLLAR TELEPHONE SLOTS.

"Do you know why we did away with the automatic telephone having a dollar slot?" asked a telephone man recently. There was no answer.

"Frankly then, in plain black and white, it was because we wanted to protect some people from their own asininity. We only have half-dollar toll boxes now, and there is no further trouble. It used to be that a man would come along, call up the place he wanted, and then when told to put a dollar in the box would carefully take out a bill and poke it therein. Then he would get mad and want to know why the connection wasn't made.

"To patch the matter up, it required very often the diplomacy of a Japanese ambassador, in addition to the manifold efforts of the mechanic who fished the paper out of the machine.

"For that reason we did away with the old dollar slots and now have nothing higher than the half dollar. We are under the impression that there are no bills in this denomination and that we have a fair chance of getting silver."

# OPERATING

*A Paper Read Before the Manchester, England, Telephone Society*

By G. F. Staite

THE title "Operating" is a very comprehensive one, and, of course, the whole question is quite beyond the scope of one paper. I propose to deal with only one detail, namely, the arrangement of duties and positions. This may appear on the face of it to be a somewhat simple matter and not of very great interest.

When I state, however, that the ideal arrangement has not yet been arrived at, that a great improvement on any present known system is possible, and that the arrangement of duties and positions is one of the most important factors in the giving of a smart service, it may give you some idea of the wide scope of the subject, and the interest which it really contains.

It involves an accurate knowledge of the following main points:

- (1) The actual traffic.
- (2) The value of the traffic.
- (3) Work capacity of staff.
- (4) Distribution of load.

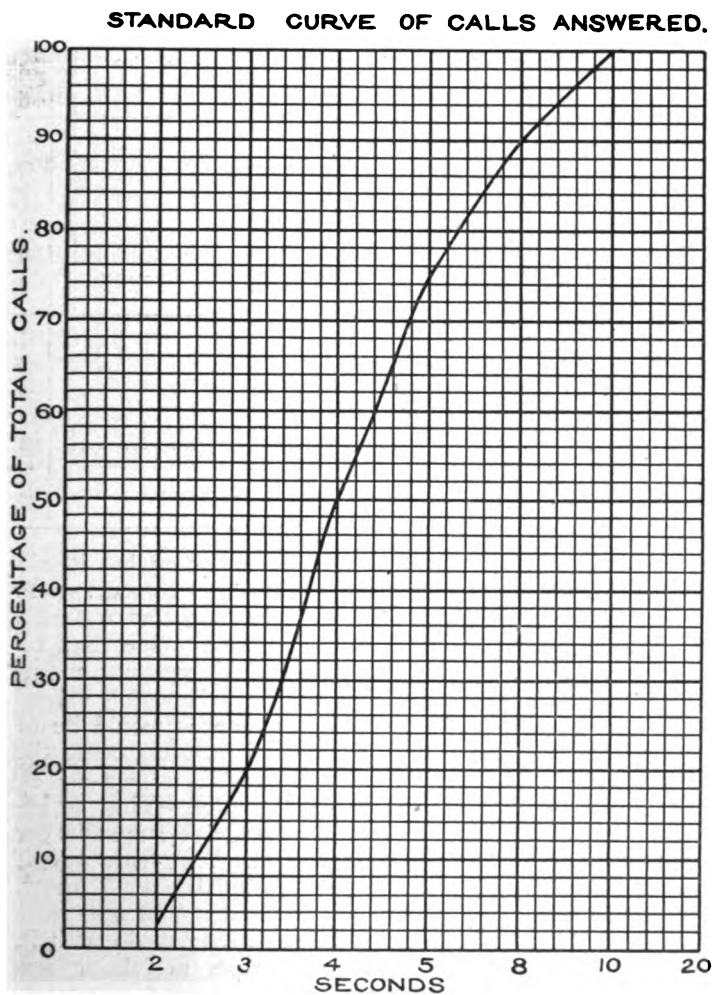


Figure 1.

Before proceeding to discuss these it will be as well to examine the broad rules laid down with regard to the service and the capacity of an operator.

Figure I shows main exchange standard curve of calls

answered. This is supposed to be attained by every exchange on the company's system. For some reason the clearing after conversation is not standardized in the same way, but we can take it for granted that the same standard applies. The average attention according to such a curve would be 5.72 seconds.

The main exchange standard of capacity for operators is 100 calls per half hour, counting one junction call as two local calls. In addition, they allow certain excess to cover absence on holiday, or owing to sickness, and to make allowance for learners, etc.

These, then, are two important objects we have to keep in view: (1) To arrange the hours of duty so as to conform to the 100 calls per half-hour standard, and (2) to

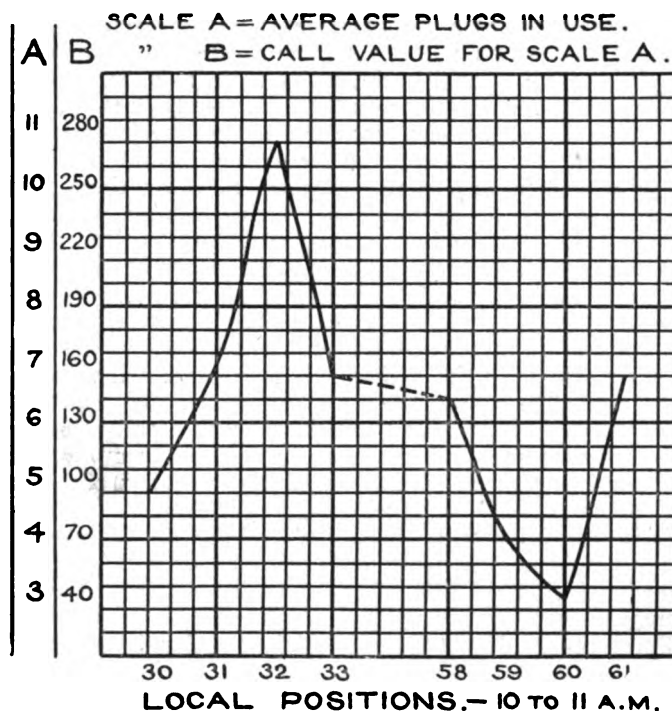


Figure 2.

distribute the operators and load so that at all times each operator shall be in the best possible position to handle her own subscribers and to help her neighbors, and to keep within the attention standard.

The question as to whether these standards are correct is open to discussion. If the second be too high the first cannot be attained. For the purposes of this paper we will assume they are correct. But I do not wish to convey the idea that main exchange valuation is correct. I will show, later, evidence that it is not so.

I will now proceed to discuss in their order the four main points previously mentioned.

(1) *The Actual Traffic.*—This is supposed to be obtained from the usual quarterly record, prepared for statistical and other purposes, the results of which are published in book form and sent to the various districts. This record is taken on one day and is necessarily left very much in the hands of the operators. Now this does not give sufficiently accurate results for our purpose, for while it may be fairly



correct in the aggregate, in detail it will be found to vary very considerably from the real facts of the case. There are many ways of getting at the truth. In Belfast, an exchange with about 40 positions, I recorded each individual subscriber's calls for one complete day (8 a. m. to 8 p. m.) by means of two specially engaged recorders, checked by selected operators. The operators recorded in half hours while the recorders made one continuous record for the twelve hours. The operators' records were 3.6 per cent less than the recorders'. The recorders were coached for six weeks previously to taking the actual record, and their results were taken as accurate. Such a record for Manchester would take too long and I have taken a shorter method which I will try to explain. It is based on the average number of plugs in use for any stated period and the average duration of the subscriber's calls. Now to get the latter figure accurately would require some thousands of stop-watch observations, and this again would take more time than I have at my disposal, so I have fallen back on a double record expedient. First of all a count was taken of the plugs in use on each position every five minutes during one day by independent recorders, and from these an average figure representing the number of cords in use for each hour for each position was obtained. It doesn't really matter at present what value in calls this represents, so long as it gives a comparative value for each position (Figure II). You will see by the figure that the values range from 2.9 to 10.6 in the hours 10 to 11 a. m. I have only shown a few positions on the figure—a busy group and a fairly quiet group—but each containing the highest and lowest value for the exchange respectively.

The next step was to get an actual value for these comparative values, so as to show which positions were too heavily loaded and which were too lightly loaded. This was done by taking eight positions and recording each subscriber's line by a special recorder (the operators keeping a peg count in half hours), and a plug count being taken at the same time each five minutes as before. In this way we get a sample of the exchange whose actual call value we know and whose plug value we also know. We can now draw a curve (Figure III) which will give a call value for any particular plug value. In recording the "samples" the operators' peg record is only used for checking purposes. No comparison takes place between the various counters. This is most important. Having found a call value, we can now set up a second scale in Figure II (scale B), and we immediately get the call value for each position in the exchange.

These results do not come out quite regular, but by tabu-

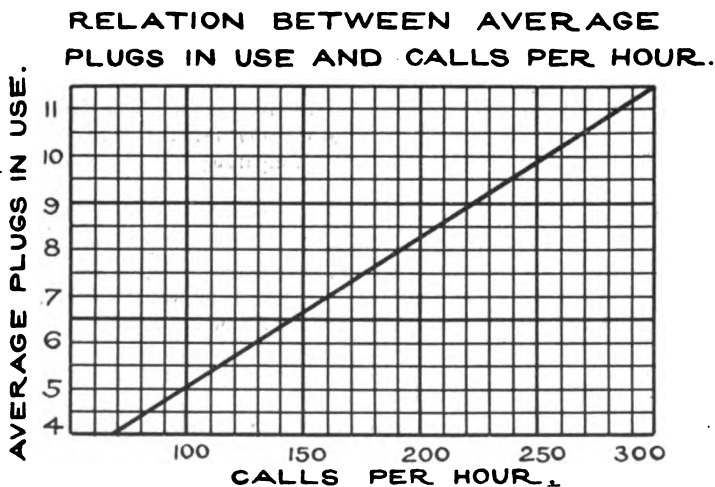


Figure 3.

lating all the results the correct figures will be approximately arrived at. You will see later, when we are discussing the distribution, that with good team working a

variation of, say, 10 per cent to 15 per cent in individual positions doesn't matter. In the present case 64 positions-hours were tabulated, and the general figures approximated to the curve shown on Figure III.

We can now apply the scale B (Figure II) to the whole exchange, and so get a fairly accurate knowledge of the daily load.

(2) *The Value of the Load* depends upon the time required to make connection from one subscriber to another. The main exchange valuation, before referred to, is not any real help. They allow one call for any local connection and two for any junction. This is over value for some exchanges and under value for others.

If it be allowed that the call from an unlimited rate subscriber to any subscriber who can be called from the multiple without bringing into use any special apparatus is the call which takes the least labor and time, that call may be taken as a standard and can be represented by unity.

From the standard comparisons can be made to determine the value of every other sort of call which passes through the exchange. The valuation of the load depends, then, on purely local circumstances.

To make this clear I have prepared a table showing the different circumstances which affect the values at Manchester, Belfast, and a central battery exchange (see Table I). The information concerning central battery exchange is

TABLE I.

	MANCHESTER (ring through.)		BELFAST (self-restoring indicator.)		CENTRAL BATTERY EXCHANGE.	
	Service.	Value. % of total calls.	Service.	Value. % of total calls.	Service.	Value. % of total calls.
Destination of call.	Flat, party lines, outgoing junction to Post Office..... 1	99	Flat, message rate... 1	86	Flat, message rate, party lines, Post Office..... 1	88
			Party line... 2	10		
	Message rate 2	1	Outgoing junction to Post Office 3	4	Outgoing junction..... 2	12
Original call.	Value of 100 calls—					
	From flat rate.....	101	..	118	..	112
	From party rate.....	All commuted rate..... 101	Message rate..	206	Metered or commuted.....	112
	Record and auto box.... 202	Record and auto box....	236	Metered.....	112	

second hand, so I cannot vouch for its accuracy, but it will serve as a good illustration of the point under consideration.

On the face of it this would appear to show that 100 calls on a common battery board are of greater value than on Manchester board. The explanation of this seeming anomaly is in the design. Each of these three exchanges is valued on its own standard, but the three standards would be of very different values, that of Manchester probably being the highest.

(3) *The Work Capacity of the Operator.*—This, as before stated, is set down by main exchange at 100 calls per half hour per operator (valued). Some few years ago it was set down as 90. Why it was changed I don't know. Improved apparatus and possibly the tendency of operators to over-record may both have had something to do with it, the records showing that the 90 calls per half hour was frequently considerably exceeded.

The standard is supposed to represent the average capacity; but, taking in the whole operating staff, from the first senior girl to the last joined half-timer, I have not found the average to come up to this standard. Taking the two busiest half hours in the morning on the day on which I took the plug count, the calls for the flat-rate operators

averaged 81 per operator per half hour, or taking the operators' own figures for the last quarterly record the average was 88. The operators dealing with these calls were twenty-four seniors and forty-seven juniors, twenty of whom had under one year's service. To get a fair average figure for all operators it is necessary to take these new operators into consideration, and if we look for half the standard amount of work from them we are expecting probably quite as much as we shall actually get. To show what this means to the rest of the staff I have deducted 50 calls per operator for these twenty operators. This gives for the efficient staff an average of 103 calls per half hour. This is a more reasonable way of looking at it than lumping the whole staff together and fixing a standard average. Different staffs have different proportions of inefficient staff, and in some towns the class of employe is better than others. Here again we have local conditions creeping in.

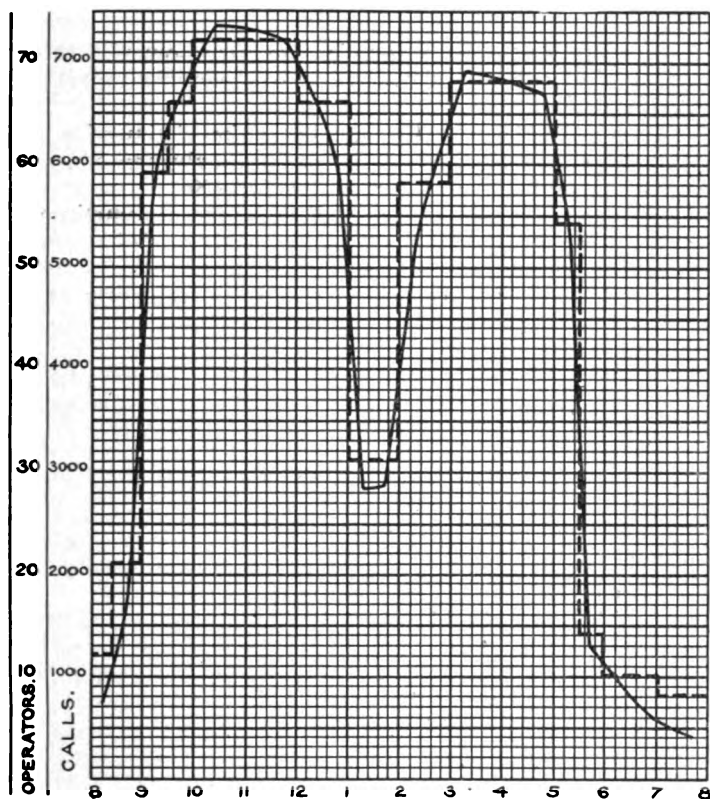


Figure 4.

We will now assume that we have definitely decided the work capacity of the whole staff, and as I have been dwelling on Manchester, let us suppose that we have decided that the average work capacity of the Manchester efficient operators to be 100 calls per half hour, and that we consider it safe to work up to that figure. We have now so to arrange the work that under all the varying conditions of the day each operator will be in a position to receive and properly handle her proper share of work.

(4) *Distribution of Load and Arrangement of Operators.*—The first step is to find the total load per half hour and plot the result on squared paper. Then, having done this, build up another curve on the same sheet, following as nearly as possible the first curve, using 100 calls as the unit in the first place and one operator as the unit for the second; the two curves are of somewhat different character, the calls curve, advancing or diminishing by one-hundredths of units in a fairly even manner, is represented by a continuous line drawn from point to point, which points represent the aggregate calls for the particular half hour in which they appear. The operator's curve, advancing or diminishing by whole units, is shown as a dotted line following the squares of the paper.

I said just now that the second curve should follow closely the first. This is theory. In practice it is not wise to follow too closely. Take the first half hour on the curve (Figure 4), you will notice a much larger proportion of staff on than would cover the 100 calls per operator. This is due to the difficulties under which they now work. Each operator has a number of positions to operate, she has to walk about from position to position instead of having everything at her finger-ends. The adverse conditions diminish as the load increases and each operator's area gets smaller and smaller, and you will notice that by full-load time it has disappeared. After the peak is passed it is not wise to commence to draw off at once, because the operators are beginning to tire and team working would be interfered with to some extent. Usually no reduction is made until twelve o'clock. From twelve o'clock to three the dinners are arranged, and at three o'clock the full afternoon staff is on duty and an effort should be made to maintain this full staff until at least five o'clock.

From this chart we get the number of operator-hours required and thus the number of operators. Table II shows a good working basis for the arrangement of the staff. Main exchange lays down the rule that all junction, party line, and message-rate positions shall be worked by seniors, and also that one out of each group of three local positions shall be a senior.

TABLE II.

RANK.	POSITIONS.
CLERK-IN-CHARGE ...	
SUPERVISORS.....	One for each 9 operators' positions.
RECORD OPERATORS...	As required.
SENIOR OPERATORS...	One for each junction, party line and message rate position. One for each section of three positions for local subscribers. Reliefs for holidays and sick absence as required.
JUNIOR OPERATORS...	One for each remaining local position. Reliefs for holidays and sick absence as required.
LEARNERS.....	About 5 per cent. or 6 per cent. of total staff.

You will notice that there are more operators than positions. The excess operators provide for holidays, absences for sickness, etc.

The final arrangement of the operators' times of duty and positions at the board calls for a considerable amount of ingenuity. At almost every point there are difficulties. Some of the main features are as follows:

- (1) The day of eight hours should be in two equal parts of four hours each. Anything over four hours is too long for an operator to sit at one time.
- (2) Each operator must work the same number of hours.
- (3) Each operator in each class must take each duty in turn.
- (4) There must be a just proportion of seniors and juniors on duty at each half hour.
- (5) Certain positions are the right ones to work from at very slack times, and certain positions are the right ones to leave open at less busy times.
- (6) Positions should not be changed when avoidable during a spell of duty.

To discuss each of these items would take up too much time, so I will shortly explain a system at present working which fulfills all these conditions. First, however, I will try and show some of the general rules of procedure in filling the positions and the arrangement indicated will hold good for the busy hours of morning and afternoon. Select certain junior positions equal in number to the difference between the morning and afternoon staff and load these to

half load; let these positions be occupied in the morning by the later juniors (B), and in the afternoon let them be vacant, using the operators for these positions in the room which will be left vacant by other operators who work split duties, to provide for late duties. These positions should be selected with a view to spreading out the extra work as far as possible. Where there is one unbroken line make them equidistant. Manchester is a peculiar example. There are four separate lines of operators, giving eight end positions. Considering one line only, the proper place for the vacant position would be in the middle; but here we have to consider the two sides of the multiple, and to have two vacant positions opposite to each other would increase the drawbacks, so we place them a little out of the center in each case and in opposite directions.

Table 3.

DUTIES			POSITIONS		
N <sup>o</sup>	ON	OFF	A.M.	P.M.	
1	10 - 2	6 - 10	5B	12B.	SENIOR.
19	9 - 1	2 - 6	6A	5B.	GOOD JUNIOR.
45	9 - 1	2 - 6	6C.	6A.	LESS EFFICIENT JUNIOR.

Next select the senior operators for the local positions, one for the center position of each group of three. Put very good operators next to the half-load positions. Then put an efficient junior at each section, observing the same caution of selecting a very good one next to the half-load position as in the senior. This leaves one position at each section for the less efficient juniors.

Having arranged these take each group of three and weigh its merits. Some groups can be called good and some only fair; don't let the "only fair" groups be adjacent to each other.

The Belfast duty sheet which is one I am going to describe fulfils all the conditions previously mentioned, viz.—

(1) No operator works more than four hours at a stretch.

(2) Each operator works 45 hours per week.

(3) Each operator in each class takes each duty in turn.

(4) Seniors and juniors having separate duty lists, there is always a just proportion of both on duty.

(5) The positions changing with the duties, the same positions are opened and closed automatically each day at the same time.

(6) For the same reason the minimum number of changes takes place during the spells of duty, and these are automatic, and the same changes, which are the necessary ones, take place every day.

Table 3 is a portion of the duty sheet. You will see by this that operator 1 does a split duty, and so is away during the afternoon. Her position being one that cannot be closed, the good junior from 6a takes her place from two to six; 6a also is a position which cannot be closed, so the less efficient junior from 6c takes 6a; 6c, being a half-loaded position and suitable for leaving vacant in the afternoon, is closed.

There is just one other point I wish to mention, and that is design. End positions are things to be avoided on subscribers' sections; they are affected in the same way that a vacant position affects adjacent positions. This checks

the speed of answer, and slow calls must be looked for and guarded against by careful distribution. It is estimated that an operator on end positions loses about 20 per cent efficiency.

In an exchange of good design there would only be two end positions, the total loss in efficiency being only 40 per cent of one operator's capacity.

Taking Manchester with 72 positions, this would only mean .5 per cent loss per position, not a serious matter. But with the present design there are eight end positions, which means 160 per cent operators' capacity loss, or 2.2 per cent per position.

### A TIP TO TELEPHONISTS.

Mayor Brush, of Mt. Vernon, Ohio, who established a municipal ice plant, was congratulated on this plant the other day, and Mayor Brush answered, says the *Electrical Times*:

"Corporations and monopolies are very powerful things, but, one way or another, it is always possible to get just treatment from them.

"I have a friend, Whiting, who is the victim of a telephone monopoly. In his town there is only one company, the rates are high, and the service is poor.

"Whiting's telephone got out of order. Sometimes it would work and sometimes it wouldn't. It needed attention, and Whiting said so repeatedly, but the company wouldn't do anything for him but send him a bill promptly at the month's end, and the telephone remained in a very unsatisfactory state.

"Finally Whiting put his brain to work on the problem of getting his telephone repaired, and the next time he was called up, taking down the receiver, he said mildly:

"Hello."

"Hello," was the reply. "Is this Whiting?"

"No," said he.

"Isn't this No. 713-A?"

"No, indeed. It is 872-B, Mrs. Cora Thompson."

"Oh, excuse me."

"Whiting smiled and returned to his work. A minute or two passed and he was called up by a feminine voice—the proud, haughty voice of the young lady at the exchange.

"No. 713-A, isn't it?" she said.

"No, no," said Whiting.

"Isn't this Mr. Whiting?"

"No. It is Harry Smithers."

"What is your number?"

"Why, 1192, of course."

"Oh."

"Silence. Then a minute later the telephone girl rang again.

"Hello. No. 713-A? Mr. Whiting?" she said.

"No," Whiting answered in a surprised tone. "This is No. 321-A."

"Oh."

"Five minutes' pause. Then:

"Hello. No. 713-A?"

"It was a man's voice, the manager's. Whiting, smiling grimly, answered it.

"No. This is the Globe theater."

"There was an angry mutter over the wire, and half an hour later a foreman and six assistants, armed with all kinds of batteries and tools, invaded Whiting's office. When they left the telephone's defect had been repaired, and it was, for the first time in six months, in perfect condition."

Considerable progress is being made in the construction of telephone lines in Egypt, and during the past year 850 lines will be completed. There are at present 1,036 lines open, 457 of which were added during the last year.



# PROGRESS OF THE MONTH

Compiled by H. A. Downey

## NEW COMPANIES

**GRAFTON, N. D.**—The farmers west of this city are forming an independent telephone company.

**BERESFORD, S. D.**—The North Star Telephone Company has been incorporated with a capital stock of \$25,000.

**COMSTOCK, Neb.**—The Comstock Telephone Company has been incorporated, with a capital stock of \$10,000.

**RICH HILL, Mo.**—The Happy Hill Telephone Company has been incorporated to construct a telephone system.

**CANTON, Kans.**—Articles of incorporation have been filed for the Canton Telephone Company of this place.

**LANSFORD, N. D.**—The First Farmers' Telephone Association has been incorporated with a capital stock of \$14,000.

**LITTLE FALLS, Minn.**—A farmers' telephone company has been organized to construct a line from Little Falls to Royalton.

**BERESFORD, S. D.**—Articles of incorporation have been filed for the Pleasant Telephone Company with a capital stock of \$10,000.

**LOST NATION, Ia.**—A new independent telephone company is being organized at this place. Among those interested in the project is H. B. Acott.

**HASTAIN, Mo.**—The Hastain Telephone Company has been organized and incorporated by the following: I. W. Stetson, G. S. Hart and G. P. Howell.

**CRISFIELD, Kan.**—The Crisfield Telephone Company was organized recently for the purpose of constructing a telephone line between Crisfield and Attica.

**WILSON CREEK, Wash.**—At a recent meeting of the stockholders of the Wilson Creek Telephone Company it was decided to incorporate with a capital stock of \$2,500.

**MOAB, Utah.**—The Blue Mountain Telephone & Electric Company has been organized for the purpose of building a telephone line into Bluff City and Indian Creek.

**MENDOTA, Va.**—The Mendota Mutual Telephone Company has been incorporated with the following officers: President, C. Q. Johnson; vice-president, G. W. Hendricks.

**BELLINGHAM, Wash.**—The Laurel Sunset Company has been organized at Laurel and will construct a telephone line to this city. W. L. Chandler is president of the company.

**HIGHLAND, Kans.**—The Highland Telephone Company has been organized with the following officers: President, Gus Foreman; secretary, Frank Hubbard; treasurer, J. M. Neills.

**ROCK ISLAND, Ill.**—The Simpson Mutual Telephone Company has been incorporated, with a capital stock of \$2,000. The incorporators are John R. Harper, Milo Austin and J. J. Murrie.

**SHELBYVILLE, Ky.**—The Shelby County Telephone Company has been incorporated with a capital stock of \$120,000 by W. J. Thomas, B. A. Thomas, E. J. Doss, J. C. Burnett and others.

**GENEVA, Kans.**—The Geneva Rural Telephone Company has been organized with the following officers: President, C. L. Knowlton; treasurer, D. D. Spicer; secretary, George Tippon.

**SYLVESTER, Ga.**—The Sylvester Telephone and Telegraph Company has been incorporated with a capital stock of \$2,500 by T. A. Spurlin, Mrs. Joseph Spurlin, J. G. McPhaul, and others.

**MARFA, Tex.**—A company has been organized in this place with a capital stock of \$20,000 to install an electric light, ice and telephone plant. Orders have been placed for the equipment.

**RANTOUL, Ill.**—The Coon Brothers Telephone Company has been incorporated, with a capital stock of \$60,000. The incorporators of the company are James S. Coon, Edmond G. Coon, Rose O. Coon.

**MARFA, Tex.**—The Marfa Power Company has been incorporated with a capital stock of \$3,500 by W. F. Mitchell, Charles S. Murphy, and L. C. Britt for the purpose of constructing a telephone system.

**NEW ATHENS, Ill.**—The Eastern Farmers' Telephone Company has been incorporated with a capital stock of \$400. The incorporators of the company are: Henry Kaiser, George Irwin and R. Q. Haupt.

**RICH HILL, Mo.**—The Hickory Hollow Telephone Company of Rich Hill has been incorporated with a capital stock of \$500. The incorporators are Grant Stine, J. L. Gander, C. F. Kienberger, and others.

**WABL, Wash.**—Articles of incorporation have been filed for the Silver Lake Telephone Company, with a capital stock of \$2,000.

The incorporators are: George Hemni, T. B. Jones, and Richard Kohler.

**NORTHFIELD, Minn.**—The Northfield Telephone Company has been incorporated, with a capital stock of \$25,000. The incorporators of the company are as follows: William Ebel, D. D. Turner, and A. L. Dixon.

**TELL CITY, Ind.**—The Citizens' Telephone Company has been incorporated, to operate a telephone system in Tell City. The directors of the company are John Sweeney, Frank J. George and Vincent Smith.

**TRUMANSBURG, N. Y.**—The Trumansburg Citizens' Telephone Company has been incorporated, with a capital stock of \$5,000. The incorporators are: R. J. Hunt, Trumansburg; W. J. Garvey, E. B. Rogers, Elmira.

**MASON CITY, Ill.**—The Mason City Telephone & Telegraph Company has been incorporated, with a capital stock of \$2,500. The incorporators of the company are as follows: W. A. Grandy, J. F. Culp, and H. F. Reason.

**PONTIAC, Ill.**—The Livingstone County Home Telephone Company has been incorporated with a capital stock of \$200,000. It is the purpose of the company to construct, maintain and operate telephone and telegraph lines.

**SCOTTSVILLE, Ky.**—The Scottsville and Liberty Telephone Company of this city has been incorporated with a capital stock of \$160. The incorporators of the company are E. H. Reynolds, D. N. Reynolds, J. W. Whitlow.

**LA HARPE, Ill.**—La Harpe is to have another telephone exchange soon, the Farmers' Telephone Company. All the country lines will connect with the new exchange. Many business men and others are interested in the enterprise.

**HERRICK, S. D.**—Articles of incorporation have been filed for the Rosebud Telephone Company, with a capital stock of \$25,000. The incorporators of the company are M. F. Slaughter, Gregory; G. N. Venvery, Lucius Leslie, Naper, Neb.

**CASEY CREEK, Ky.**—The Casey Creek & Merrimac Telephone Company has been incorporated, with a capital stock of \$220. The incorporators of the company are as follows: R. L. Beard, J. S. Beard and George Gilpin, all of Casey Creek.

**CASHION, Okla.**—Articles of incorporation have been filed for the Mt. Zion Rural Telephone Company, with a capital stock of \$2,000. The incorporators of the company are as follows: D. M. Gilbreath, F. H. Smith, and T. G. Abercrombie.

**NEW YORK, N. Y.**—The United Electric Service Company has been incorporated with a capital stock of \$5,000 to operate telephone and telegraph lines. The incorporators are M. W. Rayens, J. T. Mulhall, J. T. Delaney of New York City.

**RENTON, Wash.**—Articles of incorporation have been filed for the Renton Independent Telephone and Telegraph Company with a capital stock of \$10,000. The incorporators of the company are as follows: A. T. West, E. L. Heath, and Peter McRae.

**CHALMERS, Ind.**—The Chalmers Telephone Company, White county, has been incorporated with a capital stock of \$10,000. The incorporators are J. C. Chamberlain, A. G. Fisher & Son, Ross, Ross & Barr, R. V. Anderson, M. O. Raub, and C. E. Smith.

**CARROLL, Neb.**—A new telephone company has been organized by John Heeren, John Shannon, R. D. Merrill, and J. W. Johnson for the purpose of establishing a telephone system at this place. It is to be an incorporated stock company with \$10,000 capitalization.

**OMAHA, Neb.**—The Independent Telephone Company has been incorporated in this city, with a capital stock of \$2,000,000. The incorporators are as follows: T. E. Parmele, T. H. Pollock, Stockton Heath, W. C. Bullard and F. W. Judson.

**CLEVELAND, O.**—The Ohio Electric Specialty Company has been incorporated, with a capital stock of \$20,000. The incorporators of the company are as follows: P. C. Greenwall, F. C. Hackett, Walter S. Lister, Elizabeth Lewis, L. M. Henders.

**VERMILLION, Alb., Can.**—An effort is being made to incorporate the Alberta Power, Light and Supply Company to supply electricity and to carry on a general telephone business. The name of H. V. Fieldhouse is mentioned in connection with the enterprise.

**COLUSA, Calif.**—Articles of incorporation have been filed with the county clerk by the Colusa County Telephone Company to operate a telephone system in this county and construction work will be commenced at an early date. The incorporators of the company are A. S. Lindstrom and C. L. Donohoe of Willows, J. F. Campbell of

Maxwell, C. L. Schaad and G. C. Comstock of Willows, J. Morris Jones, W. T. Rathbun, Ernest Weyand and Oscar Robinson of Colusa.

**GREENFIELD, Ind.**—The Westland Telephone Company, of Westland, Hancock county, has been incorporated, with a capital stock of \$260. The directors of the company are J. F. Coffin, W. H. Power, Levi Gulley, Henry Cobb, John S. Curry and R. B. Binford.

**MANGUM, Okla.**—The Independent Mountain Telephone Company has been incorporated, with a capital stock of \$5,000. The incorporators of the company are: J. T. Dr. Arman, J. R. Crook, and J. R. Harris of Willow, W. W. Boyd and B. F. Waggoner of Jester.

**ASHTABULA, O.**—A new Independent rural telephone company has been organized in Williamsfield township and incorporation papers have been applied for. The officers elected by the new company are as follows: President, Dr. N. C. Satterlee; secretary, Will Nesbit.

**FOUNTAIN, Mich.**—A farmers' telephone company will be organized for the purpose of installing a telephone system in this vicinity. A temporary organization has been effected, with the following officers: President, Henry Eoff; secretary, Sam Burns; treasurer, Del Manchester.

**PECKHAM, Okla.**—The Air Line Mutual Telephone Company has been incorporated, with a capital stock of \$225. The incorporators of the company are as follows: Col. Lockwood, C. H. Cunningham, James E. Howarth, and H. P. Maus of Newkirk and Frank Coffeen of Peckham.

**MARLINGTON, W. Va.**—The Appalachian Pole Company has been organized with the following officers: President, E. M. Arbogast; secretary-treasurer, J. Ed. Arbogast; general manager, A. W. Arbogast. It is the purpose of the company to buy and sell telegraph telephone and trolley line poles.

**NAVASOTA, Tex.**—The Washington-Navasota Telephone Company has been incorporated with a capital stock of \$750 for the purpose of constructing a telephone line in Grimes, Brazos, and Washington counties. The incorporators of the company are H. C. Lende, Gus Stulz, J. W. Brosig, and others.

**CORYDON, Ind.**—The Harrison County Farmers' Telephone Company has been incorporated with a capital stock of \$5,000. The directors are as follows: T. J. Stevens, Crandall, Ind.; C. B. Anderson, Corydon; D. C. Curvis, New Salisbury; John Gluitz, Corydon; Louis P. Wagner, Crandall.

**MADISON, Wis.**—Articles of incorporation have been filed with the secretary of state for the Valley Telephone Company of Buena Vista, Portage county, with a capital stock of \$1,000. The incorporators of the company are as follows: D. F. Gates, L. E. Wentworth, H. H. Rood and J. W. Boursier.

**WALKER, Ia.**—A new company, known as the Farmers' Mutual Telephone Company, has been incorporated and a petition is now being circulated asking the mayor to call a special meeting to submit the proposition of granting the company a franchise to do business within the corporate limits of Walker.

**MODESTA, Cal.**—A Farmers' Telephone Company has been organized at this place and the work of constructing a telephone system will begin at once. Among those interested in the enterprise are the following: Frank Gomez, H. L. Thompson, E. F. Hutchings, Frank Goodwin, and W. H. Palmer.

**SUTTONS BAY, Mich.**—The East Leland Telephone Company has been organized with the following officers: President, S. E. Blackwood; vice-president, Dr. J. F. Slepica; secretary, Ed Steffens; treasurer, Philip Egeler; directors, Henry Kahrs, Philip Poertner, William Spinniken, Theodore Each, Eli Firestone.

**MIDDLETOWN, Ill.**—The Middletown Mutual Telephone Company has filed for record with the county recorder, articles of incorporation. The articles show capital stock of \$2,500 and the number of shares 125. The incorporators of the company are as follows: J. C. Lloyd, P. J. England, Thomas Dorgan and Louis A. Buckner.

**LEXINGTON, Neb.**—The Dawson County Mutual Telephone Company, operating exchanges at Lexington and Eddyville, with connecting lines between, has filed articles of incorporation in the secretary of state's office. The capital is placed at \$3,000 and the incorporators are Nick Kopf, R. Birth, D. Campbell, J. A. Wolford, A. J. Watkin.

**CHICAGO, Ill.**—The Tenney-Ingraham Company has been incorporated with a capital stock of \$10,000. The incorporators of the company are as follows: Frank P. Schmidt, Wallace A. Walker and William G. Wise. It is the purpose of the company to manufacture electric apparatus and operate electric light and telephone systems.

**CANAL DOVER, O.**—The farmers in the vicinity of Winfield are organizing a new Independent telephone company to be known as the Dover-Winfield Telephone Company, which has for its purpose the construction of lines from Winfield to Canal Dover, at which point connections will likely be made with the Tuscarawas County

Telephone Company. The officers of the company are as follows: President, O. S. Welty; secretary, J. E. Richardson; treasurer, Fred Espenschied.

**CANNELTON, Ind.**—The Citizens' Telephone Company, recently organized, has been incorporated with a capital stock of \$10,000. The officers of the company are as follows: President, L. C. Lasher; secretary, John Malone; treasurer, James Graves; directors, George Mann, Vincent Smith, John Moutschka, Jr., Tobias Simon, August Kahlbrier.

**KLINESVILLE, Pa.**—An Independent Telephone Company has been incorporated at this place by the following: A. Greenawalt, Kempton; D. P. Berk, Albany; W. Kunkel, A. D. Kunkel and others of Klinesville. The company is building lines between Klinesville and Kempton and intends eventually to connect with Trexler, Wanamaker, Steinsville, Jacksonville and Lynnport.

**HYDEN, Ky.**—The Pine Mountain Telephone Company has been incorporated, with a capital stock of \$3,500. The incorporators of the company are as follows: H. S. Eversole, W. D. Feltner, and Thomas L. Gabbard, of Hyden, and James H. Jeffries, of Pineville. It is the purpose of the new company to construct a telephone line from Hyden, Leslie county, to Pineville, Ball county.

**LORTON, Va.**—The Lorton Telephone Company has been incorporated, with a capital stock of \$5,000. The incorporators of the company are: Howe Totten, president; D. Morgan, William R. Ward, F. H. Elmore, B. O. Holt, all of Fairfax county. The purpose of the company is to construct a telephone line 100 miles long in the counties of Prince William, Fairfax and Alexandria.

**CHICKASHA, I. T.**—An Independent telephone company to be composed entirely of home people is being organized here for the purpose of putting in a modern telephone system. Chickasha has been badly served in the past two years in the way of telephone service. It is proposed to ask the city council for a franchise and to put in the most up-to-date system obtainable, with underground cable.

**GRASS VALLEY, Cal.**—The Clear Creek farmers have organized a telephone company for the purpose of connecting with this city, and will at once begin construction work. The officers of the company are as follows: President, E. B. Odell; vice-president, W. T. Williams; secretary, Mrs. L. Black; treasurer, Thomas Loney. The people of Chicago Park also contemplate the construction of a similar line.

**DAYTON, Ia.**—Articles of incorporation have been filed at the county recorder's office for the Dayton Mutual Telephone Company. The company is capitalized at twenty-five thousand dollars. The directors have bought out the Farmers' Mutual Telephone Company and are planning to extend the system. The directors of the new company are Messrs. H. E. Nelson, Charles Pearson, S. A. Burnquist, J. W. Greene.

**KNOWLTON, N. J.**—Articles of incorporation have been filed by the Delaware & Belvidere Telephone and Improvement Company with a capital stock of \$2,000. The incorporators of the company are as follows: C. J. Quigg, F. Brisbane, M. C. Allen, G. J. Prah, J. E. Albertson, J. H. Albertson, and L. R. Keineour. It is the purpose of the company to construct telephone and telegraph lines in the state of New Jersey.

**MOORE'S HILL, Ind.**—An Independent telephone company to be known as the Moore's Hill Telephone Company has been organized by the business men of this place. It is the purpose of the company to install an up-to-date exchange in this place and lines will be built to the surrounding country. The company will have connection with the Southern Indiana Telephone Company on the east and the Osgood Telephone Company on the north and west.

**COOPERSTOWN, N. D.**—The Griggs County Telephone Company has been incorporated, with a capital stock of \$50,000. The directors of the company are as follows: David Bartlett, Joseph Buchheit, Geo. H. Condy, Chas. Burseth, M. D. Westley and A. Goff. As soon as the certificate of organization is received from the secretary of state the officers will be elected. The company which is composed of some of the best business men of the county recently purchased the local telephone system owned by A. Goff. Improvements will be made in the system.

**WORCESTER, Mass.**—Articles of incorporation have been filed with the Secretary of State for the Worcester County Telephone Company. The company starts with a capital of \$5,000, which amount, however, is nominal, as the capitalization is to be considerably increased later. The new company is in no way connected with the Citizens' Telephone & Telegraph Company, which some time ago petitioned the board of aldermen for a franchise, but apparently abandoned the matter. The officers of the company, as shown by the articles of incorporation, are as follows: President, William H. Cook, who is treasurer of the George C. Whitney Manufacturing Company; vice-president, Richard Healy; treasurer, Charles F. Marble; clerk, Alexander H. Bullock; directors, the above officers and Paul B. Morgan, Alonzo B. Whitcomb and Samuel E. Winslow.

**CHEYENNE, Wyo.**—A certificate of incorporation has been filed for the Jackson Valley Telephone Company by S. N. Leek, Abra-

ham Ward, J. A. Adams, Fred Lovejoy and W. W. Smith in the office of the secretary of state. The object of the corporation is to construct, operate and maintain telephone lines in Jackson Valley and surrounding country; to acquire title to such real estate and personal property as may be necessary in the conduct of a telephone business, and to do any lawful act to promote the welfare of the company. The capital stock of the company shall be five thousand dollars, divided into two hundred shares of a par value of twenty-five dollars per share, fully paid and non-assessable. Five trustees shall conduct the affairs of the company for the first year and they are as follows: S. N. Leek, Abraham Ward, J. A. Adams, Fred Lovejoy and W. W. Smith. The principal place of business is Jackson, Uinta county, Wyoming.

#### ELECTIONS AND MEETINGS

**PROLE, Ia.**—The telephone company of this place recently held its annual meeting and elected the old trustees for the coming year.

**BLANCHARD, Ia.**—At a meeting of the Blanchard, Coin and College Springs Telephone Company R. A. Sales was elected secretary and director of the company for the next two years.

**HAMILTON, Mo.**—The Home Telephone Company has elected the following officers: President, J. S. Jewell; vice-president, C. W. Wright; secretary, C. A. Metz; treasurer, John Whitelaw, Jr.

**REYNOLDS, Ill.**—The Reynolds Telephone Company at a recent meeting elected the following officers: President, M. Schoonmaker; directors, Frank Keim, George Olson, W. G. Haeefe, J. B. Vance.

**CUBA, Ill.**—The Cuba Central Telephone Company has elected the following officers: President, W. L. Shurtleff; secretary-treasurer, M. E. Scott; directors, O. R. Grady, N. A. Rowden and J. Beam.

**GREENSBURG, Ind.**—The Decatur County Independent Telephone Company has elected the following officers: President, C. P. Miller; vice-president, Morgan L. Miers; secretary, Thomas E. Davidson; treasurer, J. H. Christian.

**NEW LONDON, Ia.**—The Henry County Telephone Company has elected the following officers for the ensuing year: President, W. Francy; vice-president, J. E. Peterson; secretary, A. D. Hayes; treasurer, V. H. Shields.

**GAINESVILLE, Fla.**—It is the intention of the East Florida Telephone Company to extend its lines as far south as Tampa and St. Petersburg, and when this work is completed lines will be constructed towards the west.

**JOPLIN, Mo.**—The Home Telephone Company has elected the following officers: President and manager, Theo. Gary, Macon, Mo.; vice-president and assistant manager, A. F. Adams, Joplin; secretary and treasurer, R. W. Frey, Joplin.

**CLARINDA, Ia.**—The Farmers' Mutual Telephone Company has elected the following new officers: President, William Wehmiller; vice-president, Thomas Winger; secretary, Frank Brokaw; treasurer, J. H. Wagoner; director, E. Fleenor.

**DEER CREEK, Minn.**—The Deer Creek Telephone Company recently incorporated, with a capital stock of \$25,000, has elected the following officers: President, Harold A. Baker; vice-president and treasurer, Arthur D. Baker; secretary, John C. Smith.

**MABEL, Mo.**—At the annual meeting of the Mabel Telephone Company the following officers were elected: President, A. J. Metcalf; treasurer, Richard Hudson; secretary, F. H. Blackburn; directors, D. S. Brooks, J. A. Logue and the above officers.

**CANNONVILLE, N. Y.**—The Cannonville Telephone Company has elected the following officers: President, Charles K. Liddle; vice-president, B. S. Boyd; secretary, Austin Owens; treasurer, Howard Huntington; directors, Charles Watson, George Seymour, George Keeler.

**IOWA CITY, Ia.**—The Johnson County Telephone Company has elected the following officers: President, A. T. Averill, Cedar Rapids; vice-president, S. W. Mercer, Iowa City; secretary and treasurer, Jay Chatham, Iowa City; directors, A. T. Averill, G. M. Averill, H. N. MacDonald, Jay Chatham and S. W. Mercer.

**JACKSON, Mich.**—Fifty managers of the Independent telephone companies of the state recently held a meeting in this city and organized a state association with the following officers: President, F. G. Newman, Grand Rapids; vice president, William Robinson, Muskegon; secretary and treasurer, H. T. Clough, Owosso.

**OXFORD, N. Y.**—The annual meeting of the Oxford and Gifford Telephone Company was held at Coventry Station and the following officers were elected for the coming year: President, Ward B. Gifford; secretary and treasurer, Jesse Jacobs; collector, Bert Northrup; directors, Tracy T. Cone, D. S. Marshman, F. J. Race.

**ASHTABULA, O.**—A meeting of the stockholders of the Madison Telephone Company, operating lines between Ashtabula and Painesville, and forming the connecting link between Ashtabula and Cleveland, was recently held in this city. The report of the condition of the company was most favorable, showing a profitable year's business. After the election of directors and the declaring of a semi-annual dividend of 3 per cent, the directors elected C. W. DeVoe

president for the coming year. The company is one of the strong institutions of the county and has regularly declared semi-annual dividends.

**SPRINGVILLE, N. Y.**—At the annual meeting of the stockholders of the Springville Telephone Company officers were elected as follows: President, M. N. Brooks; secretary, H. Taylor; treasurer, I. H. Vail; general manager, F. H. Bruce; directors, M. N. Brooks, F. H. Bruce, G. W. Gillett, J. W. Smith, I. H. Vail, H. Taylor and W. W. Blakeley.

**ASHTABULA, O.**—The second annual district convention of the 22 township Independent telephone companies in Ashtabula and adjoining counties was held at Orwell recently. Preliminary arrangements were made for a toll trunk line to be built from Bloomfield to Austinburg, covering the entire width of the district and giving long-distance connections.

**WEISER, Idaho.**—The Central Idaho Telegraph and Telephone Company has elected the following directors: E. M. Heigho, B. L. Steeves, Lewis Hall, Frank Miller, and Frank Gribbin, all of Weiser. The officers elected are as follows: President, treasurer and general manager, E. M. Heigho; vice-president, B. L. Steeves; secretary, C. W. Webb; assistant secretary, Lewis Hall.

**BELFAST, Me.**—At its annual meeting the Liberty & Belfast Telephone Company voted to change its name to Liberty & Belfast Telephone and Telegraph Company and to increase the capital stock from \$5,000 to \$7,000. T. N. Pearson of Morrill is president; D. M. McFarland, of Montville, treasurer, and Edward Evans, of Waldo (P. O. Belfast R. F. D. No. 1), is general manager and collector.

**WORCESTER, Mass.**—At a meeting of the board of directors of the Worcester County Home Telephone Company, recently incorporated, the number of directors of the company was increased from seven to eleven by the election of the following from the places where applications were made for franchises in addition to the city of Worcester: Marcus Coolidge, Fitchburg; Alexander A. Paton, Leominster; Jerome S. Ames, Gardner; George W. Moss, Clinton.

**EMMETSBURG, Ia.**—The annual meeting of the Emmetsburg Telephone Company was held in this city recently and the old officers were re-elected for the coming year. The company has been very successful, the earnings of the plant during the past four years having more than doubled the size of the system, and the company is nearly out of debt. There are 242 telephones in service. The total amount invested by the company to date is \$3,920 and the system has a market value of over \$13,000.

**BESSEMER, Ala.**—At a recent meeting of the North Johns Telephone Company the following officers were elected: President, A. D. Thompson; secretary-treasurer, Columbus Blankenship; directors, Felix Parsons, W. P. Clapp, and Monroe Goodwin. The company is a cooperative one and sixty telephones are now in use, but it is the intention of the company to connect with Bessemer and the rest of the district at once, and a great deal of the stock is being sold. The company contemplates building to Bessemer and connecting with the People's Telephone Company.

**ATTICA, Ind.**—Representatives of the fourth district of the Independent Telephone Association of the state recently met in this place. Among other important matters discussed the organization passed a resolution to ask the New Long Distance Telephone Company to construct two new through lines from Lafayette to Indianapolis and one line from Crawfordsville to Indianapolis. The resolution asked that these be put in within the next four months. Unless this is done the organization will take such other steps as it may deem necessary to get the improved service.

**LA GRANGE, Ind.**—At the annual meeting of the stockholders of the Northern Indiana and Southern Michigan Telephone, Telegraph and Cable Company the following directors were reelected: Dr. A. J. Hostetler, Charles E. Sears, Martin L. Johnston, and Miss A. H. Ellison. According to a report filed by the secretary and general manager, J. F. Roop, the gross receipts were \$23,506.22 for the year. The company has ten exchanges in La Grange county and all the exchanges show an increase in the number of telephones in service. The general condition of the equipment of the company and its service for the year just closed is probably more satisfactory than ever before.

**FORT WAYNE, Ind.**—The Nine Mile Telephone Company of Nine Mile recently held its annual meeting and elected officers as follows: President, Frank P. Harber; secretary and general manager, R. H. Minnich; treasurer, Alex. Cunnison. These officers, together with George Coverdale and Dr. J. R. King, constitute the board of directors. The report of the treasurer showed the company to be in a most prosperous condition and the secretary's report showed that a great deal of important work had been done during the past two years. The company has wires connecting with the Home Telephone Company's lines, and its patrons are thereby given direct connection with all Home patrons in Fort Wayne.

**IRONTON, O.**—Representatives of the Independent telephone interests in this district recently met in this city. Matters of mutual interest were discussed. A committee consisting of R. A. Knapp and U. T. Cox was appointed to present a plan for perfecting a permanent county organization. The committee named the follow-



ing delegates to a future meeting: R. A. Knapp, Ironton; John Banks, Burlington; U. T. Cox, Getaway; L. D. Eaton, Proctorville; Nat Burchum, Scott Town; E. M. Hamilton, Wilgus; Jno. G. Keys, Rock Camp; J. T. Vermillion, Waterloo; Elmer Massie, Lecta; Dr. L. A. William, Millers; E. L. Kitts, Kitts Hill. The committee recommended that a meeting be held some time about the first of the year.

FT. WAYNE, Ind.—At the annual meeting of the stockholders of the Home Telephone Company the old officers were re-elected as follows: President, Charles S. Bash; vice-president, John B. Ruess; secretary, W. L. Moellering; treasurer, Max B. Fisher; directors, Charles S. Bash, John B. Ruess, W. L. Moellering, Max B. Fisher, Isadore Lehmann, William Bohn, G. Max Hoffman, George T. Fox, and P. W. Smith. Of the 5,000 shares of stock 4,335 were represented either in person or by proxy. The report showed the most prosperous year of the company's history and a large increase in the number of telephones in use and the receipts. The auditing committee consists of Henry B. Freeman, George B. Loesch and H. H. Hartwig.

GRINNELL, Ia.—The annual meeting of the Interior Telephone Company was held recently and the following officers elected for the coming year: President, Harold L. Beyer; first vice-president, Chas. P. Clark; second vice-president, M. Rew; secretary, W. S. Hendrixson; treasurer, C. W. H. Beyer; directors, J. P. Lyman, J. F. Wilson. The report given by President H. L. Beyer showed the company to be in a very prosperous condition. The regular semi-annual dividend will be paid January 1. The directors were much pleased with the progress of the company under the present management. The percentage of expenses to receipts has been diminished and the net income largely increased. G. L. Saunders is manager of the company.

LOGANSPOUT, Ind.—The stockholders of the local Independent telephone company recently met to hear the annual report of the secretary and elect a new board of directors. There was a full attendance and when Walter J. Uhl, manager of the local system, read his report it was roundly cheered and the manager congratulated on the showing made during the year. The reports showed that there has been a wonderful increase in the business of the local company during the last year and that efficient management has reduced operating expenses to the minimum. The old board of directors was elected with the exception of J. G. Powell, who resigned, and was succeeded by W. H. Porter. The directors will elect officers within a short time.

WILLIAMS, Cal.—The directors of the Colusa County Telephone Company recently held their first annual meeting and elected the following officers: President and general manager, C. L. Schaad; secretary, J. M. Jones; directors, W. T. Rathbun and Oscar Robinson of Colusa, J. F. Campbell of Maxwell, and G. C. Comstock and C. L. Schaad of Williams. The principal place of business is at Williams. The company intends as soon as possible to construct leads throughout the county and build exchanges for the towns of Colusa, Williams, Maxwell, Arbuckle, College City, Grimes, Princeton, Sites, Stonyford, Leesville, Sulphur Creek, and all rural communities between these points. It is the purpose of the company to use the latest up to date apparatus and run strictly as an independent company.

#### ORDINANCES AND FRANCHISES

FREMONT, Ia.—The Farmers' and Traders' Telephone Company has been voted a franchise in Fremont.

RIPLEY, O.—A number of citizens of this place have been granted a franchise to install a local telephone system.

BRAINERD, Minn.—The city council has granted a franchise to Horace F. Mann to construct and operate a telephone system.

ALBION, Ill.—The Westfall Telephone Company has made application for a franchise to establish a telephone system at Albion.

EATON, Colo.—The Northern Telephone Company has been granted a franchise to install a telephone system in this place.

STUBENVILLE, O.—The Phoenix Telephone Company has petitioned for a franchise to place conduits in certain streets of the city.

CARIBOU, Me.—The Independent Telephone Company has petitioned the selectmen for the right to construct its lines into this place.

OSSEO, Wis.—The Beef River Valley Telephone Company has been granted a franchise to build and maintain a telephone system in Osseo.

FULTON, Ill.—The city council in special session recently granted a franchise to the new telephone company, which is being organized in this place.

WAYNESBURG, Pa.—The Council has granted a franchise to the Greene County Telephone Company permitting the erection of its system on the borough streets.

HOQUIAM, Wash.—Edward C. Finch, who has been granted a franchise by the city council, has filed a \$500 forfeit with the city

clerk. This franchise during its passage was fought by the citizens of Hoquiam and was vetoed by Mayor McIntyre, but passed over his veto.

SENECA, Ill.—A farmers' telephone company from Newark is seeking a franchise to enter Seneca. A number of farmers north of this place are stockholders in the company.

MANTEO, N. C.—D. O. Newberry of Columbia, operating telephone lines in Tyrell and Washington counties, has been granted permission to construct lines in Dare county.

PIONEER, Mich.—The Hillsdale County Telephone Company has been granted a franchise and arrangements have been completed for the installation of an exchange in this place.

PADUCAH, Ky.—Mayor Yeiser has signed an ordinance fixing an annual rental of \$2 per pole for all poles used in the public highways of Paducah by telegraph or telephone companies.

THORNVILLE, O.—An ordinance has been passed granting a telephone franchise to the Perry County Telephone Company of New Lexington, to operate a telephone system in Thornville.

WHEATLAND, Cal.—The board of trustees of Wheatland has received application for a telephone franchise, the line being promoted by the dredger operators on Bear River, to run across the Horst, Drescher, and Durst lands into Wheatland.

BOSTON, Mass.—The petition of the Boston Independent Telephone Company to install its system in this city has been withdrawn. The petition of the Metropolitan Telephone Company for a franchise will probably be taken up shortly after the election.

DALLAS, Tex.—W. H. McGrath of this city has been granted a franchise for a new telephone line extending for some distance between Dallas and Houston. It is his intention to secure the right of way for a long distance line through Texas in the interests of the new company which he represents.

FREMONT, Ia.—At a special election held recently to determine whether or not a twenty-year franchise should be granted the Farmers' and Traders' Telephone Company of Mahaska county, the franchise was granted. Mr. Jenison, the owner of the line, is planning great improvements in the system.

LOUISVILLE, Ky.—The Retail Druggists' Association of this city is anxious to have an ordinance adopted permitting the Home Telephone Company to install pay stations in drug stores in the city. The charter of the Home company does not give it authority to install such stations, while the Cumberland company claims the right. The city attorney will be asked to look into the matter.

JAMESTOWN, N. D.—The city council has granted a franchise to the North Dakota Independent Telephone Company permitting it to conduct a long distance telephone service through Jamestown. The ordinance contains an amendment that the telephone company shall pay a bonus of \$2,000 for the privilege. It is stated that the company will decline to accept the franchise on account of the bonus required.

SANTA BARBARA, Cal.—The Home Telephone Company has secured a franchise in Lompoc, and work will be commenced at once. Lompoc completes the list of towns in the county to be taken into the Home system, which includes Santa Maria, Guadalupe, Orcutt, Los Alamos, Los Olivos, Santa Ynez, Ballard, Lompoc, Garey and surrounding country. The company will have telephone communication over the entire county within a short time.

MILWAUKEE, Wis.—By a vote of 45 to 1 the Milwaukee city council recently granted a franchise to the Milwaukee Independent Telephone Company, and a contest of years' duration is brought to a close. There were seven applicants for telephone franchises. The officers of the new company are as follows: President, H. D. Critchfield, Milwaukee; first vice-president, E. A. Wadhams, Milwaukee; second vice-president, C. S. Van Nortwick, Appleton, Wis.; secretary, Clifford Arrick, Indianapolis, Ind.; treasurer, Howard Greene, Milwaukee; directors, John M. Baer, Appleton, Wis.; W. W. Cargill, La Crosse, Wis.; C. J. Chapman, Milwaukee; J. C. Harper, Madison; B. J. Hubbell, Buffalo, N. J.; Alvin P. Kletsch, Milwaukee; George P. Mayer, Milwaukee; Wilmer Sieg, Milwaukee; Richard G. Wagner, Milwaukee; J. B. Whitnall, Milwaukee, and Richard Valentine, Janesville, Wis.

#### UNDERGROUND CONSTRUCTION

TOLEDO, O.—The Home Telephone Company will place its wires underground.

SOUTH BEND, Ind.—The South Bend Home Telephone Company contemplates doing considerable conduit work.

WINFIELD, Kan.—Telephone poles in the business district of Winfield are to be discarded. All the poles and overhead wires will be taken down and the wires placed in conduits.

INDIANAPOLIS, Ind.—The authorities of Indianapolis have ordered all electric service wires of local companies, whether of high or low tension, to be placed underground in the "mile square" immediately.

DETROIT, Mich.—The Detroit common council has passed an ordinance providing that all telephone, telegraph, signal, feed, and

electric light wires in streets, alleys, and public places within the mile circuit having its center at the city hall shall be placed under ground, and all towers, masts, or poles now in use in such streets shall be taken down.

#### NEW CONSTRUCTION

**MCPHERSON, Kan.**—The McPherson Telephone Company will construct additional lines.

**ROCK FALLS, Wis.**—Kent Bros. will construct a telephone line from Rock Falls to Brunswick.

**ST. PETER, Minn.**—The Nicollet County Telephone Company will build an additional country line.

**SKILLMAN, Ky.**—The farmers of this vicinity have organized a telephone company and will install a line.

**GRAND RAPIDS, Mich.**—The Citizens' Telephone Company will construct a new building at Reed City to cost \$3,500.

**OZONA, Tex.**—Messrs. Bennett & Midkiff are planning the construction of a telephone line from Ozona to Eldorado.

**ASHLAND, Ore.**—Messrs. Spence & Phillips are constructing a new telephone line from this place to Dead Indian country.

**COLUMBUS GROVE, O.**—The Mutual Telephone Company, organized some time ago, will soon begin the construction of its system.

**ANN ARBOR, Mich.**—The Washtenaw Home Telephone Company contemplates the construction of a line from Dexter to Silver Lake.

**ROCKWELL CITY, Ia.**—Geo. F. Scales of Waterloo has been awarded the contract for the Central Mutual Telephone Company's new building.

**CLARKSBURG, W. Va.**—The Eureka Pipe Line Company, which has been granted a telephone franchise here, will construct a private telephone system.

**PURVIS, Mo.**—Messrs. Sam Moss and Charles Towns of Purvis will construct a new telephone line from Linn Creek to this place, with Versailles connections.

**NORWOOD N. C.**—The Norwood Telephone Company is extending its lines to Wadesboro and the company will also install exchanges at Ansonville and Cedar Hill.

**O'NEILL, Neb.**—The New Independent Telephone Company announces that it will at once make arrangements to secure or erect four new buildings for its plant.

**SAN ANGELO, Tex.**—The San Angelo Telephone Company will construct a line from San Angelo to Wall, Tex., and another from Robert Lee to Valley View, Tex.

**SAN JOSE, Calif.**—State Forester G. B. Hull has let the contract for building a telephone line from Boulder Creek to Governor's Camp in the Redwood Park, in the Big Basin.

**BONNOTS MILL, Mo.**—The Berger Commercial Telephone Company has let a contract to W. R. Durbin for the construction of a telephone line from Bonnots Mill to Linn via Loose Creek.

**OMAHA, Neb.**—It is stated that the Independent Telephone Company has let a contract for the construction of its system in Omaha involving \$1,500,000, to the Crescent Construction Company of Portland, Ore.

**BINGHAMTON, N. Y.**—Negotiations are pending for the purchase of a site by the York State Telephone Company of Elmira, with a view to erecting a large telephone building and central exchange and making it the center of all its telephone lines in this section.

**LOS ANGELES, Cal.**—Contract for the new telephone building to be erected by the Home Telephone Company has been awarded to F. L. Spaulding. Work is to be completed by March 1, 1907. The contract price, exclusive of heating, plumbing, and electric work, is \$24,528.

**FALFURRIAS, Tex.**—The Falfurrias Telephone Company has let the contract for building a telephone exchange in this city and a long distance line connecting Falfurrias and Alice, to C. K. Sweet of Dallas, Tex. The long-distance line will be full metallic copper circuits.

**GRASS VALLEY, Calif.**—An organization to be known as the Forest Springs Telephone Company has been formed and the construction of the Forest Springs telephone system will begin as soon as the material arrives. Connection will be made with the Grass Valley line.

**FULTON, N. Y.**—The Oswego County Independent Telephone Company has awarded the contract for the erection of a three-story office building to the contracting firm of Wadsworth & Carver. The contract provides that the building shall be completed by April 1, 1907.

**DES MOINES, Ia.**—The Mutual Telephone Company has purchased a site and will erect a thoroughly modern, two-story, fire-proof exchange building, which is to be a branch office. In this new exchange will be installed a central energy relay multiple switchboard having a capacity of 3,000 lines.

**ELK RAPIDS, Mich.**—The Citizens' Telephone Company will install an exchange at this place and the same will be in charge of

M. F. Butts. The company has purchased the Swaverly telephone line to this place and will rebuild it, using new poles and copper wire. This insures the company an entrance into this village.

**RUTLAND, Vt.**—The newly chartered Home Telephone Company will begin the work of constructing its system as soon as the material for the underground conduit work arrives. The new concern plans to put up a handsome building to be occupied by its offices and central exchange. It is the intention to install a thoroughly up to date system.

**THOROLD, Ont.**—The Thorold Board of Trade has appointed a committee to investigate the cost of constructing a local telephone system, and to arrange, if possible, to join with St. Catharines, Merritton, Welland, Niagara Falls, Port Dalhousie and other points in the Niagara district, to combine and build a complete telephone system.

**SO. MANCHESTER, Conn.**—The stockholders of the Bolton and Coventry Telephone Association at a recent meeting decided to construct a number of new lines. It will be necessary to increase the capital stock of the company in order to accomplish this, and a meeting of the stockholders will be held within a short time to decide what action to take.

**ASHTABULA, O.**—A deal has been closed whereby the Ashtabula Home Telephone Company has purchased a site and plans for a new building are now being considered. The style of the structure has not yet been determined, but will be in the near future and it is the intention to build this winter or as soon as weather conditions will permit in the spring.

**HANNIBAL, Mo.**—The Quincy Home Telephone Company, of Quincy, Ill., has let the contract for the construction of steel towers which will carry its long distance wires across the Mississippi river connecting with this city. Ten wires will be put on at the start, but the tower will have a capacity of 15 circuits. Connection will be made with the Bluff City Telephone Company in this city.

**FULTON, N. Y.**—The Oswego County Independent Telephone Company, recently incorporated, will install an up-to-date central energy system with a capacity for two thousand subscribers. It is the desire of the company to give rapid and efficient service, and no expense will be spared in installing the most approved apparatus. Lines will be extended to nearby villages which will give service to the farmers along the route, and the systems now in operation at Palermo, Lysander, Bowers' Corners and Hannibal will be furnished with connection to subscribers of the Independent company in Fulton. The company now has about three hundred and fifty orders for telephones and the number is rapidly increasing.

#### COMBINATIONS

**QUINCY, Ill.**—All the telephone interests of the county will be merged into one company, which will cooperate with the Home Telephone Company of this city. The present lines will be rebuilt and new lines added.

**HAILEYBURY, Ont.**—The Temiskaming Telephone Company and the Haileybury & Cobalt Telephone Company have been amalgamated. It is the intention of the present management to carry on considerable extension and improvement work.

#### EXTENSIONS AND IMPROVEMENTS

**PIONEER, S. D.**—The Western Mutual Telephone Company will extend its lines.

**FAIRANKS, Ia.**—The Home Telephone Company intends to rebuild its exchange at this place.

**MILTONVALE, Kans.**—The County Line Telephone Company is planning important improvements.

**WENATCHEE, Wash.**—The Farmers' Telephone and Telegraph Company will extend its lines to Peshastin.

**PASSER, Pa.**—The Rural Telephone Company of this place is planning many improvements in its system.

**GORHAM Me.**—The Northeastern Telephone Company will place its system at this place in first class condition.

**SPRING VALLEY, Ill.**—The Spring Valley Telephone Company will make extensive improvements in its system.

**DAYTON, O.**—The Home Telephone Company of this city is planning a number of improvements in its local system.

**SYRACUSE, Ind.**—The Syracuse Telephone Company will install a new switchboard and otherwise improve its system.

**ATLANTIC, Ia.**—The Musson Telephone Company contemplates making many improvements in its telephonic system.

**STROMSBURG, Nebr.**—The Independent Telephone Company of this place contemplates extending its lines to Central City.

**WEST BRANCH, Mich.**—The Northeastern Telephone Company, with an exchange at this place, is preparing to make extensions.

**POMEROY, Ia.**—Perry C. Holdoegel, of Rockwell City, secretary and manager of the Mutual Telephone Company, while in the city recently stated that the company contemplates installing cable for

its system in this place, and expects to have the same completed by spring.

**METAMORA, Ill.**—The Metamora Telephone Company, which has recently overhauled its city lines, will also make improvements in its rural lines.

**KITTANING, Pa.**—Preparations are being made by the Kittaning Telephone Company to extend its metallic system to Applewold and west Kittaning.

**THORNTOWN, Ind.**—The Home Telephone Company will improve its system, a car load of poles and other material having been received for the purpose.

**SISKIYOU, Ore.**—The Siskiyou Telephone Company will at once extend its line from Sawyer's Bar, Cal., to the Gold Ball mine, Lucky Bob mine and the Holman Fosket mine.

**DISCO, Ill.**—The Farmers' Telephone Company will install a new switchboard. Marvin McKim has been elected president and Burt Garrett secretary and treasurer for the coming year.

**CHARLESTON, W. Va.**—The Charleston Home Telephone Company contemplates the expenditure of \$20,000 in the improvement of its system in Charleston. Its system at Montgomery is also being rebuilt.

**SOUTH QU'APPELLE, Sask., Can.**—The McMichael Bros. of this place have installed a local telephone system and are now considering the advisability of extending their lines into the surrounding country.

**PORTLAND, Ore.**—Among the improvements contemplated by the Home Telephone Company, and which it is estimated will cost in the neighborhood of \$40,000, is the installation of a new branch exchange with a switchboard of 500-line capacity.

**FAIRMONT, W. Va.**—The Consolidated Telephone Company contemplates the expenditure of \$20,000 in the improvement of its plant in this city. New equipment will be added and the plant will be arranged for a capacity of 3,000 telephones. The present capacity of the plant is only 800.

**CLINTON, Ind.**—The Indiana Telephone and Telegraph Company of Clinton has decided to make improvements involving the expenditure of \$40,000. The separate wires will be taken down and cables will be installed. A new central office will be erected and equipped with modern equipment.

**MASON CITY, Ia.**—The Western Electric Telephone Company will expend \$60,000 in improving its system in this place. The old telephones will be replaced with new ones and the whole system rewired. The company may erect a new building of its own if a fifteen year lease is not obtained from the owners of the building now occupied.

**CALAIS, Me.**—The Forest Telegraph & Telephone Company, of this city, will install a gasoline engine at its central exchange, according to present plans. The company recently installed a central energy switchboard, and requires power to run the generator. A one or two-horsepower engine will be purchased. D. L. Brehaut is manager of the company.

**LANDISBURG, Pa.**—At a meeting of the stockholders of the Perry County Telephone Company it was resolved to extend the line of said company to Blain, New Germantown, Oakesburg, via Centre and Kistler, and to Shermansdale, with a possible extension to Dellville and Grier's Point. Adjacent and contiguous territory will also be covered. Bloomfield will be the center of the system. A charter will also be secured and a corporation formed.

**SCHENECTADY, N. Y.**—The Schenectady Home Telephone Company is getting ready to make extensive improvements. The capacity of the exchange will be greatly increased by the addition of 45,000 feet of new cable, order for which has already been placed. The company can report exceptional growth within the last three months in the number of subscribers. New telephones have been installed to the extent of nearly one hundred per month during that time. As soon as the new cable is installed the company expects to install 150 per month for some time. In addition to the above improvements a Dean four party selective service is being installed.

#### FINANCIAL NOTES

**EAGLE, Wis.**—At a recent meeting of the Eagle Telephone Company a 3 per cent dividend was declared.

**DELAWARE, O.**—The Citizens' Telephone Company has increased its capital stock from \$125,000 to \$200,000.

**MONROVIA, Ind.**—The Monrovia Telephone Company has increased its capital stock from \$2,000 to \$3,000.

**ALTAMONT, Ill.**—The Effingham County Telephone Company has increased its capital stock from \$6,000 to \$8,000.

**PORTSMOUTH, O.**—The Portsmouth Telephone Company has increased its capital stock from \$100,000 to \$200,000.

**ELKHART, Ind.**—The Elkhart Independent Telephone Company has increased its capital stock from \$1,250 to \$2,000.

**ELKART, Ill.**—G. G. Taylor as secretary of the Elkhart Independent Telephone Company, has filed for record in this county

certificate showing an increase in the capital stock of said company from \$1,250 to \$2,000.

**ISHPEMING, Mich.**—The Marquette County Telephone Company has increased its capital stock from \$60,000 to \$100,000.

**CHIHUAHUA, Mex.**—The Chihuahua Telephone Company has declared a 20 per cent dividend on its capitalization of \$30,000.

**NEW YORK, N. Y.**—The American Independent Telephone Company has increased its capital stock from \$100,000 to \$500,000.

**BUTLER, Pa.**—The stockholders of the People's Telephone Company have authorized an issue of \$50,000 bonds for improvement purposes.

**SAVANNAH, N. Y.**—The Savannah Telephone Company has increased its capital stock for the purpose of making improvements in its system.

**SANDWICH, Ill.**—The stockholders of the Northern Illinois Telephone Company recently declared a semi-annual dividend of 3½ per cent payable January 1.

**HEBRON, Ill.**—The New Era Telephone Company has declared another quarterly dividend of 3 per cent. The company is now building an exchange at Richmond.

**NEWCASTLE, O.**—The directors of the New Castle Telephone Company have decided to increase the capital stock of the company to \$10,000, and the proposal will be laid before a special meeting of the stockholders in the near future.

**MUNCIE, Ind.**—The financial report of the Delaware and Madison Counties Telephone Company for ten months of this year shows gross income to be \$80,329.36; operating expenses, taxes and insurance, \$45,645.51, leaving a net income of \$34,683.85.

**ROLAND, Ia.**—The Roland Mutual Telephone Company has recently declared an eight per cent dividend on the stock of that company and the same is being distributed among the stockholders. This is considered a good dividend for a small company and shows an unusually prosperous condition.

**MINNEAPOLIS, Minn.**—The directors of the Tri-State Telephone Company have declared the fourteenth quarterly dividend at the rate of 6 per cent per annum. The company under its guarantee will also pay the nineteenth quarterly dividend of the Twin City Telephone Company at the stipulated rate.

**CLEVELAND, O.**—The United State Telephone Company has issued a statement showing increases in revenue of four leading stations for October, 1906, over October, 1905, as follows: Dayton, increase 24.8 per cent; Toledo, increase 11.6 per cent; Cleveland, increase 13.5 per cent; Columbus, 28.3 per cent.

**BURTON, O.**—A statement of the condition of the Burton Telephone Company under date October 31 shows total assets of \$32,170.67. The earnings for the month of October aggregate \$537.44 and expenses \$421.24, leaving a balance of \$116.70. The total number of telephones in service by the company is 479.

**LOS ANGELES, Cal.**—The Home Telephone Company has raised its rates for business connections twenty-five cents, making the rate \$5.25 a month. The reason for the raise is said to be the vastly increased cost for maintenance for the enlarged system and improved service. The company now has 25,000 subscribers.

**COUNCIL BLUFFS, Ia.**—Directors of the Independent Telephone Company of Council Bluffs offer \$10,000 of their guaranteed preferred stock for sale in shares of \$100 for January 1. Interest payable 3 per cent April 1, 3 per cent October 1. F. J. Day president.

**PITTSBURG, Pa.**—The statement of the Keystone Telephone Company for the month of October shows gross earnings amounting to \$80,848, an increase of \$12,273, or about 17 per cent. Nearly one-half of the gross receipts was retained for the net, which increased \$5,776. For four months gross receipts gained \$30,475, or about 11 per cent.

**MELITA, Man., Can.**—The Melita-Arthur Telephone Company has applied for supplemental powers under the Manitoba Companies' Acts, for the purpose of increasing its capital stock from \$10,000 to \$60,000 and authorizing it to extend its lines throughout Manitoba subject to the consent of, and on agreement with the council of any town, village or rural municipality.

**NEWARK, O.**—The Newark Independent Telephone Company is paying 8 per cent dividends on common stock and 6 per cent on preferred stock. Its bonded indebtedness has been reduced to \$30,000, and the company now has 2,600 subscribers in Newark alone, besides connections with all parts of the country. The stock in this company is held by Newark and Columbus people largely, nearly every dollar's worth of the common stock being owned by Newark business men.

**CLEVELAND, O.**—The first statement of the earnings of the Cuyahoga Telephone Company since it has been in charge of the new management has been issued for the month of September: Gross earnings for the month were \$64,542, an increase of \$12,223; net earnings were \$30,033, an increase of \$9,896, and the surplus for the common stock for the month was \$12,165, an increase of \$3,275, or at the rate of 9 per cent on the outstanding common stock. The increase in the operating expenses was but \$661. The discrepancy

between this and the net earnings arises from the fact that taxes and interest on loans are now deducted before net earnings are given.

CLEVELAND, O.—The statement of the Cuyahoga Telephone Company for October shows the gross earnings were \$62,629, an increase of \$11,666; the expenses including taxes and interest on loans, \$31,116, an increase of \$103; the net earnings were \$31,513, an increase of \$10,962; the fixed charges including interest on bonds and dividends on preferred stock, were \$18,430, a decrease of \$289; the surplus for the common stock was \$13,082, an increase of \$11,253 over October of 1905.

CLEVELAND, O.—The report of the earnings of the United States Long Distance Telephone Company of Ohio for October has been issued. The company shows gross earnings of \$34,714, an increase of \$4,182; expenses \$12,360, a decrease of \$4,241; net earnings, \$22,353, an increase of \$8,403; fixed charges \$13,559, an increase of \$2,067; surplus for the month \$8,794, an increase of \$6,336; dividends for preferred stock \$5,000, leaving the surplus for the month for the common stock 3,794, an increase of \$1,336.

ST. JOSEPH, Mo.—To secure a bond issue in the sum of \$250,000, the Citizens' Telephone Company has filed its deed of trust to the Commerce Trust Company of Kansas City, covering all of its property in St. Joseph of whatever nature. The deed is signed by Theodore Gary, president of the company. The purpose of the loan as stated in the deed is to provide for the retirement of the present bonded indebtedness as soon as may be, and to provide for funds for making improvements, additions and extensions to the plant. The bonds are to draw 5 per cent interest payable semi-annually, and the company has the right to pay in full at the time of any interest payment.

VERMILION, O.—One of the most prosperous telephone companies of the state is the Vermilion Home Telephone Company, organized five or six years ago. It has a capital stock of \$12,700, 5 per cent cumulative preferred and \$15,000 common. Dividends have been paid four or five years on the preferred and in the year just closed the company earned 21 per cent on the preferred after maintaining liberally. The preferred stock, which was paid in at par at the organization of the company, represents all of the new money that has gone into the company. The extensions and improvements have been made out of the net earnings of the company after taking care of the 5 per cent dividend on the preferred. The company has 300 telephones in use and will doubtless shortly put out a plan to retire its preferred stock. It is stated that \$2,700 preferred stock will be retired with cash and the remaining \$10,000 converted into common stock, making a total outstanding common stock of \$25,000, upon which dividends at the rate of 6 per cent will be paid.

LINCOLN, Neb.—The Lincoln Telephone Company is sending out circulars to its subscribers announcing an increase in rates. The rates for residence telephones will hereafter be \$2 and for business telephones \$4. The franchise granted in March, 1903, prescribed a maximum of \$2 for residence and \$3 for business lines when 1,500 telephones were installed, with the proviso that when 2,500 telephones were in operation an additional charge of 25 cents a month might be made and that the company might at its option increase the rental a like sum for each and every 500 subscribers added thereafter. The rates are now \$1.75 for residence and \$3 for business telephones. The company has 4,100 telephones operated from the Lincoln exchange. It is claimed that this increase should have been made some time ago, but that action was postponed as long as possible. The system is now about three years old and it is claimed by experts that it is necessary to put by about 7 per cent for the depreciation of the plant. The company at present pays a tax on its gross earnings aside from city, county, and state taxes.

#### PERSONAL MENTION

NORTH BALTIMORE, O.—Mr. Cyrus Hunt has taken charge of the Home Telephone Company's plant in this place.

MONTEZUMA, Ia.—W. E. McKee has been appointed local manager of the Interior Telephone Company of this place.

OELWEIN, Ia.—John Gustafson has been appointed manager of the Corn Belt Telephone Company's exchange at this place.

VINCENNES, Ind.—H. B. Crandall has been appointed manager of the Knox County Home Telephone Company at this place.

ATCHISON, Kan.—W. H. Marshall, formerly connected with the Atchison Telephone Company, has taken charge of the Effingham telephone system.

TEXARKANA, Tex.—E. J. Jerger has resigned his position with the Grayson County Telephone Company to accept the position of construction foreman for the Texarkana Telephone Company.

ANAHEIM, Calif.—Joseph M. Backs has been appointed manager of the Union Home Telephone Company at this place. The company will begin installing a number of new telephones in the near future.

LOUISVILLE, Ky.—A change in the management of the Home Telephone Company is proposed. Mr. John A. Armstrong, presi-

dent and general manager, has expressed a wish to retire from his position at the annual election in February as he does not care to continue in the business longer. It has been decided to divide the position which has heretofore been held by one man, making two offices of it.

PROVO, Utah.—Sam J. Jones, who has acted as solicitor and collector for the Independent Telephone Company of Salt Lake City, has been promoted to the position of manager of the Provo exchange of the same company.

LOUISVILLE, Ky.—Dr. A. D. Jones of this city, who claims to have perfected a device whereby telephonic communication is possible from a moving train, announces that a Chicago company has offered him \$100,000 for his invention.

MT. PLEASANT, Ia.—At the meeting of the Southeastern Iowa Telephone Association, recently held at Washington, Ia., Mr. E. E. England of this city was reelected president. The executive committee will determine the next place of meeting.

ST. JOHNSVILLE, N. Y.—Clarence Pike, formerly of Catskill, has been appointed manager of the Interstate Telephone Company with headquarters at Little Falls. Mr. Pike is arranging for further extension of the Oppenheim telephone line, now under construction.

MOUNT HOLLY, N. J.—Charles S. Horton, formerly in charge of the Interstate Telephone Company in Mount Holly, has been elected general superintendent of the Norfolk and California Telephone and Telegraph Company, with headquarters at Elizabeth City, N. C.

BISMARCK, N. D.—J. W. Murphy has been appointed district manager of the Independent Telephone Company, having charge of the company's affairs from Jamestown to Glendive and from Bismarck to Garrison. Mr. Murphy will also be local manager, with headquarters in this city.

#### TRANSFERS

MALVERN, Ark.—The Clarkson Telephone Exchange at this place has been purchased by P. Crisby at a cost of \$4,000.

ROCHELLE, Ill.—John Babcock and Elmer Slaughter have purchased the property of the telephone company at Flagg Center.

QUAKER CITY, O.—R. S. Deal and Louis Hunt of Spencer Station have purchased the telephone system owned by J. W. Carpenter of this city.

SILVER CREEK, N. Y.—Mr. Hillhouse, of Buffalo, district manager of the Hanover Telephone Company of this place, and Walter Lamphere, also of Silver Creek, have purchased the Brodie telephone line at Evans.

SPOONER, Wis.—The Spooner Telephone Exchange, owned by W. J. Whistle of Hayward, has recently changed hands. More than 100 telephones have been added during the fall, and the future of the system looks brighter than ever.

ROCHESTER, N. Y.—The Century Telephone Company of this city has purchased the General Railway Signal Company of Buffalo for the sum of \$250,000. The plant will be moved to this city and the local plant will be more than doubled.

NORTH ADAMS, Mich.—C. E. Knickerbocker, manager of the North Adams telephone exchange, has purchased the Jonesville Independent exchange from Wm. Blauvelt and will operate the same. Mr. Adams will still remain in North Adams.

BRYAN, O.—The Bryan Telephone Company has acquired the telephone exchanges located at Williams Center, Mark Center, Farmer, Sherwood and Ney. The Company will build a number of additional toll lines to take care of its increased business.

WASHINGTON, D. C.—The Telephone Company at Bahia Brazil, hitherto owned by Sr. Pedro Caminha, has been sold to Messrs. Guinle & Co. for the sum of 400,000 milrles (\$133,333 in gold). The service is to be entirely renovated and a new central office erected.

ORANGE CITY, Ia.—Y. Dykstra of this city has purchased the interurban telephone line, formerly owned by C. L. Wilcox. Mr. Wilcox has purchased a ranch near Billings, Mont., and will locate there as soon as he can dispose of his other holdings in Sioux county.

WINCHESTER, Ky.—The old Kentucky Telephone and Telegraph Company of this city sold its plant and business in this county to the Central Home Construction Company, of Louisville, which will in future have charge of the business here. The price paid is said to have been \$100,000.

LEESBURG, Ind.—A deal has been closed whereby the Wilmot Telephone Company has passed into the control of J. E. Armstrong of this place. The system consists of exchanges at Cromwell, Wilmot, and North Webster. The change in management will in no way affect the service given.

CLEVELAND, O.—One of the largest deals transacted of late in the manufacturing district has just been closed by the sale of the entire manufacturing business of the Williams-Abbott Electric Company to the Century Telephone Construction Company of Buffalo. The business will be removed to Buffalo as soon as arrangements can be completed for the new plant in that city. The Williams-Abbott



Electric Company's plant has been leased by the Electric Controller and Supply Company for a term of years, with an option to purchase.

**HARDIN, Ill.**—The entire property of the Calhoun Telephone Company, consisting of all lines, poles, telephones, switchboards, material on hand, office building and lot in Hardin, including all accounts, was sold at sheriff's sale to satisfy an execution issued by the circuit court of Calhoun county. Stephen McDonald was the purchaser. The price paid was \$10,632.68, being the debt and costs. It is stated that a new company will be organized and the lines put in first class condition as soon as possible. It will be the purpose of the new management to give as good or even better service than the old company.

**Disko, Ind.**—The Disko & Laketon Telephone Company has purchased the controlling stock of the Akron Telephone Company of Akron, Ind., taking possession of same at once. By this purchase the subscription list of the company has been increased to about seven hundred subscribers. The Akron exchange will have the same officers as the Disko and Laketon company. The purchase includes 100 miles of toll lines which greatly facilitates the toll business in this locality. The officers of the company are as follows: President, Frank Zimmerman; vice-president and treasurer, H. C. John; secretary and general manager, E. L. Harman.

**NEWBURGH, N. Y.**—The entire plant in this city of the Colonial Telephone Company was recently sold at public auction by William H. Ford of New York, referee. The sale was ordered by the Supreme Court in an action of the Union Trust Company of New York vs. the Colonial Telephone Company. The trust company is the trustee of the bondholders of the company, and the amount of bonds out is said to be \$85,000. The property was purchased by Mr. Howard Griswold, of Albany, vice president of the Home Telephone Company of that city, for \$15,000. The plant was bought subject to the bonds of \$85,000. The sale is said to be a merger with other Independent telephone companies along the Hudson river and at other points in the state. The Home company has already bought the Independent companies at Kingston, Poughkeepsie, Saratoga and Troy. The officers of the company are as follows: President, William H. Caldwell; vice president, William G. Taggart; treasurer, Harry A. Bartlett; secretary and general manager, George G. Otis. It is thought the result of the sale will be a larger and better plant than heretofore. The Colonial plant has been in operation only a few years, its wires are all underground and the plant is regarded as well constructed.

#### LEGAL ITEMS

**DETROIT, Mich.**—Edward Hubert has begun suit against the Home Telephone Company for \$5,000 damages, alleging that he was injured by driving into an excavation made by the company for the laying of its cables.

**MILWAUKEE, Wis.**—A bond of \$50,000 to insure the building of a local telephone plant has been filed with the city clerk by the Milwaukee Independent Telephone Company. The bond guarantees that work will commence within thirty days and that 5,000 telephones will be in service within two years.

**PINE BLUFF, Ark.**—In the Jefferson Circuit Court Judge A. B. Grace rendered a decision granting the Telegraphone Company of Arkansas a right of way over the Iron Mountain railway for its poles and wires, incident to proposed long distance service to be inaugurated by Independent telephone companies. The Telegraphone Company is a merger of Independent companies solely for accomplishing long distance service.

**LITTLETON, Ill.**—Suit has been filed against the Schuyler County Central Mutual Telephone Company of this place for \$10,000 damages by J. Warren Black. The suit is the outcome of the death of Mr. Black's little son, who was killed by a telephone pole, which was leaning against the fence, falling on him. The company is a local farmers' line, with headquarters in this village. It is incorporated with a capital stock of \$1,200.

**NOBLESVILLE, Ind.**—Acting on a petition filed in court by Oliver Elliott, Levi R. Pfaff, and Albert Kinzer, Judge Christian appointed the Hamilton Trust Company receiver for the Union and Carmel Mutual telephone companies. The petitioners are stockholders and directors in the companies, which control the telephone business at Carmel, and also own several country lines in that locality. The indebtedness of the two companies amounts to \$5,200. The Union company was organized only a few months ago, and has practically absorbed the Carmel Mutual company.

**MILWAUKEE, Wis.**—The Wisconsin Metropolis Telephone Company, by its attorneys, Bloodgood, Kemper & Bloodgood, has begun proceedings to secure a writ of mandamus to compel the common council to act upon and approve of its plan to erect a telephone system in Milwaukee and to issue the proper permits, or to show cause on January 15, 1907, for failure to obey mandate of the court. No franchise was sought by the company. A permit alone was asked for, the company claiming that no franchise is necessary. George M. Painter is president of the company.

**MARION, Ind.**—One of the most important decisions that has

been rendered in the Grant circuit court for some time was made in the famous Warren telephone case by Judge Paulus recently when he made a special finding of facts in the suit of David H. Griffith and others against John S. Sprowl and others. The decision is in favor of the defendants and is to the effect that the company had the right to sell twenty-seven shares of stock to two people who were not members of the company, and elect a new directorate. The Warren Telephone Company was incorporated March 10, 1904, to operate exchanges in Warren and the counties of Grant, Wells, Huntington and Wabash. At a meeting of the stockholders October 10, 1905, a resolution was introduced stating whereas the company was indebted in the sum of \$2,600, the company should issue \$2,700 worth of stock, being 27 shares, 17 of which should be issued to George S. Good and 10 to Jonas Good, the proceeds to pay the indebtedness of the company. The directors then proceeded to declare the office of secretary and treasurer vacant and elected L. W. Pulley secretary. On October 11 the plaintiffs filed suit in the Huntington circuit court to enjoin the defendants from issuing stock to Good and Good. On November 10th the court dissolved the order and on November 25 the stock was issued to Good and Good. Judge Paulus decides that the company had the right to remove the officers; also that the sale of stock to George Good and Jonas Good was entirely legal and will stand.

#### MISCELLANEOUS

**FAYETTE, Miss.**—The telephone exchange at this place was recently destroyed by fire.

**EDENTON, N. C.**—The question of an Independent telephone system in Edenton is being considered.

**EAST DURHAM, Ont.**—The Independent telephone lines of East Durham and West Durham have been connected.

**VINTON, Ia.**—The Vinton and Benton County Telephone Company has just installed 6,000 feet of new cable in this city.

**SULLIVAN, Ill.**—The Sullivan Telephone Company is making arrangements for better service between Sullivan and Decatur.

**VERONA, Miss.**—The Independent Telephone Company at this place is rebuilding its plant and making it thoroughly up-to-date.

**EVERETT, Wash.**—The headquarters of the Farmers' Mutual Telephone Company has been moved to this place from Snohomish.

**SHENANDOAH, Ia.**—The Independent Mutual Telephone system is being greatly improved under the supervision of Mr. Driftmier.

**KARLSBERG, Wis.**—The Frey, Karlsborg, Webster Telephone Company has changed its name to the Burnett County Telephone Company.

**KANKAKEE, Ill.**—The Independent Telephone Company of this city has completed a line to Gilman, where it expects to install a system.

**FAIRBANKS, Ind.**—The Fairbanks Mutual Telephone Company is erecting a new exchange building which will be occupied about January 1.

**COLFAX, Ill.**—Mr. Gaddis, proprietor of the Colfax Telephone Company, is experimenting with a new lockout device to be used on party lines.

**ABERDEEN, S. D.**—After a persistent effort which has lasted several years the Groton-Ferney Telephone Company has at last entered this city.

**OMAHA, Neb.**—The promoters of the new Independent telephone franchise promise a completed telephone system in operation by January 1, 1908.

**JOPLIN, Mo.**—The A. Allen Company has completed plans for the telephone exchange building to be erected by the Home Telephone Company of Joplin.

**COLLINSVILLE, Ill.**—The Kinloch Telephone Company has doubled its business in Collinsville during the summer months and now has over three hundred subscribers.

**MONTEVIDEO, Minn.**—A new switchboard with all the latest improvements will be installed here at a cost of about \$2,000; a new one will also be installed at Watson.

**CARBON, Me.**—During the past month the Aroostook Telephone and Telegraph Company has installed over 40 new telephones in this place, making a total of 401 subscribers.

**SHERBROOKE, Que.**—The People's Telephone Company of this city, of which Mr. C. Skinner is manager, now has 975 telephones in service and the number is increasing rapidly.

**ST. CATHERINE, Ont.**—Plans are being considered for the establishment of a municipal telephone system to cover the Niagara district, with central office either in this city or Welland.

**PLAINVILLE, Kan.**—The Plainville Telephone Company has just completed the remodeling of its plant at an expenditure of about \$3,000. The company has about 250 telephones in service.

**PENTWATER, Mich.**—The meeting of the directors of the Lake Shore Telephone Company was held recently and the report of Manager Thos. Bromley was an encouraging one, the financial state-

ment showing a net gain of about \$2,700 from August 1 to November 1.

**CAYUGA, Ont.**—The Erie Telephone Company expects to have one hundred and fifty telephones in operation before the end of the year and this number will be greatly increased next spring.

**NEW ULM, Minn.**—At a meeting of the directors of the New Ulm Rural Telephone Company the resignation of L. T. Vogel as secretary was accepted and H. Retzlaff was chosen as manager.

**FINDLAY, O.**—An effort is being made by farmers residing east of Findlay leading to the building of a telephone line for their use. The company, if organized, will be known as the Farmers' Mutual Telephone Company.

**KINGSLEY, Mich.**—The Farmers' United Telephone Company has begun operating its lines at this place with seventy-five subscribers. Thirty miles of pole lines have been constructed and also fifty-five miles of double wire lines.

**KENOSHA, Wis.**—Representatives of the Independent Telephone Company, which secured a franchise in Milwaukee, have been trying to interest the people of this city in a plan for the building of an Independent telephone system.

**EDINBORO, Pa.**—The Edinboro Telephone Company, a local exchange that has been operating under lease from the Bell company has arranged with the Union Telephone Company for connections with that company after January 1.

**NEW LISKEARD, Ont.**—The Temiskaming Telephone Company has about 350 telephones in service, of which 200 are in New Liskeard, and has 250 miles of lines which extend to Haileybury and Cobalt, Ont., and Ville Marie, Quebec.

**DUBUQUE, Ia.**—The Dubuque Telephone Company has constructed a new telephone line into Fort Dodge, which is one of the finest wires strung out of the city. This is the first direct communication the company has had with Fort Dodge.

**WEST BEND, Ia.**—The West Bend Telephone Company has installed a new switchboard with a capacity of 200 which is a great improvement over the old board. The company has about 200 telephones in service and the number is constantly growing.

**PORTAGE LA PRAIRIE, Man., Can.**—By a vote of 89 to 16 the Union of Manitoba Municipalities endorsed the government's policy for municipal telephones, and advised the electors of the province to vote in its favor at the coming election on the subject.

**HARDIN, Ill.**—S. McDonald and S. J. Merida are the managers of the business formerly owned by the Calhoun Telephone Company, which was recently sold at sheriff's sale. It is the purpose of the new management to better the service as rapidly as possible.

**KEOKUK, Ia.**—Plans for the new building to be erected by the Mississippi Valley Telephone Company will soon be completed by Architect Ratcliffe, when they will be turned over for the inspection of contractors who wish to bid on the construction of the building.

**ORONO, Ont.**—The Durham Telephone Union, having about 130 telephones on seven lines centering in Orono, recently held a special meeting when it was decided that the necessary steps toward incorporation should at once be taken and the necessary funds be paid in.

**IRONTON, O.**—R. L. Knapp, manager of the Home Telephone Company, and James E. McDaniels will in the near future place a wooden pin factory in operation here for the purpose of manufacturing wooden pins to be used on telephone and electric light lines.

**MILWAUKEE, Wis.**—The construction of the plant of the Milwaukee Independent Telephone Company will be started as soon as the work of organization is completed and if present plans are carried out the plant will be completed and in operation within twenty months.

**MONTPELIER, Vt.**—At a recent meeting of the city council it was made known that the Orange County Telephone Company desires to establish a central office in this city owing to the growing demand for the use of its lines. The company will extend its lines considerably.

**NEWARK, N. J.**—S. V. Granger, an electrical engineer living at Watsessing, N. J., has invented a wireless telephone, which after severe tests has shown that the inventor's system of wireless telephony will transmit the human voice through earth and air without the use of wires.

**NORTHWOOD, Ia.**—The report of the secretary of the Northwood Telephone Company for the year ending December 1, 1906, shows the total receipts of the company for the year to be \$10,744.29. The company operates 171 telephones on its local exchange and 285 on its rural exchange.

**BIG SPRINGS, Tex.**—The Western Telephone Company, which recently increased its capital stock from \$60,000 to \$120,000, is extending its system from Big Springs to Abilene, and north and south from the main lines. Copper metallic and iron metallic lines are being installed.

**FORT WAYNE, Ind.**—The Home Telephone Company is now engaged in erecting a new toll line, consisting of four copper metallic circuits between Fort Wayne and Hometown, that will connect all the stations on the route, making practically a new long

distance line to Garrett, Auburn, and Kendallville. The construction of the line was made necessary by the annoyance caused by the induction from the Toledo and Chicago line, which parallels the toll line.

**BARRIE, Ont.**—This city is considering a proposition by the Canadian Independent Telephone Company to install a telephone system at the rate of \$20 per year for business telephones and \$12 for residential telephones, with full connection with rural systems within a radius of eight miles.

**IDA GROVE, Ia.**—The Farmers' Telephone Company of Quimby and W. F. Hutton of the Holstein telephone system, have reached an agreement whereby the two systems connect at Holstein, and it is thought this will bring the telephone war which has been waged at that place to a close.

**GRAND RAPIDS, Mich.**—Secretary and Treasurer Kelly of the Independent Telephone Company of Butte, Mont., has been inspecting the Citizens' Telephone Company's system at this place, the Butte company having under consideration what system it will be best to install in that city.

**WASHINGTON, Ia.**—The Southeastern Iowa Independent Telephone Association recently held its annual meeting in this city. E. E. England, manager of the local telephone company, is president of the organization. Washington claims the oldest Independent telephone company in the state.

**PIQUA, O.**—The Home Telephone Company has just issued a new directory which shows that the company has 1,424 telephones in service in this city, 141 at Fletcher and 185 at Lena, an increase of 195 since the last directory was issued in September, 1905. A. R. Pollock is manager of the company.

**LEAD, S. D.**—The Homestake Mining Company will soon have a complete and modern telephone system for its own use. The switchboard will be built with a prospect of having at least 100 telephones. No outside subscribers will be accepted, but it will be for the convenience of the company alone.

**EDMONTON, Alba., Can.**—The new exchange building for the Edmonton municipal telephone system, plans for which have been completed by the Canadian Machine Telephone Company, Toronto, will have a frontage of 75 feet, and a capacity of 3,000 telephones. It will be a fine two-story brick building.

**KANKAKEE, Ill.**—At a recent meeting of the directors of the Eastern Illinois Independent Telephone Company it was announced that the company had over 1,500 telephones connected with the local exchange. The whole number of telephones which the company has in operation in this county now is 1,900.

**HUTCHINSON, Minn.**—Manager W. S. Clay of the Hutchinson Telephone Exchange Company will retain his entire construction crew during the winter months by establishing a camp in the woods of northern Minnesota and getting out a lot of poles for use by the company in the construction of new lines.

**ALLENTOWN, Pa.**—An agreement has been entered into between the Hotel Allen and the Consolidated Telephone Company whereby the hotel will be equipped with a private branch exchange connecting with the Consolidated system. Sixty telephones will be installed at once and the number will eventually be increased to 150.

**WORCESTER, Mass.**—The Worcester County Home Telephone Company, through Bullock & Thayer, its attorneys, has deposited with City Clerk Enoch H. Towne \$300 as a guarantee of the expense incurred by the city in sending notices to abutters in streets where the company is seeking franchises to lay wires.

**SALT LAKE CITY, Utah.**—E. L. Sloan, secretary and treasurer of the Utah Independent Telephone Company of this city, states that his company will soon be established in Pocatello and cities in the Upper Snake River Valley, and will shortly have a complete system to the Montana border from Salt Lake and surrounding country.

**BEATRICE, Neb.**—The New Home Telephone Company has closed a contract with Jackson & Biles for the complete equipment of the Paddock hotel with telephones. Under the arrangement every room in the house will be provided with a telephone through which any part of the city can be reached or long distance connection made.

**BUENOS AYRES, Argentine.**—The city council has resolved that all wires for messenger call services must be placed underground within six months, under penalty of a fine of \$100 for every day's delay thereafter. This will mean that the messenger service will be abolished, as no company can undertake the heavy expenditure involved.

**PINGREE, N. D.**—The Pingree Telephone Company was organized during the past spring with a capital stock of \$50,000 and a franchise was secured for practically all of the northern half of Stutsman county. When the plans of the company are fully carried out our people will have excellent accommodations at very reasonable rates.

**FARMINGTON, Minn.**—The Star Telephone Company, which has been in operation about three years, has about 700 subscribers. It connects with Hampton and Coates on the east and covers the west end of Dakota county, the east end of Scott county, and a portion of Rice county. The line to Coates has just been completed. A new

line has also been strung from Lakeville to Webster and another from Roserount to Farmington. E. P. Ruh is manager of the company. The annual meeting of the company will be held in January, at which time reports will no doubt show a good year's business.

FISH CREEK, Wis.—The officers and directors of the Door County Telephone Company have decided not to renew their contract with the Wisconsin Telephone Company, which expires January 30, 1907, and will install their own switchboards and telephones. Roger Eatough of Bailey's Harbor, Wis., has been elected manager of the company.

HUNTINGTON, Ind.—It is probable that the New Long Distance Telephone Company, which has started to build a telephone line from Wabash eastward, will make Huntington its new working terminal for the present. The company has already been granted a franchise for a long distance line through Huntington and will establish a toll station.

RICHMOND, Ind.—Work on the new building of the Home Telephone Company is being pushed as rapidly as possible. The contract calls for the completion of the building and ready for occupancy by the middle of January. Nothing more will be done on overhead work this winter, but work will begin as soon as the spring weather will permit.

GRAND RAPIDS, Mich.—W. B. Woodbury, general manager, and G. M. Lathrop, long distance manager of the Home Telephone Company of Detroit, were in the city recently in conference with Secretary Fisher and General Manager Tarte of the Citizens' Telephone Company in regard to the establishment of tariff relations between the two companies.

CHICAGO, Ill.—At the request of Mayor Dunne the city of Chicago will employ a telephone engineer to look after the city's interest as affected by the pending telephone franchises of the Manufacturers' Telephone Company (Independent) and the Chicago Telephone Company (Bell). A committee has been appointed to select this engineer, of which Mr. Lynn H. Young is chairman.

LACONIA, N. H.—The Citizens' Telephone Company which was recently granted a renewal of its franchise in this city now has exchanges at Laconia, Tilton, Franklin, Meredith, and New Hampton, and toll connections with several Independent companies. The company has 2,500 telephones in service and is capitalized at \$100,000. A. W. Abbott is president of the company and W. B. Johnson, manager.

EDMONTON, Alta, Can.—Edmonton now operates 550 telephones at a rate of \$30 for business houses and \$20 for residences. Receipts last year were \$12,942 and expenses \$7,165. The old plant will be disposed of as soon as the new is installed. The capital invested by Edmonton in its telephone system is \$23,600. Future lines will be placed in underground conduits, and every modern improvement included.

RANTOUL, Ill.—The Coon Brothers Telephone Company, which was recently incorporated in this place with a capitalization of \$60,000, has 325 telephones in service and has connection with Dillsburg, Prospect, Dewey, Tomlinson, and Thomasboro, with exchanges in Armstrong, Potomac, Penfield, Collision, Fisher, and Gifford, and the plant is steadily growing. E. G. Coon is local manager of the company.

HARMON, Ill.—Agreement has been entered into with the Home Telephone Company of Dixon by which the Green River Telephone Company, recently incorporated, will gain control by lease, of the line to Dixon. Arrangements have also been made by which the Green River company will purchase the Harmon switchboard and telephones in the village, at a price satisfactory to both parties. Almost all of the stock of the new company has been subscribed.

RICHMOND, Ind.—An agreement is said to have been made between the Home Telephone Company and the two telegraph companies entering the city whereby all three will use the conduits which are being installed by the Home Telephone Company. Negotiations have been in progress for some time. At first the telegraph companies seemed reluctant to consider the plan and, believing that these companies would not act on the matter, the Home company installed the conduits of its own accord.

RICHMOND, Ind.—The Richmond Home Telephone Company's reinforced concrete telephone pole is attracting the attention of telephone and telegraph companies in many parts of the United States. The first pole constructed has been placed in position and the company is preparing to put several others in service. Superintendent Bailey has been deluged with letters from heads of telephone and telegraph companies asking for information, and as a patent on the pole is not possible the information is cheerfully given.

DETROIT, Mich.—Work on the new plant of the Home Telephone Company is progressing rapidly. The superstructure is well under way and the work of building is being carried on faster than the estimates called for. About half a million more dollars than has already been expended will see the completion of the plant. About a million feet of conduit pipe has been laid and 3,500 distributing poles have been placed. It is expected that half a million dollars will be expended on the development of the long distance lines

which, when completed will bring them in close touch with the local Independent exchange.

ABILENE, Tex.—The Roberts Telephone & Electric Company of this city continues to make extensions and improvements, having ordered and now in transit material for the erection of a forty mile toll line one and one-half circuit. No. 12 iron, between Abilene and Stamford along the right of way of the Abilene and Northern railroad. Other circuits will be added when necessary. A large force will be put to work on this line and the company hopes to have the same completed and ready for business by the first of the year.

ALLENTOWN, Pa.—General Superintendent West of the Consolidated Telephone Companies has concluded negotiations whereby the consolidated company leases for 999 years the State Belt Telephone Company of Northampton county. The State Belt company has about 500 miles of lines, 900 telephones, and five exchanges, located at Nazareth, Bath, Bangor, Pen Argyl, and Portland. In the spring a line sixteen miles long will be built from Portland to Stroudsburg. The acquisition of this company will connect with the Consolidated territory the entire Pocono region and all its Independent lines along the Lackawanna railroad.

SUNNYSIDE, Wash.—The stockholders of the telephone association have amended their charter, changing the name from the Christian Co-operative Telephone Company to the Yakima Valley Telephone Company, and the plan from a co-operative to a profit sharing. Heretofore the purpose of the company has been to furnish telephone service to its subscribers at cost. Hereafter its purpose will be to furnish telephone service on such a basis as will earn dividends for its stockholders. The following trustees were elected for the coming year: W. P. Sawyer, H. M. Gilbert, J. L. Laughlin, of Zillah; R. D. Young and A. C. Webber of Sunnyside.

PUNXSUTAWNEY, Pa.—The Summerville Telephone Company, of which Dr. J. K. Brown of Brookville, is president, and Dr. J. A. Hoover of Summerville is general superintendent, has been solicited by the United Telephone Company, an organization which is capitalized at \$25,000,000 and which seeks to control all of the Independent telephone lines in Pennsylvania and adjoining states, to merge with that company, but has refused. During the past two years the Summerville company has expended for extensions and improvements in this place and Lindsey almost \$255,000. Almost an equal amount has been spent in Du Bois, besides a considerable outlay in other districts.

GRAND RAPIDS, Mich.—At the regular monthly meeting of the directors of the Citizens' Telephone Company reports showed that the month of November had proven to be the best in the history of the company, the net gain being 128 telephones. December started off well the first day bringing 14 subscribers. Between \$30,000 and \$40,000 of stock was sold during the month of November, showing the constantly growing demand for stock. Lines between Grand Rapids and Greenville and Grand Rapids and Ionia have been completed within the past 30 days, while lines between Traverse City and Elk Rapids and Traverse City and Kalkaska are now in course of construction.

NEWCASTLE, Pa.—Rates are again being increased in this city by the Bell Telephone Company, which is now charging \$30 yearly for telephone service on private lines, instead of the \$15 asked when the Citizens' Telephone Company was formed twelve years ago. The people of this city have hope of relief in the completion of the co-operative plan projected by the Newcastle Telephone Company, which was announced by that company some time ago. It is said the plan will be revived shortly after the holidays. More than \$65,000 of the \$100,000 necessary to its success was subscribed in the summer and it is thought the balance will be very easily secured in the face of the latest raise in rates.

MARLETTE, Mich.—For some time the telephone situation at Marlette has been somewhat strained and it will now come to an issue between the management and patrons by improvements in the service or the withdrawal of a large per cent of the subscribers. A petition is being circulated by the patrons in which they ask an all night service, better day service, by the installation of more country lines, a reduction in rates of business telephones to \$20 per annum, and where a subscriber has business and house telephone both at \$30. The company's system has been greatly improved and extended during the past season in other sections and will doubtless be in Marlette in the near future.

ALBERT LEA, Minn.—By a combination with several small telephone companies the Tri-State Telephone Company has almost complete possession of the telephone field in Freeborn county. The company has effected arrangements for making connection with the Emmons Telephone Company, the Manchester Telephone Company and the Moscow Telephone Company, which practically cover this part of the state. Negotiations for connection with the Lerdal Telephone Company are now pending, which, if successful, will put the Tri-State company in complete possession of the field. This will give people in this city an opportunity to talk to all sections of the surrounding region over Independent lines.

KOKOMO, Ind.—The city council of Kokomo is getting ready to investigate the consolidation of the local exchanges of the Citizens' and Central Union Telephone companies, effected a short time ago

There is a belief that a complete merger of the two companies has taken place and that the latter company now has control of the telephone situation in this city. It is thought that such a merger has effected a violation of the franchise of the Citizens' company and renders that company's entire equipment liable to be declared forfeited to the city. There is a strong sentiment in favor of the council making a fight for the property and if control of it can be obtained, converting it into a municipal telephone plant.

**TERRE HAUTE, Ind.**—The Terre Haute *Tribune* is authority for the statement that Hart F. Farwell, secretary of the Kinloch Telephone Company of St. Louis, has completed arrangements by which the general offices of that company will be removed to this city at once and the interests of the company will be conducted from this place as a center. The general offices will be maintained in the new building recently erected here. The Citizens' company is controlled by the Kinloch company, also the Wabash Valley Telephone Company and the systems at Bloomington, Ill., Prairie, Chrisman, Marshall, and many other points throughout eastern Illinois. It is stated that Terre Haute is more centrally located for the management of the business, as St. Louis is too far out of the territory.

**GALESBURG, Ill.**—The Galesburg Union Telephone Company now has in operation 3,065 telephones, which is more than five times the original number, the company having started with 600 telephones. The company was incorporated in January, 1901, with a capital stock of \$100,000 and began service one year afterwards. On July 1, 1902, the capital was increased to \$150,000 and a further increase was made January 1, 1906. This last increase gives the company a capital stock of \$250,000. The company lately completed a modern, up to date building at a cost of \$15,000, in which the equipment cost \$20,000. The officers and directors of the company are as follows: President, G. B. Churchill; vice president, Lafayette Weinberg; secretary, H. M. Chase; treasurer, I. S. Callender; general manager, F. C. Woods; directors, E. P. Robson, W. E. Terry, D. L. Peterson, W. E. Phillips, B. F. Arnold, G. L. Price, Nels M. Burgland.

**LOUISVILLE, Ky.**—It is stated that the Central Home Telephone Company has made a proposition to the stockholders of the Louisville Home Telephone Company to take over the stock of the latter company. The terms of the proposition are said to involve an exchange of securities on the basis of \$8,000 5 per cent bonds and fifty shares of stock of the Central Home Telephone Company for each 100 shares of Louisville Home stock. On this basis the Louisville Home stockholders would receive bonds yielding the same amount of interest that the stock is now paying in dividends. The Central Home company is capitalized at \$5,000,000 and has an authorized bond issue of \$5,000,000. The Louisville Home company is capitalized at \$1,310,000. The Central Home company owns a number of Independent plants in southern Indiana and Kentucky, and only last week absorbed the plant at Winchester. Some months ago it absorbed the Kentucky Long Distance Telephone and Telegraph Company.

**OELWEIN, Ia.**—The Corn Belt Telephone Company has over 400 telephones in this city. Since the exchange has come under the control of the Corn Belt company, vast improvements have been made in the operating department by the installation of the latest improved equipment, making it an up-to-date exchange and having connection with all farmers and local lines extant, reaching the counties of Clayton, Delaware, Buchanan, Black Hawk, Tama, Bremer, Chickasaw, Floyd, Butler and Grundy. The Corn Belt company was incorporated June, 1905, purchasing the property formerly owned by the Cedar Valley Telephone Company. During its existence it has doubled the number of subscribers in the twenty exchanges which it operates, and has rebuilt its exchanges in Waterloo, Oelwein and other places, besides installing miles of copper toll circuits, connecting with a number of important Iowa towns, all of which have the most modern type of equipment. A new switchboard was recently installed in the exchange at this place.

**AMHERST, N. S.**—A skirmish is going on in Amherst between the Nova Scotia and Cumberland Telephone Companies. Shortly before the amalgamation of the Central Telephone Company and New Brunswick Telephone Company, the Cumberland company obtained a ten years' contract with the former, which gave it connection over all the Central lines. Under the contract it also claims connections over all the New Brunswick lines, and an injunction was placed on the Central restraining the amalgamation of the two companies until the rights of the Cumberland were recognized. The injunction also restrains, it is supposed, the contemplated amalgamation of the Nova Scotia and New Brunswick companies. The Cumberland company, with a capital stock of \$20,000, has about 300 telephones in service in Amherst, and throughout the country 200 more. The Nova Scotia Telephone Company, with a capital of \$500,000, has about 4,000 telephones in service. Prominent business men express a willingness to back the local company for whatever capital is required.

**WASHINGTON, Pa.**—Within a short time application will be made to the governor of the state for a charter for a corporation to be known as the State Mutual Telephone and Telegraph Company. This company in its application states that it is the purpose of the organization to operate in Washington, Greene, Fayette, Somerset, Westmoreland, Indiana, Armstrong, Butler, Lawrence, Beaver, and

Allegheny counties. It is believed the incorporation of this company will have much effect on the local telephone situation. For the past two years the state Mutual Telephone Company, through its representative, T. B. Lee, has been endeavoring to secure a franchise in Washington borough, but has been refused by the council. About a year ago a franchise was granted the Pittsburg and Allegheny Telephone Company, but the company has made no effort to comply with its requirements, in starting work, and the limit fixed is about up. It is understood that the franchise has been taken over by the State Mutual company, which will probably operate under the name of the State Mutual Telephone and Telegraph Company.

**GRAND MANAN, N. B.**—The New Brunswick legislature has extended the powers of the Grand Manan Telephone Company Limited. The company is empowered to lay, construct, own, control and operate a telephone cable or submarine wire from the Island of Grand Manan to the Island of Campobello, such cable or submarine connection to be made at or from such point or points on the said Island of Manan and the said Island of Campobello as the said company shall deem most suitable, convenient and expeditious for its purpose; to establish, maintain, operate, conduct and carry on a general telephone business in all its branches, including the building of offices, the setting, erecting and constructing of poles and posts, stringing or putting up of wires, making of connection, buying and selling of telephone instruments, wire and all other fittings, appliances, and apparatus necessarily used and employed in carrying on a telephone business; to make connection with the cable or submarine wires of any company, corporation, individual or the Canadian government, already in existence or which may at any time hereafter be laid.

**FARGO, N. D.**—The North Dakota Independent Telephone Company of this city has taken over the exchanges and toll lines of seven different North Dakota Independent telephone companies, covering twenty counties and 123 towns. From a small investment—a few thousand dollars—these seven companies have grown so large that the present actual cash value of their combined properties is \$550,000. This covers only the value of wires, poles, telephones, switchboards, etc., and does not take into account franchises, right of way, or value of developed business. The company owns and operates more than 2,200 miles of long distance and local telephone lines, with more than 7,000 miles of copper and iron wire, and gives service to more than 4,000 subscribers. The present earnings of the company are \$5,000 per month, being nearly twice as much as is required to pay the 7 per cent dividends on all the preferred stock outstanding. To provide funds for new work the company offers for sale 7 per cent cumulative preferred stock—dividends payable semi-annually. The officers of the company are as follows: President, H. R. Lyon; first vice president, James D. Brown; second vice president, Robert Jones; treasurer, E. James Weiser; secretary, A. B. Cox; directors, E. H. Moulton, Alexander Hughes, M. B. Cassell.

#### NO TELEPHONE IN HEAVEN.

"Now I can wait on baby," the smiling merchant said,  
As he stooped and softly toyed with the golden, curly head.  
"I want oo to tall up mamma," came the answer full and free,  
"Wif your telephone an' ast her when she's tuming back to me.

"Tell her I's so lonesome 'at I don't know what to do;  
An' papa cries so much I dess he must be lonesome, too.  
Tell her to tum to baby, 'tause at night I dit so 'fraid,  
Wif nobody dere to tiss me when the light begins to fade.

"All fru de day I wants her, for my dolly's dot so tored  
Fum the awful punchin' Buddy gave it wif his little sword;  
An' ain't nobody to fix it since mamma went away,  
An' poor 'ittle lonesome dolly's ditt'n thinner every day."

"My child," the merchant murmured, as he stroked the anxious brow,

"There's no telephone connection where your mother lives at now."  
"Ain't no telephone in heaven?" and tears sprang to her eyes;  
"I fout dat God had ever'ing wif him up in the skies."

—Atlanta Constitution.

Miss Number Plees tried to be gould,  
And give the best service she could,  
But the patrons exclaimed  
That the service they blamed  
And she better could do if she would.

Then the owner, a man of stern mould  
Said, "These knockers are getting too bould,  
This grumbling I'll quell—  
Or sell out to the Buell  
Then the treatment they'll get will be could."





# ITEMS FROM THE RURAL LINE DISTRICTS



Illustrated by O. H. Brandenburg

The new telephone is working nicely.—*Birchardville Correspondent in Montrose (Pa.) Republican.*

The latest is the new telephone which is to be up in a short time.—*Kensington Correspondent in Alliance (O.) Standard.*

The Independent claims the Wisconsin Telephone's Co.'s service in that city is on the bum.—*Delavan (Wis.) Enterprise.*

The Bayard telephone service is good again, much can be said in praise of the new manager.—*Guthrie Center (Ia.) Guthrian.*

The Telephone Company have put up a cable, running the many different wires into the central station.—*London Mills (Ill.) Times.*

George Heisler has been employed by the telephone company to manage the switch for the coming year.—*Mt. Sterling (Ill.) Democrat-Messenger.*

Jacob Richter is setting telephone posts from his place to Dry Bone, connecting to the Union line.—*Snow Bottom Correspondent in Highland (Wis.) Press.*

Dr. J. P. Jackson has just returned from Chicago, where he has been working in the interest of his clock telephone, and reports success.—*Orleans (Ind.) Examiner.*

The Farmers' telephone line is being built as fast as possible. They have the promise of 100 'phones.—*Gilbert Corners Correspondent in Meadville (Pa.) Republican.*

Nunn is to have telephone connection and Editor Hubbell of the Ault Advertiser will be able to call up and have his morning's morning sent down.—*Eaton (Colo.) Herald.*

The telephones in this vicinity are all complete and all are enjoying them. We feel as if we were attached to the world now.—*Ada Correspondent in Howell (Mich.) Herald.*

Silas Holcomb will give up the telephone business next Tuesday. At present writing we can't tell who will be his successor.—*Elkhart Correspondent in Lincoln (Ill.) Courier.*

All the people in this neck of the woods are disappointed that the telephone company did not come out from Kindred this fall.—*Barrie Correspondent in Fargo (N. D.) Forum.*

The people of the Fulton Independent telephone company took down their receivers last Sunday night and heard some fine music.—*East Fulton Correspondent in Ithica (Mich.) Journal.*

The McMath Telephone Company met Saturday night and disposed of much important business. Four long rings was adopted as everybody's ring or an emergency call.—*Hartsburg Correspondent in Lincoln (Ill.) Courier.*

The old telephone system was put out of working order yesterday by the crossing of some electric light wires and the telephone wires and burning out the whole system.—*Normal Town Correspondent in Bloomington (Ill.) Bulletin.*



Over in Findlay night telephone operators must be 18 years of age or over to comply with the provisions of the curfew ordinance and the other day each and every one of them was compelled to 'fess up to the manager her correct age.—*Tiffin (Ohio) News.*

The Little Sauk Telephone line No. 2 that has been out of order for a whole month is now in excellent shape again and the patrons are all trying to make up for lost time.—*Gordon Correspondent in Long Prairie (Minn.) Leader.*

B. D. Hartley not being able to get posts for the telephone line will be forced to drop it until spring, but will stretch the wires from his place to F. M. Pearson's in a few days.—*Mann Creek Correspondent in Weise (Idaho) Signal.*

Ernest Ketcham, lineman for the Union Telephone Co., fell nearly thirty feet yesterday. His acrobatic skill saved him severe injury, as he turned over in his flight and struck on his feet. He is working to-day.—*Owosso (Mich.) Argus.*

The Elkhorn Central Telephone company had a business meeting at Pleasant Hill school house, Saturday night. M. L. Sandige was elected president, secretary and treasurer, with supreme and absolute power.—*Elkhorn Center Correspondent in Mt. Sterling (Ill.) Republican.*

Frank Grabmaier, formerly with the Colorado Telephone Co., has taken a position with the Sunset Telephone Co. at Lodi, Cal., and George Rule is learning the plumber trade. It won't be very long before both boys are in the millionaire class.—*Central City (Cal.) Advocate.*

The telephone is destined to come to Goodwell Center and our supervisor is back of it this time. That is right. The rural mail is fine, but the telephone is quicker. Good roads and the telephone are the badge of prosperity to any town.—*Goodwell Center Correspondent (delayed) in Newark (Mich.) Republican.*

The telephone people who have been trying to get into town for some time have secured a line that was formerly owned by Hammond and Best, running into the corporation and ending near Mrs. Henry Cunningham's residence. They declare they are coming into the corporation at all hazards.—*Marlinsville Correspondent in Marshall (Ill.) Democrat.*

William O. Schmidt, president of the new hotel company, and Chris Neipp, secretary, have just closed a contract with the Iowa Telephone Company for the installation of the new telephones for the hotel. Each room will be equipped with a 'phone which will be operated by the 5-cent plant. There will be a private branch exchange.—*Davenport (Iowa) Democrat.*

Elam Leary and Mat Roberts, the two telephone linemen, believe in "killing two birds with one stone," or rather, in slaying all the game within sight with a hand axe. Leary and Roberts have been engaged in putting up the new line between here and Milan and came in one day carrying one lone rabbit. But according to the story told by the gentlemen they undoubtedly have an enviable reputation as sportsmen as they claim to have slain eight rabbits and three quails with a common hand axe. Of course, like all good hunters, they are generous hearted and gave all their game away excepting the one rabbit. For further particulars call at the exchange.—*Osgood (Ind.) Journal.*



Miss Carrie Reniff, chief operator for several years in the Conneaut Telephone Company's exchange, has resigned as a result of the manager refusing to countenance her objections to peek-a-boo waists. Miss Reniff discharged an operator who appeared at work in summery costume and the manager reinstated her.—*Conneaut Correspondent in Sandusky (O.) Journal.*

# Telephony

VOL. XIII.

FEBRUARY, 1907.

No. 2



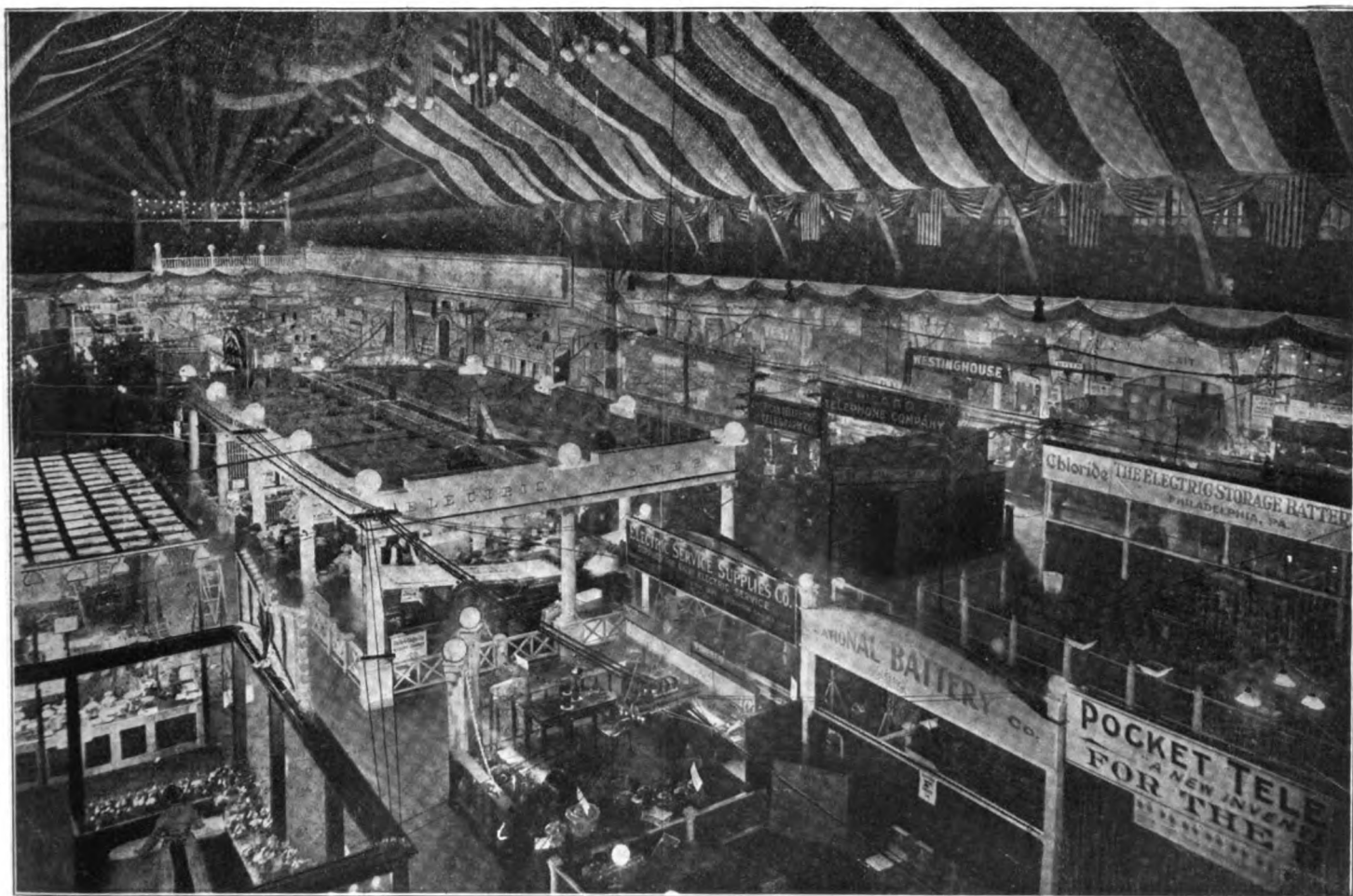
## TELEPHONE DAY AT THE ELECTRICAL SHOW

By E. M. McMeal



**T**HE great electrical show has come and gone, leaving a vivid picture, in the minds of thousands of people, of myriads of dazzling lights, whirring wheels, wonderful machinery and new devices, including all that make

point of attendance, exhibits and public interest. For two weeks the great Coliseum was the center of attraction for telephone and electrical men whose wonderful displays, including every known device and apparatus relating to their



General View of the Electrical Show Held at the Coliseum, Chicago, January 14-26, 1907

for labor-saving and pleasure-giving in this modern age when electricity does such a large part of the world's work.

The second annual exhibition of the Electrical Trades, which was held at the Chicago Coliseum January 14-26, surpassed even the record-breaking inaugural event of 1906 in

fields, were visited by approximately 150,000 people. More than 31,000 square feet of space was occupied by exhibitors this year, which was a gain of thirty per cent over the 1906 record. It was the universal opinion, too, that the exhibits, as a rule, were of a higher grade of excellence at the exhibition just closed. In short, the 1907 exposition set a new

mark in the industrial shows, and guarantees the permanence of the annual electrical demonstration, making it the big event in the list of Chicago expositions.

Telephone Day was celebrated Monday, January 21, and was the feature of the whole show. The fact that Chicago is now the scene of a spirited fight between the Bell monopoly and Independent interests which are striving to gain an entrance and construct an Independent telephone system

as befitting such a gigantic enterprise, and nothing was lacking to cater to the attendants' pleasure, comfort and instruction. Ellery's band gave afternoon and evening concerts and the great galleries were crowded by music-lovers during the hours the elaborate programmes were rendered. The great building was decorated in purple and gold, the colors adopted by the Electrical Trades Exposition Company, and when ablaze with the light of thousands of elec-

OFFICERS ELECTRICAL TRADES EXPOSITION COMPANY.

Samuel Insull, President. John Jay Abbott, Treasurer.  
Chas. E. Gregory, Vice-Pres. Stewart Spalding, Secretary.  
E. B. Overshiner, Vice-Pres. Homer E. Niesz, Mng. Dir.

DIRECTORS.

Samuel Insull, C. E. Mitchell, Stewart Spalding,  
T. P. Gaylord, Homer E. Niesz, Chas. E. Gregory,  
W. W. Low, E. B. Overshiner, Geo. B. Foster,  
H. B. McMeal, G. H. Atkin, J. P. Cracraft.

STOCKHOLDERS AND ADVISORY BOARD.

Abbott, J. J., Vice-Pres. American Trust & Savings Bank.  
Abbott, W. L., Chicago Edison Company.  
Atkin, Godfrey H., Electric Storage Battery Company.  
Baker, Frank J., North Shore Electric Company.  
Bennis, F. V., Western Electric Company.  
Baackes, F., American Steel & Wire Company.  
Burroughs, Geo. T., American Battery Company.  
Conover, A. B., John A. Roebling Sons Company.  
Carroll, William, City Electrician.  
Crook, J. F., Automatic Electric Company.  
Cracraft, J. P., Stromberg-Carlson Telephone Company.  
Carr, Robert F., Dearborn Drug & Chemical Company.  
Duntley, W. O., Chicago Pneumatic Tool Company.  
Dommerque, F. J., Kellogg Switchboard & Supply Company.  
Fox, William A., Chicago Edison Company.  
Foster, G. B., Allis-Chalmers Company.  
Ferguson, Louis A., Chicago Edison Company.  
Fisher, C. L., Automatic Electric Company.  
Fargo, H. D., Telephony Publishing Company.  
Frosch, Henry F., Chicago Edison Company.  
Gregory, Charles E., Guarantee Electric Company.  
Gilchrist, John F., Chicago Edison Company.  
Gaylord, T. P., Westinghouse Electric & Manufacturing Co.  
Goehst, J. Henry, Federal Electric Company.  
Hunting, F. S., Fort Wayne Electric Company.  
Hall, C. R., The Coliseum Company.  
Harris, B. F., Champaign, Ill.  
Harris, N. M., Champaign, Ill.  
Hixson, H. R., Simplex Electrical Company.  
Insull, Samuel, Chicago Edison Company.  
Insull, Martin J., Stanley, G. I. Electric Manufacturing Co.  
Junkersfeld, P., Chicago Edison Company.  
Jenkins, Fred R., Central Station Improvement Company.  
Kohler, G. A. Edward, Kohler Brothers.  
Kohler, F. W., Kohler Brothers.  
Kauffman, C. S., American Battery Company.  
Low, W. W., Electric Appliance Company.  
McMeal, H. B., Telephony Publishing Company.  
McMeal, E. M., Telephony Publishing Company.  
McMeen, S. G., McMeen & Miller.  
Millard, A. L., Westinghouse Electric and Manufacturing Co.  
Miller, K. B., McMeen and Miller.  
McFedries, S. M., J. L. Schureman & Company.  
Mock, E. J., Telephony Publishing Company.  
McGill, J. H., Valparaiso, Ind.  
Niesz, Homer E., Chicago Edison Company.  
Overshiner, E. B., Swedish-American Telephone Company.  
Overshiner, A. V., Swedish-American Telephone Company.  
Pierce, F. M., Manhattan Electrical Supply Company.  
Perry, F. L., Western Electrician.  
Rousseau, A. J., Maywood, Ill.  
Roth, C. A., Roth Brothers Company.  
Raymond, Francis, Manufacturers' Agent.

Spalding, Stewart, The Coliseum Company.  
Schureman, J. L., J. L. Schureman Company.  
Schwab, Louis, Monarch Electric & Wire Company.  
Tripp, Hermann, Tripp & Company.  
Thordarson, J. G., Electrical Manufacturer.  
Wooley, Edw. M., Electrician.

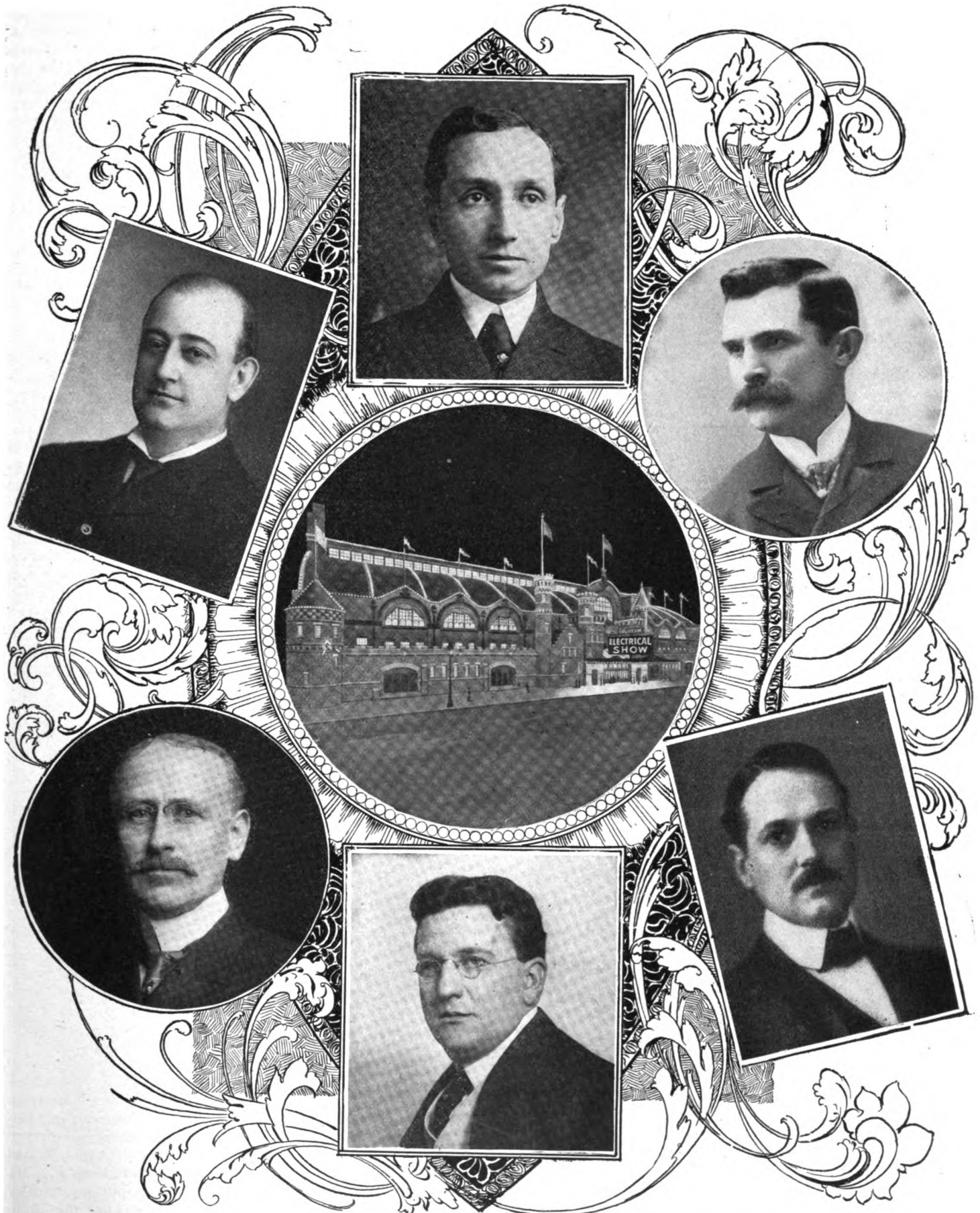
EXHIBITORS.

Aetna Stage Lighting Co. Haines, J. Allen, Incorporated.  
Allis-Chalmers Co. Haller Machine Co.  
American Clock Co. Hamburger, Felix.  
American Elec. Nov. & Mfg. Co. Health Vibrator Co.  
American Steel & Wire Co. Hepburn Telephone Co.  
American Sewer Pipe Co. Holtzer-Cabot Electric Co.  
American Tele. & Teleg. Co. International Corresp'de Sch'ls.  
American Vibrator Co. Johns-Manville Co.  
Anderson, A. & J. M. Mfg. Co. Kellogg Switchboard & Sup. Co.  
Antiseptic Co. Klein & Sons, Mathias.  
Armour Institute of Technology. Lang Electric Co.  
Automatic Bulletin Co. Mandel Brothers.  
Automatic Electric Co. Matthews, W. N., and Brother.  
Bidwell Electric Co. Metropolitan Elec. Sup. Co.  
Bigley Telephone Co. McRoy Clay Works.  
Bryant Zinc Co. Monarch Elec. and Wire Co.  
Burns, W. J. National Battery Co.  
Caven Manufacturing Co. National Carbon Co.  
Central Electrical Co. National Electric Lamp Ass'n.  
Crockett, W. P., Co. North Shore Electric Co.  
Cook, Frank B. Nungesser Electric Battery Co.  
Chicago City Railway Co. Ohio Brass Co.  
Chicago Telephone Co. Oliver Mfg. Co.  
Central Electric Mfg. Co. Oneida Community, Limited.  
Chicago Battery Co. Peabody Coal Co.  
Chicago Compound Battery Co. Peirce Specialty Co.  
Chicago Edison Co. Peterson Manufacturing Co.  
Chicago Lamp & Reflector Co. Phoenix Glass Co.  
Chicago Pneumatic Tool Co. Press.  
Commonwealth Electric Co. Public Service.  
Consumers Co. Reynolds-Dull Flasher Co.  
Crane Co. Roth Brothers Co.  
Dean Electric Co. Schlueter, M. L.  
Diehl Manufacturing Co. Schott, W. H.  
Dixon Crucible Co. Schureman, J. L., Co.  
Dossert & Company. Shelton Electric Co.  
Duncan Electric Mfg. Co. Simplex Electric Heating Co.  
Edwards Electric Headlight Co. Stolz Electrophone Co.  
Electric Appliance Co. Stromberg-Carlson Tel. Mg. Co.  
Electric City. Swedish-American Tele. Co.  
Electric Rotary Floor Pol. Co. Swedish Electric Vibrator Co.  
Electric Service Supplies Co. TELEPHONY.  
Electric Storage Battery Co. Thomas & Smith.  
Electrical Review. Thompson & Read.  
Electrical World. Thordarson Electrical Mfg. Co.  
Electrocraft. Universal Elec. Storage Bat. Co.  
Engineer. Universal Independent Fiber Co.  
Engineering World. Universal Manufacturing Co.  
Erwin & Company. Vesta Accumulator Co.  
Eureka Electric Co. Vim Co.  
Everson & Company. Vote-Berger Co.  
Federal Electric Co. Vulcan Electric Heating Co.  
Fort Wayne Electric Works. Wagner Electric Mfg. Co.  
Guarantee Electric Co. Western Electric Co.  
General Electric Co. Western Electrician.  
Gould Storage Battery Co. Westinghouse Companies.  
Grubbe, E. H., M. D. Wilson Company.

in the city added to the general interest, and hundreds of telephone men from all parts of the country were present on that day. Most of the leading telephone manufacturing companies were represented among the exhibitors and were able to show the visiting operators the latest things in telephone apparatus. Handsome souvenirs were provided and were in great demand on Telephone Day.

The electrical show was conducted on a most liberal scale

tric lamps presented a spectacle not soon forgotten. Opening night, January 14, brought 12,000 people to the Coliseum, notwithstanding inclement weather, and each succeeding day was marked by equally large turnouts. The special days attracted special patronage, but did not handicap the regular daily attendance. Wednesday, January 16, was Benjamin Franklin Day, the anniversary of the birth of the famous Quaker, who experimented with lightning, a



**E. B. Overshiner, Vice President.**  
**Stewart Spalding, Secretary.**

**Homer E. Niesz, Managing Director.**  
**The Coliseum Building, Chicago.**  
**H. B. McMeal, Director.**

**Charles E. Gregory, Vice President.**  
**J. J. Abbott, Treasurer.**



key and a kite-string. The following day the Northwestern Electrical Association held its annual meeting. Wednesday night the Sons of Jove held what they called a "rejuvenation," and the proceedings behind the closed doors of the Coliseum Annex were reported to be highly interesting, although intended to be shrouded in mystery.

Telephone Day ushered in the second week of the big show with a large crowd, the counting machines registering 15,000 people. It was estimated that a great many of this number were telephone men. It was certainly the "Hello" feature of the exhibition. Wednesday, January 23, was another souvenir day, being in honor of Thomas A. Edison. The following day the American Electrical Salesmen's Association held its annual convention, and on Friday the Illuminating Engineers' Society held its yearly meeting at the Coliseum Annex.

The management furnished several new and entertaining features at the show this year, prominent among which was the "Electrical Midway," at the south end of the big building, which included attractions of various sorts usually found in the amusement section of fairs and expositions. Another interesting innovation was a daily paper printed at the exhibit of the Chicago Edison Company on a press driven by electricity. Next door was a section where marshmallows were toasted by electricity and this combination may be taken as an epitome of the entire electrical show. That is to say, it included every known line of industrial activity and the electric current was the moving spirit of it all. The exhibitor occupying the largest space was the Chicago Edison Company which, with the Commonwealth Electric Company had 3,000 square feet. The Allis-Chalmers and the Westinghouse companies each had 1,500 feet. The telephone manufacturing companies were well represented and made more complete exhibits than a year ago, the larger ones taking correspondingly large space.

"The Billion Dollar Show" was the definition frequently used in describing the electrical exposition, as it was estimated that the capitalization of the corporations represented approximates that appalling sum. A man with a liking for figures noted the fact that ten companies alone represented upwards of \$100,000,000. As the total number of exhibitors exceeded 150, perhaps the billion dollar claim was none too extravagant. One every hand was heard the opinion expressed that the general arrangement of the show was more satisfactory than at the opening event in 1906 which, of course, was but natural, for experience is always profitable. In the center of the Coliseum, where it caught the eye of everybody entering the building, was

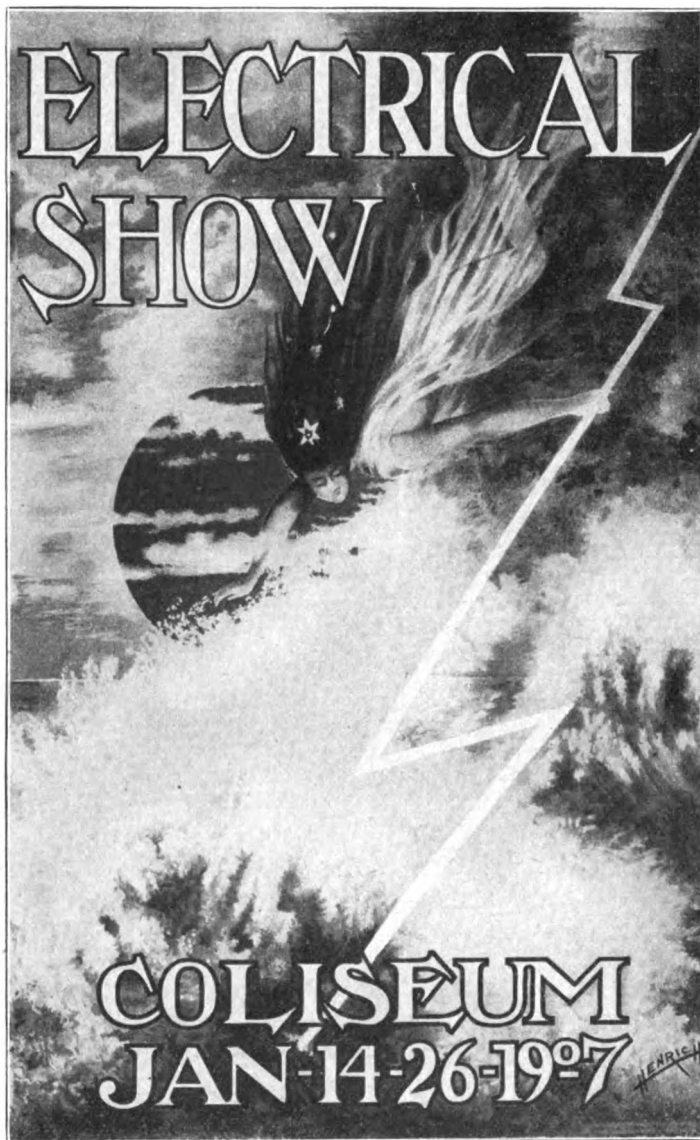
a dazzlingly white statue of the goddess "Electra," designed by John E. Youngberg. Thence ran the aisles lined by the various exhibitors, all of whom had handsome booths, many of which are shown in connection with this article. After viewing the wonders to be seen therein the visitor usually was attracted to that part of the hall where Prof. W. J. Clarke of Mt. Vernon, N. Y., gave his wonderful demonstrations, including highly perfected moving pictures, preceded by a set of mechanical slides that demonstrated that "moving" pictures do not move at all and that the effect is simply an optical illusion. Professor Clarke also demonstrated electrical welding, wireless telephony, the loud-speaking telephone, the talking arc lamp, the X-ray and all of Tesla's high frequency experiments. These lectures and demonstrations were free and drew large crowds throughout the exposition.

C. H. Thordarson, the inventor, has a theory that it is the spectacular things in electricity which interest the layman, so this year at the big show he exhibited and operated an electrical furnace that was quite as startling a sensation as the ten-foot electric spark he showed last year. In this new furnace a tremendously high voltage of electricity was concentrated into a small space, which became so fiery that more than a glance at the flames was nearly blinding. It is from these that new compounds have been created, one of which so nearly resembles the blood-stained ruby that it requires an expert to tell the difference between the product of the electrical furnace and the real gem.

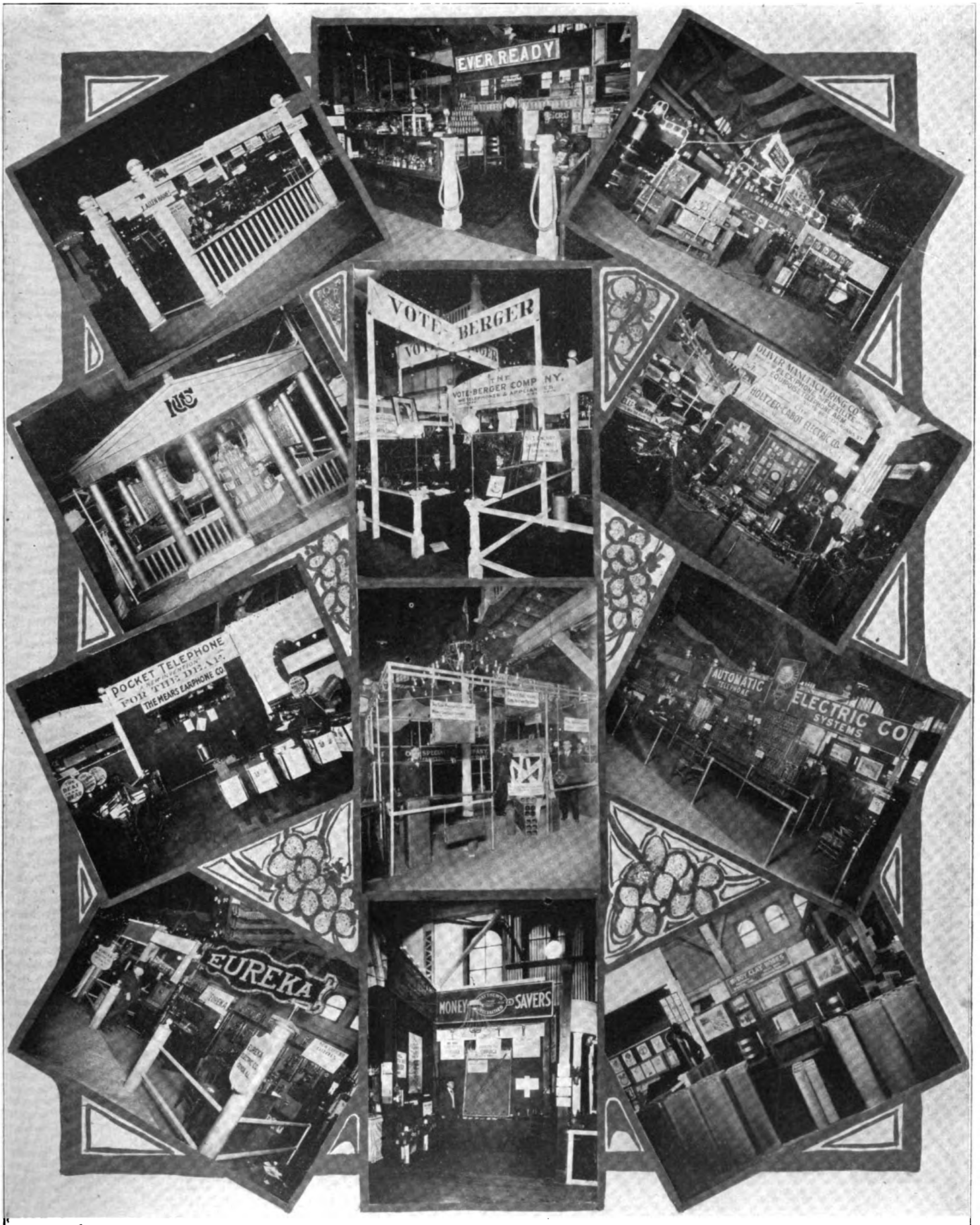
The electrical show this year was more than ordinarily rich in wonders and novelties. From the apparatus that creates precious stones to the machine that electrically spans the unruly youngster is a long stride, but the comparison illustrates the possibilities in the electrical field and all were demonstrated in the most illuminating, instruc-

tive and entertaining fashion at the big exposition.

A feature of the electrical show was the large percentage of women among the visitors who thronged the aisles. This was explained by the numerous exhibits which appealed to the housewife. There were electric washing machines, sewing machines, ovens, chafing-dishes, embroidering machines, dough-mixers and countless other devices calculated to lighten the burdens of the housekeeper. The display of the heavier machinery, such as pumps, motors, hoisting cranes, current generators, etc., absorbed the attention of the male population of the Coliseum, but the women hovered with interest around the electrical devices ranging from curling irons to the apparatus to heat the baby's milk. In all these widely divergent fields the exposition was an



Poster Design of the Chicago Electrical Show.



J. Allen Haines Incorporated.  
 National Carbon Company.  
 Mears Earphone Company.  
 Eureka Electric Company.

American Electric Novelty Company.  
 Vote-Berger Company.  
 Peirce Specialty Company.  
 W. N. Matthews and Brother.

Electric Appliance Company.  
 Sandwich Pole Changer Company.  
 Oliver Manufacturing Company.  
 Holtzer-Cabot Electric Company.  
 Automatic Electric Company.  
 McRoy Clay Works.

education along electrical lines for the people, and not only a technical education but a revelation in the uses of the mysterious force which has been applied so marvelously in the last century.

The exhibitors were no less benefited by the opportunity to display what they had to offer, and are planning already for the 1908 show. Brief descriptions are given of some of the exhibits as follows:

The American Clock Company, Chicago, exhibited its secondary clock system operating in connection with its electric time stamp. The company also illustrated synchronous time system as perfected for use on telephone lines, all of the clocks being governed by one master clock, which controls every other connected with the system. Represented by H. O. Jackson, Ed. S. Eves, G. F. Randall, E. E. Flora, H. W. Pidgeon and P. J. Hertz.

The American Electrical Novelty & Manufacturing Company, New York and Chicago, displayed the "Everready" batteries. Represented by E. G. Weed, assisted by E. R. Behrend, Harry Mandel and M. Israel. R. E. Bain, Chicago manager, also was on duty evenings.

The American Sewer Pipe Company, Pittsburg, Pa., exhibited vitrified salt-glazed clay conduits in various multiples. Represented by J. M. McClave, E. W. Hawke, W. H. Adams and W. H. Rook.

The American Steel & Wire Co., Chicago and New York, exhibited a 20-foot-high column of all kinds of telephone wire; also all varieties of springs. Represented by C. S. Knight, B. B. Ayres and Geo. Long, all of Chicago, and C. R. Sturdevant of Worcester, Mass.

The Armour Institute of Technology, of Chicago, exhibited the oscillograph, showing varieties of telephone circuits in the form of electrical waves, a variety of telephone apparatus, and electrical waves, and electrical measuring apparatus, for demonstrating purposes, all illustrating how the apparatus is employed in the institute's laboratories. Professor J. E. Snow, assisted by Professors E. H. Freeman and C. D. Bowman, represented the school.

The Automatic Electric Company had an elaborate exhibit in spaces 19 and 20, section C, and included a working "cross-section" of a 100,000-line automatic telephone system such as the company will install in Chicago for the Independent Telephone Company of Chicago, the \$10,000,000 company recently formed for the purpose of operating an automatic telephone system, serving the entire city, under the franchise rights of the Illinois Tunnel Company. The exhibit consisted of two of the Automatic Electric Company's new "Keith units" of 100 switches each, connected by a trunking section and representing a portion

of each of two branch exchanges. Twelve telephones were connected up, six on each section. The equipment was mounted on a raised platform at the rear of the booth, separated from the rest of the booth by heavy brass railings. A paneled mahogany wall six feet high inclosed the rear of the booth, above which were three large electric signs showing the company's name and trade-mark. The color scheme of the exhibit was mahogany, green and gold. Novel and attractive souvenirs were distributed and the exhibit was demonstrated at frequent intervals by the company's representatives. The exhibit was in charge of H. H. Woodworth, advertising manager for the company, who, together with C. L. Fisher, sales manager; J. A. Russell, R. B. Tyler,

J. E. Fisher, and P. J. Eubanks, of the sales department, and F. Lubberger and J. S. Engh of the engineering department, were in attendance during the show.

The Anti-septic Company, Chicago, exhibited its Red Cross telephone mouthpieces, designed to eliminate the danger of contagion from microbes. The device was given wide publicity at the electrical show, and attracted the attention of both telephone operators and subscribers.

The Bigley Telephone Company, Chicago, Ill., exhibited new and rebuilt telephones and switchboards. Represented by J. W. Bigley, E. R. Werlin and A. Stone.

The Bryant Zinc Company, Chicago, Ill., exhibited the Schoenmehl primary battery, all kinds of zincs and supplies for gravity batteries, the Chapman lightning arrester and a new copper connector. Represented by A. F. Klink and H. J. Hovey.

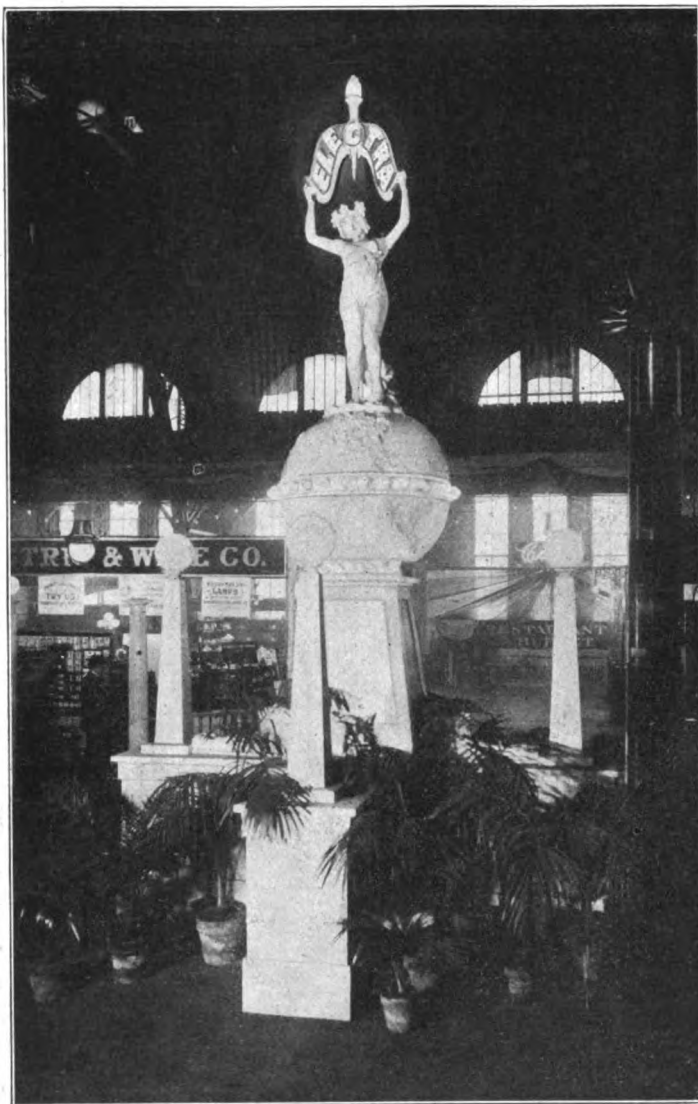
W. J. Burns, Chicago, Ill., exhibited carbons, lightning arresters, cords, Remy steel, flashlight signs, R-L insulating compound, Lignum vitæ pulley wheels, switchboards, cables, rubber mouthpieces and magnet wire. The Burns' exhibit was represented by W. J.

Burns, Robt. Burns and Louis J. P. Conway.

Among many other things in the way of apparatus the Central Electric Company, Chicago, Ill., exhibited Okonite wire and Manson and Okonite tape; also batteries—dry and Edison primary—D. & W. fuse protectors, Vulcan electric soldering irons, telephone switchboard lamps and Di-electric flux. Represented by F. R. Bryant, H. E. Ericsson, A. L. Hancock and W. H. Pearl.

At the booth of the Central Electric Manufacturing Company, Rock Island, Ill., and Chicago, were exhibited the Blackhawk batteries and telephone lamps. F. J. Alvin and E. W. Dolliver represented the company.

The Chicago Compound Battery Company, of Chicago, exhibited a new type of 2-volt, non-polarizable primary battery with porous diaphragm around the zinc, preventing



"Electra" The Central Figure at the Electrical Show.





Chicago Battery Company.  
 Central Electric and Manufacturing Company.  
 Monarch Electric and Wire Company.  
 Long Distance Telephone Manufacturing Co.  
 Dean Electric Company.

Roth Bros. Company.  
 M. Klein & Sons.  
 Bigley Telephone Company.  
 American Clock Company.  
 American Sewer Pipe Company.

W. J. Burns.  
 American Steel and Wire Company.  
 Electric Storage Battery Company.  
 Stromberg-Carlson Telephone Manufacturing Company.



local action on open circuit. The company was represented by B. J. Blameuser and N. Kribs.

Frank B. Cook, Chicago, had a large and complete exhibit of protectors and terminals, and his booth was visited by many interested people every day of the big show. Frank B. Cook, F. L. Pardee, E. M. Snow, S. C. Harvey and J. M. Moore represented the firm during the exhibition. The booth of Frank B. Cook was one of the most attractive at the Coliseum, and was generally complimented.

The Dean Electric Company, Elyria, O., exhibited a 6,400-line multiple section, equipped with full complement of answering jacks and individual party automatic indicating harmonic ringing keys and 3,000 multiple, various types of private branch boards of common battery lamp-signal type, a section of magneto switchboard with arrester cabinet equipped for harmonic party line service, the Dean harmonic converter with board showing a bank of 300 harmonic bells, arranged so that the bells could all be rung separately or at once; a full line of harmonic party line common battery and straight line telephones, a show case containing a full line of Dean parts including drops, jacks, transmitter parts, relays, condensers, ringers, etc., an 8-party selective line, gongs tuned to comprise a complete octave, a compact wire chiefs' test cabinet with all necessary switches, keys and meters for making any combination of tests. The Dean company was represented by W. W. Dean, A. E. Barker and R. T. Manson.

The Electrical Appliance Company, of Chicago, displayed a line of Sandwich pole changers, duplexers and ohmmeters, Eaco telephones of all types, 1900 batteries, Parante wire and steel gains. Represented by F. J. Alderson, J. B. McMullen, E. C. Brown, H. N. Remington, E. R. Behrends, H. E. Sanderson.

The Electric Service Supplies Company, of Chicago; Philadelphia, Pa., and Keokuk, Ia., exhibited Keystone insulators, Miller guy anchors, Kearney cable clamps, Dosert solderless joints and Locke porcelain insulators for telephone circuits on high tension poles. Represented by W. J. Porter, Max A. Berg, P. E. Davenport, E. R. Mason and Hugh Adams.

The Electric Storage Battery Compound Company of Philadelphia, Pa. (with Chicago office at 1425 Marquette building), exhibited a great variety of batteries manufactured by it, ranging from the H-61 with a capacity of 4,800 amperes for one hour down to the little B. T., all with a capacity of 2½ amperes for an hour. All of these batteries are of the "chloride accumulator" type, extensively used in telephone work. Charles Blizard, third vice-president; C. H. Atkins, manager of the Chicago office, and Messrs. J. M. S. Waring, district engineer; W. F. Bruer, H. B. Marshall, W. F. Rath, F. W. Hyde and George Neth represented the concern.

The Eureka Electric Company, Genoa, Ill., displayed a

200-line visual signal, common battery switchboard, a 100-line magneto switchboard, compact central energy telephones, desk stands, etc., and switchboard and telephone units of all kinds. Represented by H. W. Foote, V. H. Messenger, M. V. Mehren, M. McCoy, Fred Holroyd, G. H. Miller and J. H. Bell.

The General Electric Company, Schenectady, N. Y., exhibited telephone switchboard lamps ranging in size from a grain of wheat up to the Tungsten lamp with 1¼ watts per candle power, telephone soldering irons, fuses, telephone wire, cable, lightning arresters, etc. It was represented by E. L. Callahan of the Chicago office, assisted by Geo. Osborne of Newark and a corps of eight or ten others, including four demonstrators.

Gillette-Vibber, New London, Connecticut, exhibited the company's new ground clamps and pipe caps. Represented by Geo. W. Edge of the St. Louis office.

The Gould Storage Battery Company, of New York and Chicago, exhibited couple types of batteries in various sizes up to the largest lead-lined tank and plates, showing construction. Represented by H. N. Powers of the telephone department at New York, assisted by R. H. Watson and John E. Eipper of the Chicago office.

The J. Allen Haines (Incorporated), 324 Dearborn street, Chicago, with J. W. Watson, president, J. Allen Haines, vice-president, and Dwight Welling, mechanical engineer, manufacturers' agents, had its exhibit in space 16, Section C. The products of the following companies were arranged upon suitable mountings: The Bishop Gutta-Percha Company, Wire and Telephone Company of America, Dielectric Company, Stanley and Patterson, the Dayton Electrical Manufacturing Company, the Schwarze Electric Company, the Clifton Manufacturing Company, the Electric Cable Company and the Reed Electric Cordage Company.

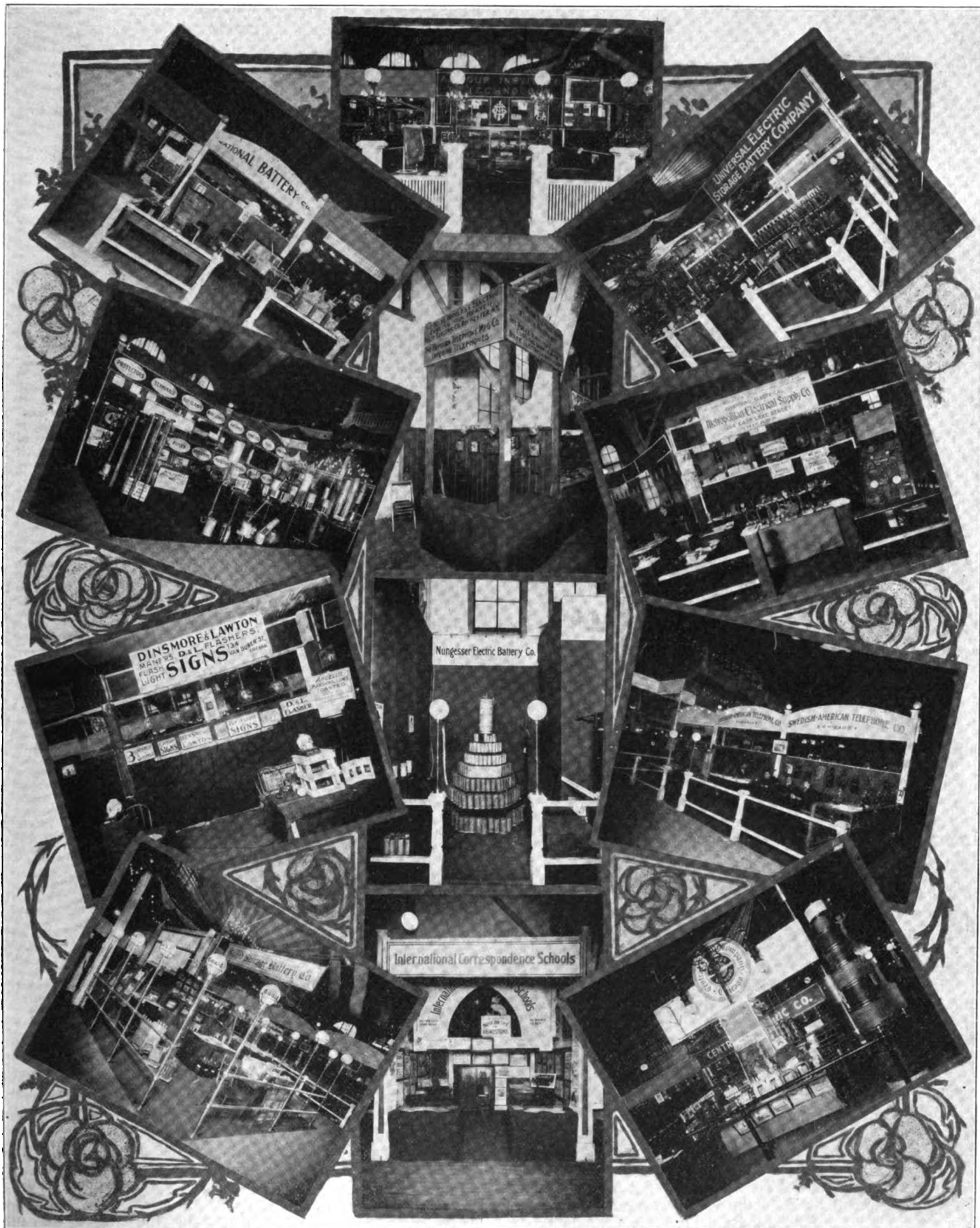
The following represented the J. Allen Haines concern: Messrs. H. F. Hammond and F. W. Patter of the Wire and Telephone Company of America; H. H. Hungerford of the Dielectric company; Loyal F. Ross of the Dayton Electrical Manufacturing Company, and Messrs. Haines and Welling and Geo. A. Collins, A. Conro Fiero and O. D. Allen of the J. Allen Haines (Inc.) Company. The booth was decorated in white surrounded by Greek columns upon which were mounted illuminated globes.

The exhibit of the Hepburn Telephone Manufacturing Company, Chicago, included inter communicating telephones, a new feature of the apparatus shown being a switching device with a rotating dial, no push button or plug box being required. The device is a switchboard in itself and is an integral part of each telephone. Walter L. Davis, president, represented the Hepburn company.

The Holtzer-Cabot Electric Company, Boston and Chicago, exhibited testing sets, the Flexiphone, ringing and



The Only Telephone Publication Exhibiting at the Electrical Show.



National Battery Company.  
 Frank B. Cook.  
 Dinsmore and Lawton.  
 Gould Storage Battery Company.

Armour Institute.  
 Hepburn Telephone Company.  
 Rolfe Electric Company.  
 Nungesser Electric Battery Company.  
 International Correspondence Schools.

Universal Electric Storage Battery Company.  
 Metropolitan Electrical Supply Company.  
 Swedish-American Telephone Company.  
 Central Electric Company.

charging motor generators, ringers, inter-communicating telephone apparatus and weather-proof telephones. There were also, in this exhibit, single-phase A-C motors, D-C motors, motor-generator sets, dynamotors used for telephone ringing, A-C and D-C dentist's lathe motors, jeweler's lathe motors, and miscellaneous articles such as watchman's clocks, single-point telephones, a complete line of annunciators of all styles, including burglar alarm annunciators, telephone extension bells, special vestibule telephone sets, loud ringing bells for outdoor purposes and suburban car line service telephones. The Holtzer-Cabot Company was represented by E. R. Harding and F. G. Meinema.

The International Correspondence Schools, Scranton, Pa., exhibited books and courses relating to telephone engineering. John C. Potter, professor of telephone engineering at the University of Wisconsin, bought a set of the school's books last Saturday to place in the University library, pronouncing them the best he could find. Represented by F. H. Tighe and H. S. Hoover of the Chicago branch.

The exhibit of Mathias Klein & Sons was composed of a full line of linemen's tools, and was in charge of Mr. John M. Klein, Jr., Mr. Alex. Klein and Mr. Paul Herbst.

W. N. Matthews & Brother, St. Louis, exhibited the Hargis splicing joint, Stombaugh guy anchor, Callahan cable roller and Lima railway telephone jack box.

The McRoy Clay Works, of Chicago, exhibited a line of vitrified, salt-glazed conduits in all multiples. Represented by E. F. Kirkpatrick, sales manager.

The Metropolitan Electrical Supply Company, of Chicago, exhibited LaSalle dry batteries, wire, guy anchors, etc. Represented by W. H. McKinlock, A. Faden, George Liver and Fred Saddler.

At its tastefully arranged booth the Monarch Electric & Wire Company, of Chicago, exhibited the Long Distance Telephone Manufacturing Company's apparatus, also construction material, batteries and wire, comprising the Monarch galvanized strand and weather-proof iron wire of its own make. Represented by Louis Schwab, Henry Schwab, A. D. Gillespie, H. E. Mason, E. W. Kearns, E. W. Cassin and E. Culp.

The National Battery Company, Buffalo, N. Y., exhibited a line of batteries for telephone exchanges, house work, etc. This company is giving the telephone field a new style battery, doing away with buckling. Represented by Bertram Smith, George S. Berger and A. Otto Heister, all of Chicago.

The National Carbon Company, Cleveland, Ohio, exhibited an extensive line of carbon, electrodes for electrochemical purposes, carbon brushes for large and small motors, dynamos, etc., heavy carbons for smelting purposes and for use in electric furnaces of all kinds, and carbon batteries. It was represented by N. L. Catabish.

The Nungesser Electric Battery Company, Cleveland and Chicago, exhibited a line of 1900 dry cells, carbon, etc. It was represented by Messrs. Thos. G. Grier, general sales manager; H. S. Greene and P. J. Cratty. The exhibit also included the Acme gas engine battery and the "rapid fire" line of automobile batteries.

The Oliver Manufacturing Company, Philadelphia, Pa., exhibited the new Flexiphone. Represented by W. B. Oliver, Geo. W. Conover and Harry S. Conover. The Oliver exhibit attracted much attention from visiting telephone men.

The Peirce Specialty Company, Chicago, exhibited a line of construction material, comprising cross arms and house brackets in all forms, hammer drills, expansion bolts, circle tops, conduits and connectors. Represented by Hunt Legnard, A. L. Haase, Harry Ward, R. L. Crane and A. Kusel.

The Rolfe Electric Company, Rochester, N. Y., had an

attractive exhibit in charge of its general manager, F. B. Patton.

At the booth of Roth Bros. Company, Chicago, was exhibited a telephone generator with howler "busy back" and ringing bell attachment and a charging set. Represented by William Roth.

The Schwarze Electric Company, Adrian, Mich., was represented by W. E. Cook, secretary, and E. E. Williams, business manager. Its line of bells was exhibited by J. Allen Haines. (Incorporated.)

The Stolz Electrophone Company, Chicago, exhibited devices for enabling the deaf to hear; also the company's new vibrator, the electrosage, for general massage, aural and muscular treatment. Represented by Ernest H. Stolz and Willard S. Mears.

The Stromberg-Carlson Telephone Manufacturing Company exhibit was complete, showing all the latest forms of telephone apparatus. Among the special features of the exhibit was a large map of the United States bordered by electric lamps. In addition to this border additional electric lamps were placed at many points upon this map, representing the many operating exchanges installed by the Stromberg-Carlson Telephone Manufacturing Company throughout the country. It was a novel feature, and at night when lighted up attracted wide attention. The exhibit also included a standard section of a large multiple central energy switchboard and private exchange switchboards of various designs and capacities, shown in detail. Telephone instruments for both city and country use were displayed in profusion. The following representatives from the Chicago office were in attendance: Mr. A. M. Haubrich, Chicago manager; Messrs. Schafer, Stigberg, Hudson and Lewis. The Rochester office was represented by Mr. J. P. Cracraft, general sales manager, and Messrs. Hague and Oliver. The following salesmen, whose territories are in the vicinity of Chicago were also in attendance from time to time, and all were there on Telephone Day: Messrs. Nate, Myers, Shafer and Menefee.

The Swedish-American Telephone Manufacturing Company, Chicago, had one of the most complete exhibits at the Coliseum. The company showed a full line of magneto telephone apparatus, which was inspected and admired by a great many telephone men who made the Swedish-American booth their headquarters. The company was represented at the show by E. B. Overshiner, A. V. Overshiner and M. L. Golladay. The Swedish-American exhibit was advantageously located in the middle of the building and attracted wide attention.

TELEPHONY was the only publication representing the telephone field that exhibited at the electrical show. Its booth was visited by many Independent telephone men from all parts of the country, who made the TELEPHONY camp their headquarters during their stay at the Coliseum. TELEPHONY's booth was stocked with sample copies of the journal, which has "the largest telephone circulation in the world," and "A Fight With an Octopus," the stirring story of the Independents' battle with the Bell monopoly, for which there was a big demand. The Telephony Publishing Company was represented at the electrical show by H. B. McMeal, H. D. Fargo, W. H. Graffis, E. M. McMeal, E. M. Fargo, E. M. Rothelle, H. H. Sundstrom, C. B. Rosenthal, H. A. Downey, E. C. Cross and B. J. Gienger.

The Universal Storage Battery Company, Chicago, exhibited a complete line of storage batteries for telephone and other purposes. Represented by J. S. Burnet, secretary and general manager.

At its handsome booth the Vote-Berger Company, La Cross, Wis., exhibited a ballast-type section of 3,000 line common battery board working without any relays, a 300-line express board, a full line of common battery and magneto telephones equipped with new generators of its own make; also pendant telephones; a new adjustable ringer in

which all adjustments are made with a screw driver, no wrench being required; also, the D. & T. anchor. The company was represented by W. A. Grimes and A. R. Callahan, while Messrs. M. I. Berger and C. D. Enochs also were present part of the time.

The Vulcan Electric Heating Company, Chicago, exhibited electrically heated tools, comprising telephone soldering irons of all sizes—a small size for switchboard work and another size for branding tools, apparatus, etc., extra long and slim tools for repairing connections in multiple

switchboards. Represented by F. J. Holmes, L. P. Brown, G. M. Cox and J. W. Fay.

The Wilmington Fibre Specialty Company, Wilmington, Del., exhibited fibre in rods and sheets. Represented by Geo. W. Edge, who also represented the Morris Electric Company of Wilmington.

The Wire and Telephone Company of America, Rome, N. Y., apparatus was exhibited by the J. Allen Haines (Inc.) and the company was represented by F. M. Potter, Jr., and H. A. Hammond.

## WISCONSIN STATE CONVENTION

*Independent Telephone Men Hold a Successful Meeting at Madison, January 16-17.*

By E. M. Rothelle

THE Independent Telephone Association of Wisconsin held its annual meeting at Madison, January 16 and 17. It was a successful convention in every sense of the word and the enthusiasm manifested promises an era of activity and advancement for the Independent telephone movement in the Badger state during the present year. There was a good attendance, and the spirit which dominated the gathering insures growth and progress among the Wisconsin members.

### FIRST DAY.

The convention was called to order by President Richard Valentine in Turner Hall at 2:30 o'clock Jan. 16, and the delegates were welcomed to Madison by Mayor Schubert, who made a happy address that was warmly applauded. At that time there were in the hall representatives of more than sixty operating companies in the state, officers of the International association, officers of associations of other states, who had attended the Electrical show in Chicago, and many others, including manufacturers and supply house agents. The roll call showed the following were in attendance:

Richard Valentine, Janesville; E. J. Kneen, Bangor; George Byer, Westby; B. J. Anderson, Sun Prairie; J. C. Harper, Madison; O. O. Hougan, Stoughton; H. G. Wilson, Chicago; L. W. Burch, Madison; W. H. Slingluff, Chicago; Sam W. Menefee, Chicago; P. W. Goodman, La Crosse; H. S. Greene, Chicago; Chas. T. Ellis, Madison; F. E. Haywood, Madison; J. J. Nate, Minneapolis; J. C. Schmidtbauer, Milwaukee; Andrew Lee, Westby; W. S. Pearne, Milwaukee; Geo. N. Hidershide, Arcadia; G. C. Fricke, Chicago; L. Q. Trumbull, Chicago; H. R. Ritter, Madison; F. E. Rotchka, Madison; Chas. Schumaker, Madison; Walter Drake, Madison; Clarence Jordalen, Madison; Harry V. Bartlett, Chippewa Falls; O. A. Spencer, Bloomer; H. B. Greve, Kiel; A. A. Paulsen, Kiel; E. J. Bates, Chippewa Falls; J. Geo. Schweizer, LaCrosse; R. S. Mitten, Chicago; D. L. Bestor, Mazomanie; Joseph F. Faust, Cross Plains; Wm. H. Graffis, TELEPHONY, Chicago; J. B. Ware, Grand Rapids, Mich.; Chas. S. Norton, Indianapolis, Ind.; H. D. Critchfield, Milwaukee; F. E. Mainwaring, Gotham; O. P. Swerig, Kagonsa; J. M. Moore, Chicago; W. F. Goodrich, LaCrosse; H. C. Winter, Madison; A. W. Larsen, Madison; H. Twedale, Sparta; W. G. Williams, Sparta; C. M. Beebee, Sparta; Geo. Barnum, Juda; H. L. Thompson, Madison; Jno. M. Baer, Appleton; F. C. Grant, Janesville; Earl E. Miller, Ivon River; A. N. Crosby, So. Wayne; F. F. Cole, Orfordville; O. P. Gaarde, Orfordville; W. J. Bell, Deerfield; C. H. Goodrich, Ft. Atkinson; H. H. Moehlenpah, Clinton; J. E. Fisher, Chicago; Jno. S. Donald, Mt. Vernon; Frank Pierce, Crawford, Neb.; Frank G. Moore, Mt. Vernon; F. J. Kimball;

W. P. Hyland; John O. Thomas, Franksville; B. H. Wells, Milton; Edward Cleary, Antigo; Wm. Vanheidellsworth, Racine; J. A. Murray, Baraboo; W. T. Sparks, Lodi; J. N. Schmidt, Prairie du Lac; C. F. Lamboley; Fred M. Cole, Ashland; W. Tasher, Mt. Vernon; E. C. Koch, Mt. Vernon; F. W. Hoyt, Madison; A. C. Hoppman, Madison; H. C. Hackney, Delavan; Ole Fortney, Utica; W. R. Chipman, Morrisonville; L. A. Goebel, Mt. Horeb; P. M. Knox, Madison; Jno. C. Meile, Waunakee; W. M. Curtiss, Trevor; J. D. Harring, Chippewa Falls; Thos. A. Roycraft, Adams Co. Metallic Tele. Co.; A. S. Baker, Evansville; E. A. Quarfot, Chicago; C. J. Kunn, Columbus; E. C. Thiessen, Leeds; Jno. E. Larson, Leeds; H. J. Kroncke, Poynette; G. W. McMillen, Ft. Atkinson; Jno. N. Hager, Ft. Atkinson; A. M. Webb, Ft. Atkinson; Nath. Heineemann, Wausau; W. A. Christians, Johnson Creek; John Burinkott, Pine Bluff; F. B. King, Richland Center; A. C. King, Richland Center; A. A. Mickelson, Black Earth; K. J. Bemis, Janesville; C. H. Walker, Brooklyn; R. Hansen, Chicago; J. W. Coon, Edgerton; A. McIntosh, Edgerton; F. W. McKinney, Edgerton; John Harrington, Wyoma; F. H. Runkel, Portage; H. H. Fuller, Portage; J. E. Miller, De Forest; E. A. Johnson, Columbia; J. C. Knom, Sauk City; G. W. Leyda, Evansville; A. V. Ward, Cleveland, O.; Chas. Gorst, Baraboo; W. H. Carey, Footville; Chas. G. Gratiot, Shullsburg, Mo.; J. N. Dahlen, Mt. Horeb; Fred Smith, Watertown; J. H. Miller, Verona; A. G. Miller, Verona; Oscar O. Quale, Mt. Horeb; H. B. Forgt, Deerfield; J. C. Murdock, Broadhead; J. H. Rowe, Barneveld; A. H. Dahl, Westby.

President Valentine delivered his annual address which showed the improved conditions in Wisconsin since a year ago. He added that the meeting was called mostly in the interest of President H. D. Critchfield of the Milwaukee Independent Telephone Company and the Wisconsin Independent Long Distance Telephone Company. President Valentine also explained the litigation being carried on to enforce the discrimination rate bill passed by the last legislature, and was followed by Attorney F. C. Grant of Janesville, who was the attorney of record in the matter and spoke on the legal status of the bill.

Mr. J. B. Ware, of the Michigan State Independent Telephone Association, spoke of the Independent growth in Michigan and the referendum elections in Canada, where a large majority of the municipalities voted to install long distance lines and exchanges under municipal ownership. Mr. Ware also explained the successful operation of the Michigan Independent Telephone Association's clearing house under the supervision of its traffic association.

It was expected that Mr. Critchfield would have arrived from Milwaukee, but a telegram announcing his illness was



received and stated he would arrive at 6 p. m. The session was therefore adjourned until 8 p. m.

The evening session was called to order at 8 p. m. Mr. Critchfield arrived as expected and addressed the convention, presenting the intentions of both the Milwaukee Independent Telephone Company and the Wisconsin Independent Long Distance Telephone Company for 1907, and announcing that the long distance company was ready to take contracts at once for long distance connections with lines which would be immediately constructed.

The address of Mr. C. S. Norton, secretary of the Indiana State Association, on "District Organization" was greatly appreciated, after which the meeting adjourned to 10 a. m. the following day. On motion, those present, representing each congressional district of the state, were instructed to decide on their representatives for each of the committees representing the clearing house committee, the committee on district organization, the committee on nominations, and the committee on membership, and to hand in the same by 9 a. m., Jan. 17.

#### SECOND DAY.

At 10:55 a. m., the meeting was called to order by President Valentine. A resolution was presented by Mr. Critchfield and was adopted, as follows:

"Resolved, That this association amend its constitution and by-laws so as to allow all individuals who are interested with the Independent telephone companies of the state of Wisconsin to become members of the Independent Telephone Association of Wisconsin when recommended by the executive committee."

Mr. Norton of Indiana very ably explained the formation and operation of the Indiana State Association. Mr. Ware of Michigan also explained the formation of the Michigan State Association. It was then moved to adjourn, and all members of the district committee were requested to meet immediately.

When the convention re-assembled at 2:30 Mr. J. B. Hoge of Cleveland, president of the International Independent Telephone Association, addressed the convention until the departure of his train. Mr. J. C. Harper of Madison, chairman of the committee on district organization, then presented the following report which was adopted:

1st. We invite and urge every Independent telephone company of the state to at once affiliate with this, the Independent Telephone Association of Wisconsin.

2d. We recommend the immediate organization by congressional districts of all Independent companies. Where not feasible so to do, to combine those districts according to the recommendations of the presidents of such districts.

3d. We recommend that within thirty days all districts as suggested meet in convention and effect temporary organizations with a view to making the same permanent at the time of the adjourned meeting of the state association, each district convention to adjourn its convention and meet at the said state meeting.

4th. We recommend the securing at once of a state organizer to work under the state association and assist the officers of the districts so that quick and effective district organization may be completed.

5th. We further recommend that the state association raise and appropriate the sum of \$2,000, to pay the expense, or such portion thereof as is necessary, to complete the organization of districts as outlined.

6th. We recommend that each district chairman call said convention at such time as the state association officers may designate, that the organizer and other leaders may be present and that uniform action may be had so far as possible.

Remarks were then made by several members on the reports, and the committee on organization was empowered to collect \$2,000 in a manner aside from dues or assessments on the members.

The committee on nominations advised that its report would be made at the adjourned meeting of the association and the committee was ordered continued.

The committee on clearing-house reported as follows:

"Your committee on clearing-house beg leave to submit the following: That, after considerable talk with Mr. Nor-

ton of Indiana, we find that we favor the idea of a clearing-house for the handling of long-distance or toll line business, the same to be of mutual origin, consisting of the different companies, but the form and conditions of such origin cannot be perfected without much work and forethought. There not being time, we ask to have your committee on organization instructed to appoint a clearing-house committee of three and that the state organizer be one of that committee to take up the matter."

The report was adopted.

The committee on membership reported as follows:

"Your membership committee recommend that the membership fee be reduced to \$2, and the annual assessment to be not more than one cent for each telephone operated by the company and one cent per each mile of toll line."

The committee on membership was ordered continued until the adjourned state meeting and that a committee of three be appointed on amendments to the constitution to report at the adjourned meeting. The chair appointed on this committee, Messrs. Critchfield, Harper and Goodrich. After general discussion, the convention was adjourned to meet on March 7th and 8th in the same hall if possible, at Madison, Wisconsin.

A hearty vote of thanks was tendered the Dane County Telephone Company for the use of Turner Hall, in which the convention was held. Voluntary subscriptions of several hundred dollars were then handed to the secretary for the purpose of defraying the expenses of the district organization and the meeting was adjourned. The convention was followed by a banquet held at 8:30 p. m. at the Capital House, which was largely attended.

#### INDEPENDENT PROGRESS IN CANADA.

By the recent connection of the Stouffville Telephone Company and the Mount Albert Telephone Company, the number of concerns in the York and Ontario Independent Telephone Union is increased to six. The number of subscribers is more than 420. The union is composed of six companies—the Scarboro Telephone Company, the Markham & Pickering Telephone Company, the Bethesda & Stouffville Telephone Company, the Central Telephone Association of Altona, the Claremont & Ashburn Telephone Association and the Mount Albert Telephone Company. These companies are absolutely Independent, having no Bell connection, and cover a district of over thirty-nine miles long with a width of about twelve miles, extending over parts of the townships of Pickering, Scarboro, Markham, Whitchurch and East Gwillimbury, also the incorporated villages of Markham and Stouffville. The lines of the Scarboro company run within three or four miles of the Toronto city limits. These telephone companies cover about thirty-six postoffices, and Independent instruments are in all but three or four offices. There are five or six banks in this district which have the Independent telephones. The foregoing work has almost entirely been done within the last year, which shows remarkable growth in a suburban district. Subscribers to any company have free use of the system of the whole union.

Early next spring the Mount Albert company will connect with another Independent company, and when this is done there will be a continuous chain of Independent companies along the east border of York county, extending from Lake Ontario, close to Toronto, up to Jackson Point on Lake Simcoe.

The union, of which Mr. A. D. Bruce of Gormley is president, is the result of the demand for Independent telephones, especially among the farming class, about 350 of the telephones now operated in this union being in farm houses. In some parts of Markham and Scarboro there are four or five Independent telephones on one mile of highway.

# MANSON'S PRACTICAL SUGGESTIONS

*A Series of Short Articles Dealing with Important Phases of Telephone Work*

By Ray H. Manson

THE proper handling and installing of switchboard cable in telephone exchange construction render this part of the equipment a permanent fixture, practically devoid of maintenance cost. In the larger installations the factory supplying the equipment also does the installing, but in the case of small magneto switchboards all of the operations of inter-connecting the various parts of the exchange apparatus are usually left to the telephone company. In many of the latter cases this work has to be done without any previous knowledge of the use of this cable, and, while the apparatus is invariably connected so as to work board cabling, the following chapter gives in detail the

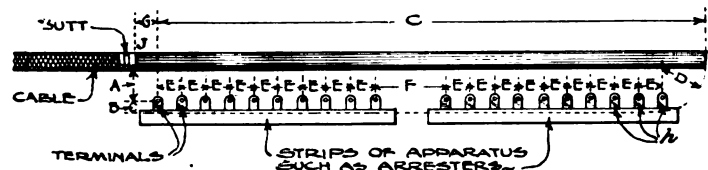


Figure 41—Diagram showing how the proper length of cable is determined for a cable form.

properly at the start, troubles are likely to occur which, in the end, will be of some moment.

Without going into the more complex forms of switch-actual operations necessary to handle properly and efficiently this work in connection with small installations.

**Construction of Switchboard Cables.**—The standard telephone switchboard cable is made from twisted pairs of insulated wires, the whole being covered with reversed wrappings of heavy paper and an outer braiding of cotton. The individual wires are of annealed copper, covered with a coating of tin throughout their whole length so as to facilitate soldering to apparatus terminals, and encased in an insulating covering of single or double wrappings of silk and a wrapping of cotton. The latter serves three purposes as an insulator, a mechanical protection to the inner wrappings and through its colorings as a code or indicator for designating the pair number. Two wires thus constructed

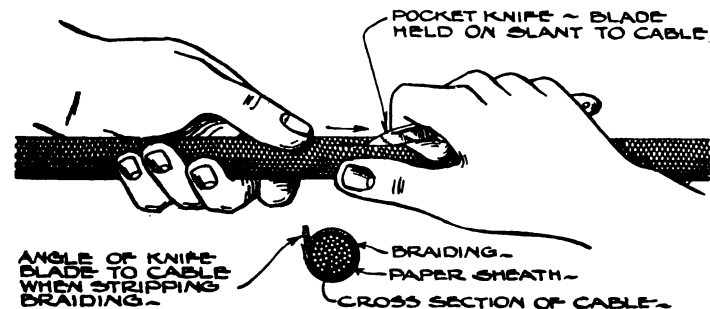


Figure 42—Cutting away the braiding of a cable preparatory to forming. The knife blade is held at an angle to prevent cutting through the paper sheath and injuring the wires.

are twisted together with about four turns per foot to form a pair, the twisting making the different pairs non-inductive as respects the electrical disturbances set up in any one pair. These pairs are then laid spirally in the form of a cable and the outer coverings applied. If the wires are laid straight, it will be impossible to make any short bends with the finished cable without kinking, and it is thus obvious that with the pairs arranged in a spiral of many turns per foot great flexibility can be obtained. In practice about

one turn per foot is found sufficient for a small cable of round cross section.

The outer braiding of a switchboard cable is finished in two ways, by saturating with beeswax or impregnating with lead paint. In either case, this finishing compound is not allowed to penetrate through the paper covering and reach the insulation of the individual wires. The beeswax is supposed to be moisture proof and the lead finish fire proof, but in practice neither of these results is fully secured so that other precautions must be taken, and in some minds it is still a question as to which is the best cable. For many reasons, however, large operating companies prefer the lead finish, one advantage being its neat and lasting finish with less chance for fire hazard.

The moisture proofing of switchboard cable can be secured only by other means than coating the outer covering, as such a protection invariably will become defective through handling. The moisture-proof cable is a commercial article, the result being secured by treating the individual wires with a moisture repellant, the electrical properties of the cable remaining practically the same as for ordinary con-

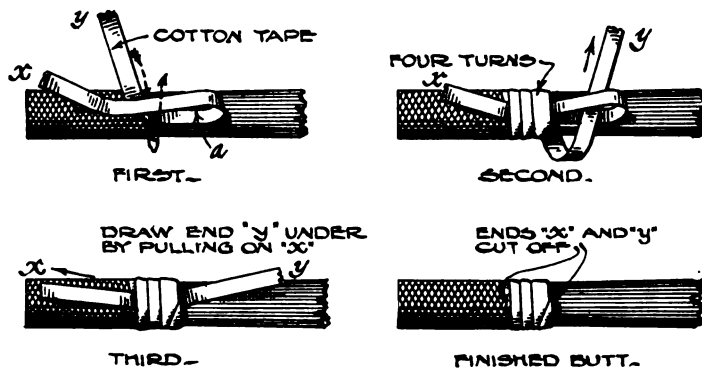


Figure 43—One method of butting or finishing the raw end of cable braiding preparatory to forming a cable.

struction. For small switchboard installations this type of cable is especially advantageous, as rarely any precaution is taken to insure a dry switchboard and terminal room.

For obvious reasons, when running cables between parts of an exchange equipment, as from the switchboard to the terminal racks, it is an advantage to keep them off the floor and if possible in a separate open runway, supported so as to give a free circulation of air throughout. When the cables are run in a trough great care must be taken to see that all material is thoroughly dry when installed, and that no chance is left for water to be accidentally introduced from the floor level. It is advisable to have the trough much larger than is necessary for the cables, and supporting cleats used under the cables so that a free air space will be left on all sides. Standard switchboard cable specifications call for an insulation resistance between pairs of not less than fifty megohms per mile.

The proper size of wire in a switchboard cable depends on the use to which the cable is put. For example, in the larger common battery multiple switchboards, where the cable space is limited and the resistance of the wire is of little account, as small as No. 24 B. & S. gauge copper wire is permissible, but in ordinary magneto switchboards No. 22 gauge is preferred, because of its greater mechanical

strength. In special cases as large as No. 19 gauge wire is used.

The over all dimensions of several sizes of switchboard cable are given in the following table:

Cable Pairs	Size of Wire	Insulation of Wire.	Diameter of Cable.
11	24	Single Silk and Cotton.	About 5-16 inch.
11	22	Double Silk and Cotton.	About 3/8 inch.
21	24	Single Silk and Cotton.	About 7-16 inch.
21	22	Double-Silk and Cotton.	About 1/2 inch.
52	22	Double Silk and Cotton.	About 11-16 inch.
102	22	Double Silk and Cotton.	About 1 inch.

**Switchboard Cable Color Scheme:**—Modern telephone practice requires a definite color scheme for each pair of wires of a switchboard cable so that the proper conductors can be readily attached to the terminals at each end of the cable without having to resort to the testing and tagging method. As previously mentioned this color scheme is obtained by providing the outer insulation of each wire of a twisted pair with a distinctive color. The standard color arrangement for a fifty-two pair cable is as follows:

Pair No.	Sleeve Wire.	Tip Wire.	Pair No.	Sleeve Wire.	Tip Wire.
1	Blue.	White.	28	Blue Green.	Red.
2	Orange.	"	29	Blue Brown.	"
3	Green.	"	30	Blue Slate.	"
4	Brown.	"	31	Orange White.	"
5	Slate.	"	32	Orange Green.	"
6	Blue White.	"	33	Orange Brown.	"
7	Blue Orange.	"	34	Orange Slate.	"
8	Blue Green.	"	35	Green White.	"
9	Blue Brown.	"	36	Green Brown.	"
10	Blue Slate.	"	37	Green Slate.	"
11	Orange White.	"	38	Brown White.	"
12	Orange Green.	"	39	Brown Slate.	"
13	Orange Brown.	"	40	Slate White.	"
14	Orange Slate.	"	41	Blue.	Black.
15	Green White.	"	42	Orange.	"
16	Green Brown.	"	43	Green.	"
17	Green Slate.	"	44	Brown.	"
18	Brown White.	"	45	Slate.	"
19	Brown Slate.	"	46	Blue White.	"
20	Slate White.	"	47	Blue Orange.	"
21	Blue.	Red.	48	Blue Green.	"
22	Orange.	"	49	Blue Brown.	"
23	Green.	"	50	Blue Slate.	"
24	Brown	"	51	Blue Orange,	"
25	Slate.	"		White.	Black.
26	Blue White.	"	52	Blue Orange,	"
27	Blue Orange.	"		White.	Red.

(Nos. 51 and 52 are spare pairs for emergency use and for testing purposes.)

This color scheme is also used on cables of a less number

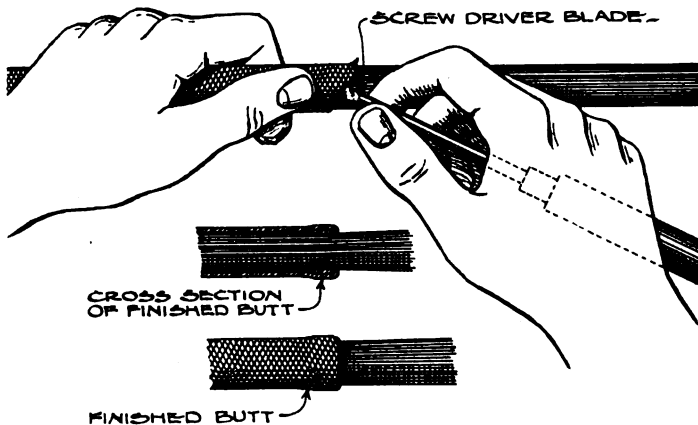


Figure 44—Another method of butting a cable before forming. It is sometimes used in place of the method shown in Figure 43.

of pairs. For example, the color arrangement of an eleven-pair cable is the same as that of pairs No. 1 to No. 10, inclusive, and pair No. 51 of the fifty-two pair cable, while the color arrangement of a twenty-one pair cable is the same as pairs No. 1 to 21, inclusive, and No. 51 of the fifty-two pair cable.

**Determining Simple Cable Lengths:**—The figuring of the

lengths of cable for use between the terminals of separated apparatus, so that the cable can be accurately cut to fit, is a particular job and requires considerable practice to insure good results. When a few circuits only are required, the extreme length can be readily determined by actual measurement between the apparatus so that the proper amount of cable can be provided. For example, in the case of a small magneto switchboard in which the cables come already attached to the jacks and drops, it is necessary to provide

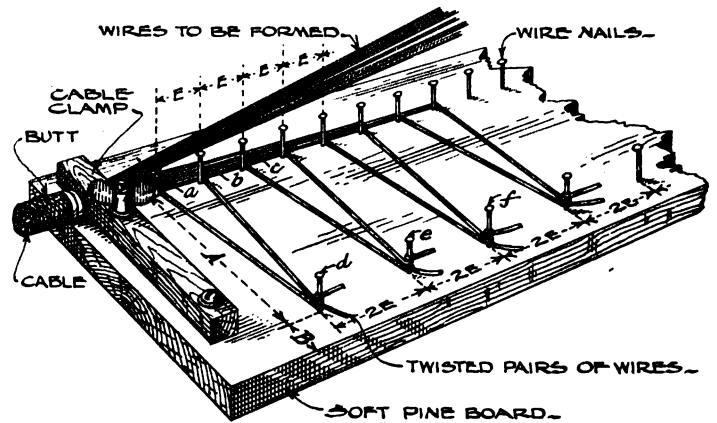


Figure 45—Elements of a temporary cable forming board. The letters refer to the same details as shown in Figure 41.

a sufficient length of cable to reach the terminal rack, and an additional amount for forming the wires, used in connecting to the terminals. Figure 41 shows the end of such a cable laid along two strips of simple terminals. The additional length extending beyond the last terminal and represented by *D* is made equal to the distance from the fixed or final position of the cable on the rack to the terminals, plus the amount *B* necessary for soldering to these terminals. This extra length *D* provides for the wires to the last terminals *h* at the end of the cable form.

The distance from the final position of the cable to the terminals is represented in the diagram by *A* and the amount reserved for skinning and soldering to the terminals is represented by *B*, while the distance between the terminals and between the strips of terminals is indicated by *E* and *F* respectively. Therefore, the total length of cable necessary for making the form is the sum of *E*, *F*, *A*, and *B*, and is represented by *C*.

The distance *A* between the cable and terminals depends entirely on the construction of the terminal frame or space available for wiring. It should be at least several inches for convenience in forming and soldering. The length of

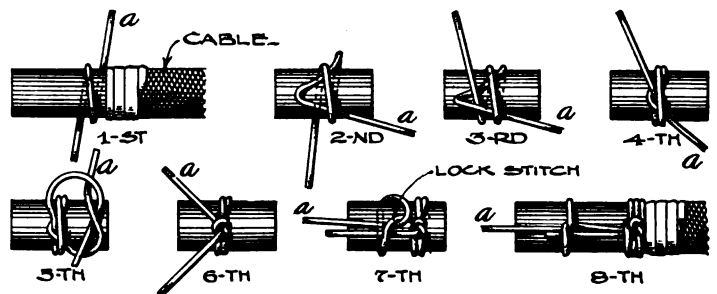


Figure 46—One way to tie the first knot in lock stitch cord used in binding together the wires of a cable form.

wire *B* allowed for skinning and soldering is taken from one-half to three-quarters of an inch.

**Stripping Insulation from Machine-Made Cable:**—The removing of the outer braiding of a switchboard cable is a simple matter, and for this reason proper care is not always exercised, resulting in accidental injury to the wires. When large quantities of cable are handled special stripping tools are used, these tools being made with guards to prevent the

knife edge of the same from cutting through the paper sheath and coming into contact with the wires.

For ordinary purposes a sharp pocket knife will do very well for a stripping tool, but it must be held in some manner similar to that illustrated in Figure 42, as otherwise the paper sheath might be severed and the cable wires nicked. Nearly every telephone man knows from experience that the least nick of this sort will invariably end in a broken wire. If the cable is not handled sufficiently to cause the

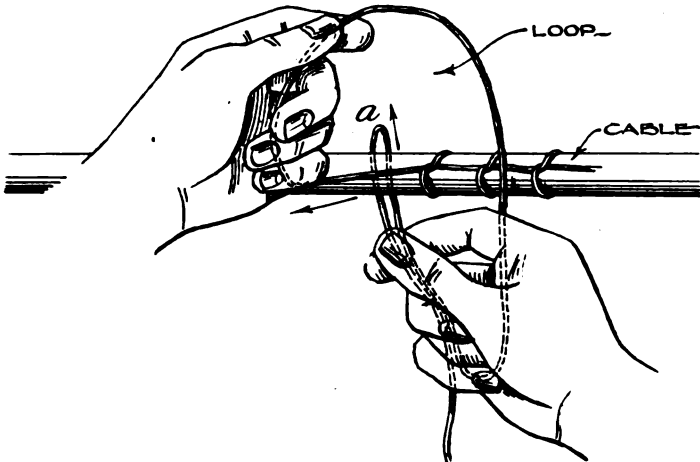


Figure 47—The first operation in making a lock stitch. The cord is passed under the cable and through the loop.

break before the apparatus is completely installed, it will show up at a later time when it becomes a case of bad trouble, the insulation holding the wire in apparent continuity.

After the braiding has been cut from the point called the butt, Figure 41, to the end of the cable, it can be turned back and cut away with a sharp knife or with a pair of electrician's shears. When a knife is used, the blade should be inserted between the cable and the loose braiding, and the cutting motion made in a direction away from the cable so as not to cut through the paper sheath and nick the wires. If the blade is used to cut directly around the butt, before the braiding is stripped back, the greatest precaution is necessary to prevent injury to the wires.

**Butting Raw Edges of Cable Braiding:**—There are many accepted methods of butting or finishing the raw edge of the outer braiding, which is exposed after stripping the cable covering for a form, as at point J of Figure 41.

When many cables are grouped together, it is one of the first essentials to have the butt very compact and not larger than the external dimensions of the cable cross section,

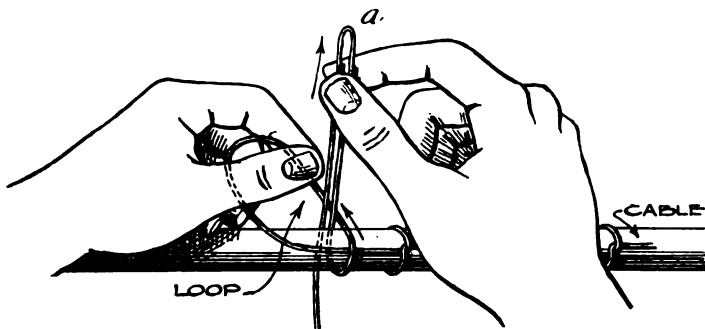


Figure 48—Second operation in making a lock stitch. The cord is now drawn through the loop.

otherwise the cables will pile up and occupy too much space, as in the multiple of a large switchboard. It is always desirable that the butts made on cable which is to be handled before installed should be secure; also, if the cable is to be pulled through a runaway, the butts must be especially made with this end in view.

A most common form of a cable butt is made with cotton

tape, about one-quarter of an inch wide, bound around the edge of the cable braiding, as shown in Figure 43. A loop, *a*, is first formed with one end of the tape and the other end, *y*, bound tightly around the cable and loop, four complete turns being sufficient, after which the end, *y*, is inserted through the loop and drawn under the turns by pulling on the end *x*. The two ends *x* and *y* are then cut off, leaving a finished job. The butt can be treated to a thin coat of shellac to stick the turns together, but this is not necessary if the job is carefully done.

A tape butt will serve for all ordinary purposes, but

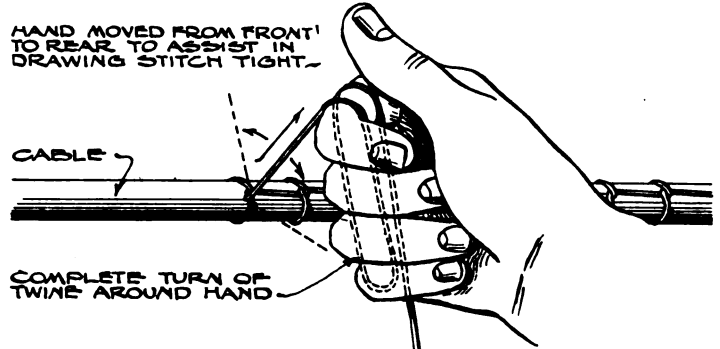


Figure 49—Third or finishing operation in making the lock stitch. The stitch is drawn tight and remains so, due to the end of the cord coming under instead of over the loop.

when the cables are to be drawn through a runaway, with a possibility of scraping the ends of the braiding back out of place, a more secure binding will be necessary. This is provided by using a stout linen twine, such as "Boston lock-stitch machine thread," about six-cord size, in place of the tape binding shown in Figure 43. One layer of about twelve turns is sufficient for a good job, the end being drawn under the binding as in the case of the tape.

A third method of butting a switchboard cable is shown in Figure 44. The raw edge of the braiding is turned under with a special tool or a small screw driver and the fold pressed flat so as to reduce the enlarged portion. This gives a very neat job, but is subject to the same limitations as the first method described.

It is sometimes found necessary to finish the cable butt without any binding by simply cutting the raw edge of the braid smooth and even, and then applying some compound such as shellac or cement the threads together. Cables provided with this kind of a butt must be formed and handled with great care so as to prevent disturbing the end of the braiding.

**Waxing Exposed Wires of Machine-Made Cable:**—When the insulation of the cable conductors is not already pro-

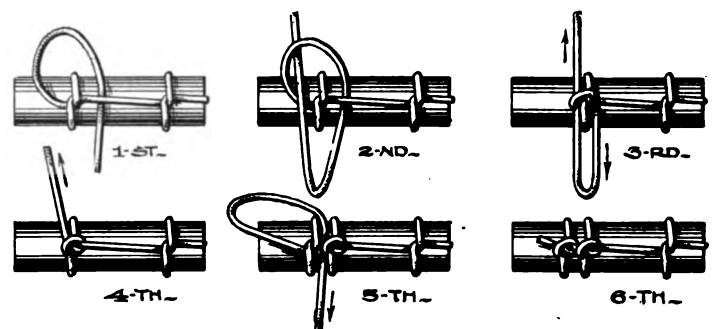


Figure 50—One method of terminating the lock stitch at the end of a form. These knots are easily tied and hold securely.

vided with a waxed or other moisture proof finish it is necessary to boil the dry ends, exposed by removing the braiding, in a compound to serve these purposes.

Pure beeswax is commonly used for boiling out cable ends, but it causes the colors of the wires to become indistinct and difficult to select in forming. When the forming is done before the boiling process, beeswax can be used to



good advantage, but otherwise a more transparent wax is necessary, such as a compound of parafine and beeswax. The proportion of these ingredients are either half-and-half or if the beeswax is very dark in color more parafine can be used.

The cable ends or exposed wiring should be dipped into the boiling compound, so that the latter will completely cover the wires and cable butts, until all bubbles due to air or moisture disappear. The cables are then removed and allowed to drip in an oven or lightly whipped on a smooth flat surface to remove the surplus wax. The presence of the wax in the wire insulation will hold the same from loosening at the ends and also assist in the skinning of the insulation before soldering.

**Forming Machine-Made Cable:**—After the cable has been prepared, as previously described, it is ready for the forming process. In the factory elaborate forming boards or frames are used, these frames being supplied with metal fingers for holding the wires in their proper relation to each other until they are bound together. For exchange use a temporary forming board, made from pine with nails for the wire separators, is sufficient. Figure 45 shows a portion of a temporary forming board arranged for forming a cable for the terminal arrangement shown in Figure 41. The

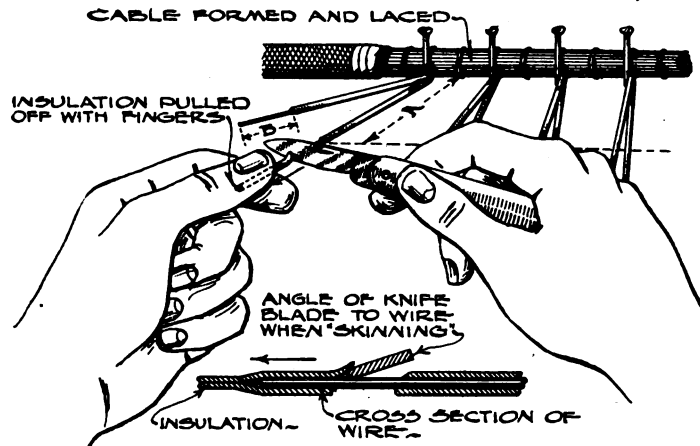


Figure 51—Skinning insulation from wires by means of a sharp knife preparatory to inserting through apparatus terminals. The wire is prevented from being nicked by holding the knife blade at an angle.

wire nails *a, b, c*, etc., are arranged with a separation *E*, corresponding to the distance between the terminals on the strips, while the nails *d, e, f*, etc., are driven in a line parallel to the former nails, but separated from them by a distance *A*, which represents the distance from the cable to the line of terminals. As the purpose of the nails *d, e, f*, etc., is for anchoring the wires until the form is completed, only a sufficient number need be provided to do this securely.

The cable is clamped on this temporary board so that the butt will be the proper distance *G*, Figure 41, from the first nail *a*, as shown in Figure 45. The wires or pairs are then selected by color code in their numerical order and passed around the different nails, *a, b, c*, etc., in their proper succession, the ends being held by taking a turn around the nails *d, e, f*, etc. The spare or extra pairs can be left projecting from the extreme end of the form so as to be available for emergency use at any point in the form or for testing purposes.

The wires in the body of the form are now ready to be sewed together with a stout waxed twine. Most telephone factories and large operating companies use what is known as "Boston lock-stitch machine thread" for this purpose, and the size depends upon the amount of wire to be bound together. The six-cord size is adapted for machine made cables of one hundred pairs or less. When obtained from the manufacturers this thread is in a dry state, thereby requiring the waxing to be done by the user. This can be

quickly accomplished by boiling the balls of twine in the same manner as the ends of the cables, taking care to remove the surplus wax before cooling. The actual sewing together of the wires in a cable form can be done in various ways, the following being a reliable and common method.

A single strand of lock-stitch twine is cut of sufficient length to sew the entire form without piecing, provided, of course, the form is not an extremely long one. This length of twine can be roughly estimated by multiplying the number of stitches to be taken by the average circumference of the cable, and adding an amount equal to the length of the form. The end of this piece of twine is tied securely, close to the butt of the cable, a knot similar to that shown in

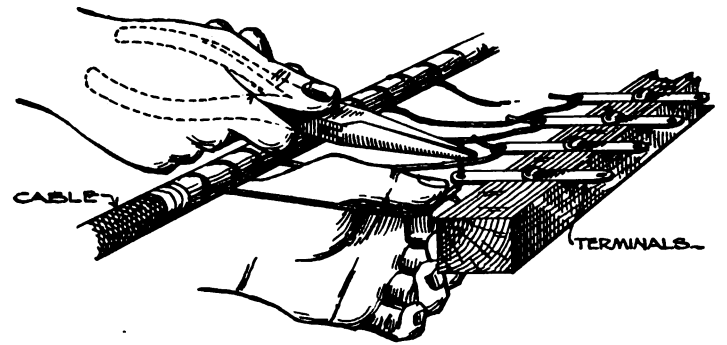


Figure 52—Inserting the bared ends of cable wires through apparatus terminals by the aid of a pair of long nosed pliers.

Figure 46 being used. Ordinary knots are not satisfactory for this purpose, as the waxed nature of the twine allows the same to slip and become easily loosened.

The sewing of the body of the cable is done with what is known as a lock-stitch, the end of the twine *a* being passed around the cable wires and through a loop formed by holding the twine as illustrated in Figure 47. The end *a* is then drawn through the loop as shown in Figures 48 and 49 and pulled up tight. One of these stitches is taken at each point where a pair of wires leaves the form, and if the distance between these stitches is too great (over one-half inch) intermediate stitches should be taken, as illustrated in Figure 51.

After the last lock-stitch of a form is taken, the end of

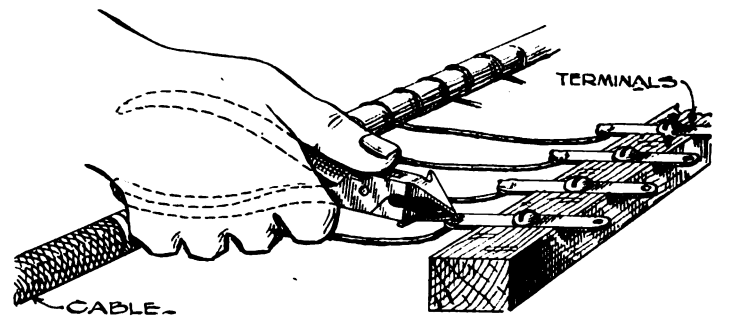


Figure 53—Cutting off surplus ends after soldering by means of a pair of diagonal cutters.

the twine can be securely fastened, as illustrated in Figure 50.

**Skimming Insulation from Wires:**—As soon as the wires in the body of a form are bound together, the ends of the same can be cut to length, this length being represented by the sum of *A* and *B* of Figure 41. The edge of the forming board, as shown in Figure 45, is made this distance from line of nails, *a, b, c*, etc., so that the wires can be cut accurately to gauge. The line of the nails *d, e, f*, etc., represents the positions of the terminals to which the wires are to be soldered, thus the insulation for the distance *B* is to be removed for soldering purposes.

The removing of the insulation from the wires is done in several ways. Some telephone factories use a special tool made in the form of two knife blades with a separation

equal to the diameter of the wire. This tool is caused to straddle the wire at the point where the insulation is to be severed and then pulled in the direction of the end. The covering is thus quickly removed and if the blades of the tool are properly shaped, and the work is carefully done, no injury can be caused to the wire.

When a pocket knife is used for removing insulation, it should be sharp and the blade held as illustrated in Figure 51, otherwise the wire will be nicked and a break occur. This illustration also shows how the insulation is removed, simply by severing it at one place and drawing the piece off the end of the wire with the fingers.

**Soldering Wires to Apparatus Terminals:**—The soldering and finishing operations of switchboard cabling are extremely simple, but must not be slighted, as, from their nature, a good looking job is always an indication of a safe one.

The bared end of each wire is in turn inserted through the holes of the terminals and drawn up by the aid of a pair of long pointed nose pliers to the end of the insulation, after which the end of the wire is turned down so as to hold it in place and in the proper position for soldering, as shown in Figure 52. Care must be taken not to allow any threads of the insulation to enter the terminal hole, as then the solder will not flow-in and surround the wire. If there is

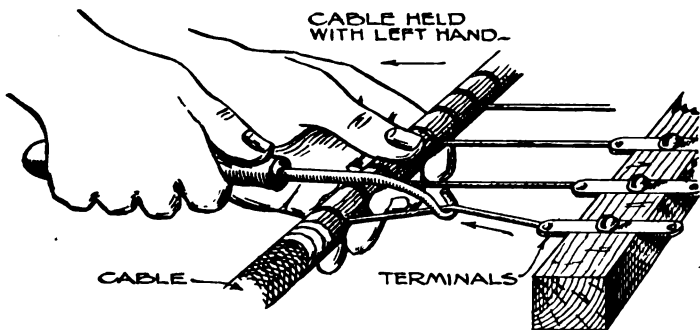


Figure 54—Drawing up wires after soldering into terminals. This final operation also serves as a test for defective soldering and nicked or broken wires.

a tendency for a thread to pass through the hole with the wire, it can be readily removed by partially withdrawing the wire and again drawing it into the terminal hole, so as to force the thread to one side. The soldering operation should not be done until all of the wires belonging to a terminal strip are inserted through the terminal holes and checked to see that they are properly arranged.

It is immaterial as to the kind of a soldering copper used, provided it has a flat pointed end, and is kept very hot and well tinned. The electric "iron" is especially adapted to this class of work, as it remains at a uniform heat and little care is required to keep it tinned. The terminals of the apparatus to which the wires are to be attached must also be thoroughly tinned to insure a good job, this tinning being done by the manufacturers.

There are several kinds of solder and fluxes made for soldering telephone apparatus wiring, but most manufacturers use a soft solder and resin flux. This flux is dry, and, therefore, will not hold particles of dirt which might accumulate and cause an electrical cross between two closely adjacent terminals. Acids and alkalies or any corrosive or low resistance compounds must never be used as a flux, for they invariably cause trouble from corrosion or current leakage.

A most convenient and efficient form of solder is the so-called "resin core" type, in which the flux is encased in a tubular shaped wire of soft solder.

With all of the previously described requirements, soldering would seem a very easy task, but it remains a fact that considerable practice is necessary in order to secure a neat and reliable job. Not only the soldering copper must be hot and the wire, terminal, and "iron" well tinned before

the solder will readily flow with a flux of resin, but the actual handling of the parts determines the kind of result to be secured.

The soldering copper must be kept clean from surplus solder, and only a small amount of fresh solder applied at each joint. The hot copper must be in contact with the terminal for a sufficient length of time thoroughly to heat the parts to which the solder is to adhere, but not long enough to soften or burn the insulation in which the terminals are fastened. This latter precaution applies particularly in the case of such apparatus as spring jacks, relays and keys in which hard rubber is used as an insulation.

The bare ends of the wires left projecting after the soldering is completed are now cut off close to the terminals, as shown in Figure 53. A pair of diagonal cutters is used, the lower jaw being inserted between the end to be cut off and the wire extending to the cable, so that there will be no possible chance for accidentally severing both wires.

Figure 54 shows a simple way to straighten the wires of a finished form by drawing the hook-shaped tool from the terminal to the cable with a lifting motion, the wire being held tight by drawing on the cable with the other hand. This hook is made similar to a button hook, but with the end bent at a slight angle, so as to allow it to be drawn close to the cable. Another special wire dressing tool with several fingers is used when the wires of the form are many and on close centers, as in the case of multiple switchboard cabling.

The dressing up or smoothing out of the wires not only gives the job a neat appearance, but serves as a final test for defective soldering and broken connections.

### THE BUSY SIGNAL.

Many telephone subscribers entertain a grudge against the "busy" signal that is ill-founded. It is natural, perhaps, for one to become impatient on hearing the "nothing doing" buzz when he is in a hurry to obtain the desired connection, and some often suspect that the signal is given because the operator at central is negligent and careless and anxious only to get rid of the call. The truth is, however, that the busy signal is considered by telephone experts as one of the best time-savers devised in the development of apparatus. In fact, the signal was invented for the purpose of saving the time of both the subscriber and the operator. It facilitates the work of the operator by doing away with the necessity of informing the caller that the line is busy, saving the operator the time consumed in this way, enabling her to give other callers quicker service in answering when the board is busy.

It also saves time for the caller, as the moment he hears the buzz he knows that the line is busy without waiting to be told.

Many subscribers have got the idea through frequently hearing the buzz that it is the fault of the operator who does not care to take trouble to make the connection. The fallacy of this impression is shown by the fact that it is more trouble for the girl to give a busy signal than it is to make the connection.

Prompt and efficient service by the operating department is the foundation of success of a telephone company, and great care is observed to see that the operators at the switchboards give as little cause for complaint as possible. A strict surveillance of their work is maintained at all times. In all large exchanges every girl is required to answer every call and try to get the party asked for. A supervisor stands constantly back of the girls at the switchboard watching their movements and seeing that they give quick service. In addition to this a girl is seated at the "supervisory board" who can get in on any line and hear what the operator is doing.

# DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

838,066. Electrical Protective Device. White. This is a thermal protector for telephone systems. Patent assigned to Frank B. Cook of Chicago.

838,260. Binding Post; Manson. This is a receiver terminal clip of which there are two for each receiver. Each comprises a flat piece of metal bent back upon itself and having a channel formed by corrugations for receiving the tips of the receiver cord. One end of the clip extends up through the cup which carries the windings and constitutes a terminal for said windings. A bolt supports the clip upon the magnet structure and clamps the cord tips. Patent assigned to the Dean Electric Company.

838,304. Lightning Arrester. Cook. This is the ordinary carbon lightning arrester. Patent unassigned.

838,525. Testing System for Telephone Lines; Dean. Plug seat switches are provided for the plugs of the connecting cords and when the plugs are seated the contact terminals are normally open. When the plug is removed the testing circuit is completed so that a test may be made, the contacts being included in the testing conductor. Patent assigned to the Kellogg Switchboard & Supply Company.

838,749. Telephone System; Reber. Each order key has associated with it a signal adapted to inform the *A* operators, the busy or idle condition of the *B* operators. Peculiar conditions of the system enable the *A* operator to receive this signal by listening in only. When this is done the signal may be received instantly upon depression of the order key. The inventor claims that the operators are enabled to do more work by this arrangement. Patent unassigned.

838,787. Telephony; Kitsee. A helix of fine wire is wound around the soft iron core of the connecting plug which is adapted to be inserted in a brass tube surrounding a stationary plug also of soft iron. The circuits are so arranged that when both plugs are in engagement the helix of the portable plug is energized and both plugs stick together until the subscriber hangs up his receiver, when a supplemental magnet breaks the circuit of the helix, which is local and the plug falls away. Patent unassigned.

838,788. Electrical Transmission of Intelligence; Kitsee. The object of this invention is to nullify the inducing effects of lines carrying current upon lines used for the transmission of intelligence, and comprises a coil around a plurality of telephone or other wires which is connected in series with coils around the current carrying wires. The impulses induced in the coil around the telephone wires are rendered negligible by the use of the coil. Patent unassigned.

838,809. Telephone System with Central Battery; Piltz. The cut-off relay and the controlling relay for the clearing out signal are both connected in parallel across the cord when the plug is inserted, and both comprise inductive resistances which supply the subscriber's transmitter. Patent assigned by mesne assignments to Sfockholms Allmanna Telefon Aktiebolag of Stockholm, Sweden.

838,050. Attachment for Acousticons Permitting the Use of Ordinary Telephones; Turner. The acousticon transmitter has an annular casing provided with an apertured extension adapted to fit the usual telephone receiver. The sounds are conveyed from the receiver through the acousticon transmitter and from there to an acousticon receiver by a receiver cord. Patent unassigned.

839,095. Automatic Telephone Exchange for Double Wire Telephone Systems; Betulander. This system re-

lates directly to the switching apparatus at the central station which comprises automatic switches having stepping, locking and release magnets. The spindle of the switch is provided with a winding which constitutes a lockout magnet, and is carried by the spindle throughout its entire movement. Patent unassigned.

839,117. Weatherproof Substation Protector. Cook. This protector comprises an insulating base upon which the fuse tubes are mounted and between which projects from the base an insulating stud by which a metallic cover may be secured to the base so as to protect it from the weather. Patent unassigned.

839,210. Composite System of Telegraphy and Telephony; Rugh. Each side of a quadrilateral in series with the line, includes an impedance device and the telephone receiver at the substation has one of its terminals connected between two of a pair of the sides of said quadrilateral and its other terminal between the two sides of the remaining pair of sides so that the receiver is telephonically connected with the transmission line by shunts established about impedance devices in the quadrilateral, which shunts include condensers. Patent unassigned.

839,455. Electric Sign Apparatus. Cook. A plurality of lamps or a plurality of groups of lamps are connected in series with a plurality of thermally operable switches, each switch controlling the circuits of the succeeding switch.

839,830. Telephone Hook Switch; Foster. The standard of this hook switch is stamped from sheet metal and is bent back upon itself and provided with a depending slot which connects with a vertical bearing aperture in the main upright portion and in the bent back portion. A pivotal stud on the lever engages this bearing aperture, so that by depressing the lever at its inner end it may be removed without tools. Patent assigned to the American Electric Telephone Company.

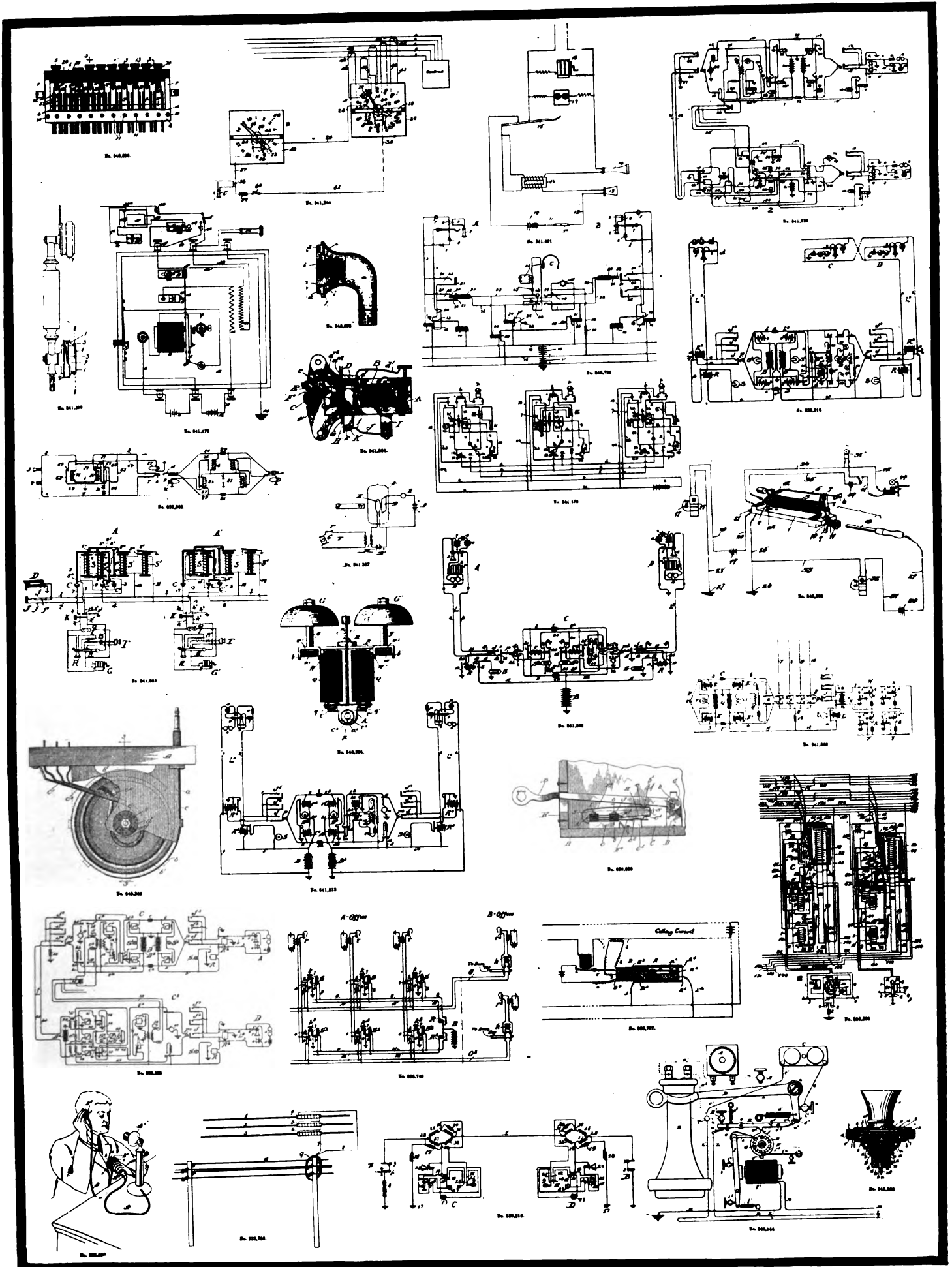
839,910. Telephone System; Webster. Supervisory relays are bridged in the cord circuit, and a cut off relay for the line is adapted to be actuated in series with the supervisory relay and also in parallel with one of the lines. Patent assigned to the Kellogg Switchboard & Supply Company.

840,069. Telephone Transmitter; Larsson. The main diaphragm of this transmitter is held to the casing instead of to the front plate as is usual, by a split ring. Patent unassigned.

840,200. Switchboard Cord Reel; Craft. This is a multiple cord reel, the sheaves of which are provided with peripheral flanges which define with a disk a groove of varying width, so as to accommodate the switch cord which is usually of varying diameter as it is wound up. Patent assigned to the Western Electric Company.

840,544. Party-Line Telephone Mechanism; Wood. The subscribers' circuits are all connected in series upon the talking line and a separate or selector line extends through the station and includes at each station simple step by step mechanism for effecting the several circuit changes in selectively connecting and disconnecting the different subscribers. He also uses an indicator controlled by the step by step mechanism for showing the condition of the line. Patent assigned one-fourth to John T. Hobbs.

840,589. Telephone Signal; Schuessler. This is an annunciator for switchboards and comprises the usual magnet and armature for operating the drop. The drop is of





peculiar construction, and is so arranged that when the armature is operated it will interpose itself in the path of the indicator rod which is provided with an indicator plate. Patent unassigned.

840,662. Device for Applying Sterilizers to Mouth-Pieces; Savage. A ring is tightly secured around the mouth-piece and hinged thereto is a metallic annulus having an inwardly projecting conical part around which, upon its inner surface, is secured an absorbent band adapted to hold a sterilizing liquid. Patent assigned to Oakville Company of Waterbury, Conn.

840,699. Telephone Operator's Switching Device; Kaisling. This is an order button key strip with an insulating mounting strip, through which the push buttons pass to engage the contact springs. Each button comprises a head portion, a shank portion and a lower locking button, together with a key, which engages a slot formed in the channel for the passage of the button, so that it cannot turn during vertical movement. The buttons may be entirely removed and interchanged by a slight pull. Patent assigned to the Stromberg-Carlson Manufacturing Company.

840,726. Telephone Exchange System; Webster. In this system when the operator plugs in she causes a closure of a low resistance circuit through the cut off relay whereby the relay is sufficiently energized to attract its armature. The line signal controlling device is governed by the armature of the cut-off relay and is thereby cut out when the cut-off relay is energized so as to remove the line signal from the control of the subscriber. Patent unassigned.

840,995. Method of Polystation Signaling; Dean. This method consists in tuning a vibrating body and then vibrating it by periodic increments of energy, storing up the energy until a desired totality is reached and then instantaneously interrupting the vibration and utilizing it to flex the clapper rod so as to produce a stroke of such short duration as not to appreciably retard or alter the normal periodic movement of the clapper. Patent assigned to the Dean Electric Company.

841,004. Interrupter for Electromagnets; Erickson. This interrupter is used to enable the rotary magnet of a selector switch to interrupt or alternately open and close its own circuit as long as the circuit remains closed at other points, whereby the selector automatically continues in operation until it finds an idle line, and comprises a magnet and an armature which is adapted to engage a locking spring to force it out of the way and to allow a circuit spring to break contact with another one of its own accord. Upon such breaking the magnet is de-energized and the armature in falling to its normal position makes the circuit and allows the locking spring to again assume its normal position. Patent assigned to the American Automatic Electric Company.

841,033. Telephone Exchange System; Mersman et al. In this system a polarized relay is used at each substation to connect a normally discontinuous line, which is broken at each substation so that all other substations are cut out during conversation between any two. Patent unassigned.

841,233. Telephone System; Dean. In this system the line relays are permanently connected with the telephone line and are not disconnected during conversation. One side of the line is permanently extended through the corresponding contacts of the spring jacks instead of being normally disconnected as has heretofore been done. Patent assigned to the Kellogg Switchboard & Supply Company.

841,244. Listening Apparatus for Telephones; Grigsby. Each of the line wires leading from central includes the primary of the induction coil, the secondary of which is legged off to a switch controlling a local circuit in which the chief operator's telephone is included. By this means the chief operator is enabled to listen in on the lines to ascertain the character of service being given by the operators at central. Patent unassigned.

841,292. Telephone System; Weiss. This is a local battery magneto system. The operation of the generator at any substation causes the line relay to operate and close a circuit including the main battery at central station and also a locking circuit for said relay. Patent assigned to the Kellogg Switchboard & Supply Co.

841,339. Incoming Trunk Line; Post. In this system the circuits are so arranged that a complete metallic path is provided for the voice currents from one exchange to the other over the trunk line, without the use of intervening inductive devices such as repeating coils or condensers. Patent assigned to the Kellogg Switchboard & Supply Company.

841,387. Device for Amplifying Feeble Electric Currents; De Forest. This invention comprises an evacuated vessel enclosing a sensitive conducting gaseous medium maintained in a condition of molecular activity, together with two electrodes associated with a local receiving circuit and a heated electrode in the supply circuit, so that the electrodes vary in their distances apart by electrostatic contraction. The slightest approach of one of the electrodes toward one of the others will act to cool the gaseous medium and thereby alter the current in the local circuit. Patent unassigned.

841,399. Compound Telephone; Holmgren & Brahn. This is a combined telephone receiver and transmitter with an imperforate cover in front of the diaphragm of the transmitter, so as to prevent saliva or other impurities from entering the transmitter. The openings which conduct the sound waves to the diaphragm of the transmitter are preferably in the form of slots in the side facing of the instrument. Patent assigned to *Aktiebolaget*. L. M. Ericsson & Company of Stockholm, Sweden.

841,476. Electric Calling Apparatus for Telephone; Adams-Randell. This is a composite system and the object is to impress telephone calls upon the line without interfering with the telegraphic instruments, and comprises two independent local circuits including an automatic vibrator. The vibrator is adapted to throw currents upon the primary of an induction coil, whose secondary is connected in the line circuit. A receiver is connected in the line circuit and arranged to control a local circuit at the receiving end, which includes a suitable call receiving apparatus. Patent unassigned.

841,478. Secret Service Telephone System; Andriano. A plurality of stations each interconnected through line wires and provided with a switching mechanism and a talking circuit with local battery. The switching mechanism is adapted to connect any two stations with their batteries in series so that the current will flow in the same direction and thus exclude all other stations whose batteries have their poles negative to negative and positive to positive. Patent assigned to Direct Line General Telephone Company of San Francisco.

841,491. Telephone; Edwards. This invention relates to the substation circuits for bridging magneto systems and employs a switch in the transmitter circuit, so that the battery thereof will not be used uselessly when waiting for a call or an answer to a call. The receiver circuit is unbroken while the receiver is off the hook. Patent unassigned.

841,640. Method of Harmonic Selective Signaling; Dean. This is a method for operating selective harmonic ringers and comprises the following steps: Tuning the movable parts of a ringer to respond to a given frequency, feeding a current of constant strength and proper frequency to said ringer to initially move the parts, and exposing said parts when so moving to the maximum magnetic effect of said magnet, so as to insure proper actuation and to render reactive interference, by reason of the clapper's engagement with the gong, negligible. Patent assigned to the Dean Electric Company.

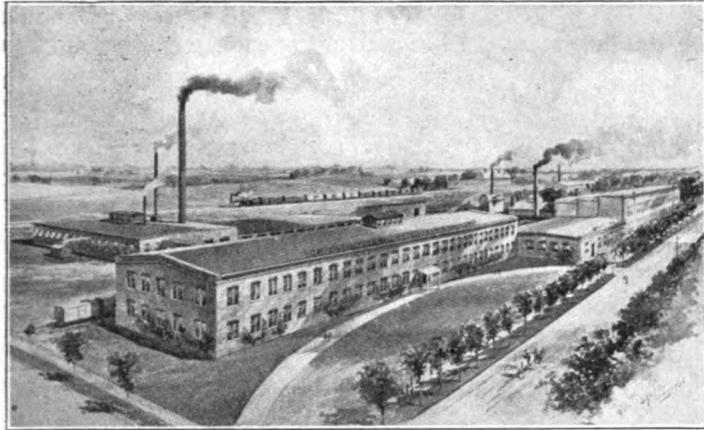
# STORY OF THE STATES—INDIANA

*The Second of a Series dealing with the Telephone Development of the States*

By H. D. Fargo

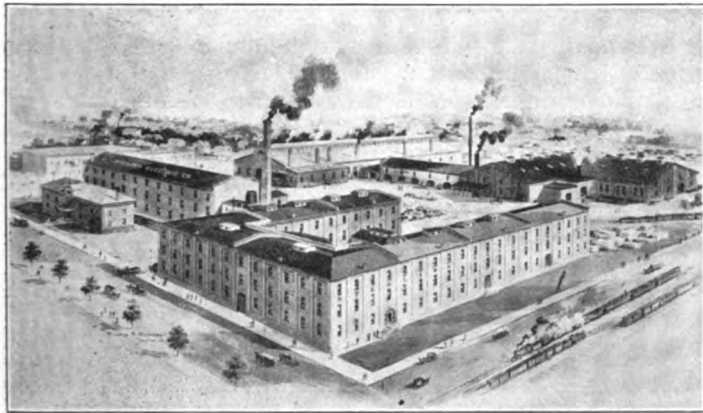
“**M**ONOPOLY of the telephone business in Indiana has had its day, and is a failure. The people made it so.”

This, in a nutshell, is a description of the situation in the Hoosier state given by Chas. S. Norton, secretary of



Factory Chicago Telephone Supply Company, Elkhart.

the Indiana Independent Telephone Association, and the figures which don't lie furnish ample corroboration of his statement. The story of the people's fight against the Bell monopoly in Indiana, however, requires more space for, as in every other instance, the trust made a desperate, though unavailing effort to bar out competition. But it was the people's fight and the people won. Just how complete a victory they won can be surmised from the fact that whereas ten

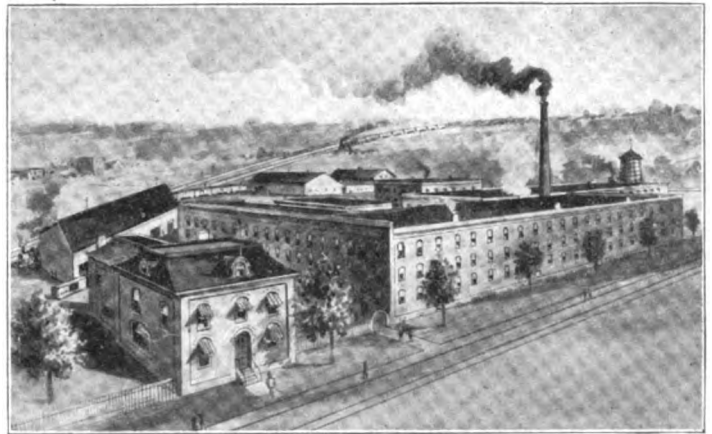


Factory Sterling Electric Company, Lafayette.

years ago there were ten Bell telephones in the state to one Independent, there are now seven Independent telephones to one owned and operated by the Bell combine. The plain reason for this outcome of the contest between the trust and the Independents was that the Bell pursued the same tactics in Indiana that has made it odious in other states. It ignored the public's rights and wishes, gave inadequate service, charged high rates, choked off competition, wherever possible, and in short conducted itself as a corporation organized for the express purpose of squeezing the last dollar out of the people and giving as little as possible in return. So long as the Bell enjoyed a monopoly on all telephone patents it pursued this policy without reaping its just recom-

pense, but the day of reckoning was approaching, and the people of Indiana were ready and eager to do their part toward smashing the trust. They welcomed the Independent pioneer operating companies, and, regardless of the Bell's frantic efforts to stop the landslide, the opposition swept over the state driving the trust to cover at every point.

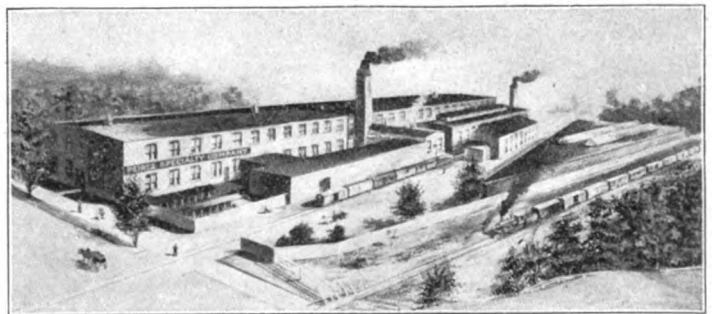
In Indiana the Bell telephone trust has been on the defensive ever since the Independents entered the field, and has never been able to impede their progress. The Bell is in the minority in that state for the reason that the people have



Factory Long Distance Telephone Manufacturing Company, South Bend.

had a chance to choose between monopoly and individual enterprise. Where that test is applied there is seldom any doubt what the verdict of the American people will be. This, in fact, is one of the best assurances that the Independent telephone movement will always be a great and enduring success. It is in Indiana, as well as in practically every other state in the Union.

While its original patents existed, giving it a monopoly of the telephone business, the Bell licensee in Indiana ran matters with a high hand. Those who wanted telephone service had to bow to the trust's whims and contribute to its coffers liberally whether they wished to or not. There

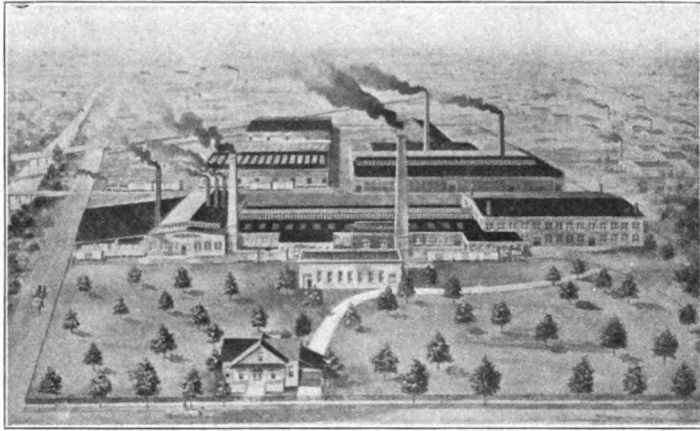


Factory Peirce Specialty Company, Elkhart.

were threatening murmurs, of course, which grew into loud complaints, but the Bell, secure in its monopoly, gave little consideration to the protests of its helpless patrons. It believed it had them at its mercy and that—according to the governing policy of the telephone octopus—is sufficient reason for taking as much and giving as little as possible.

Instances of how jealously the trust guarded against all

attempts at competition in an early day are told by old-timers in the telephone field. As far back as 1884 or 1885, John S. Crump, now a wealthy citizen of Columbus, Ind., made use of a telephone not controlled by the Bell combine. It was, to all intents and purposes, an Independent telephone, and, of course the Bell used every means to put it



Factory Indiana Steel and Wire Company, Muncie.

out of commission. Mr. Crump obtained the telephone apparatus from Canada and used it to establish communication between his farm house and the home of a tenant on an adjoining farm. It was essentially a home-made line and for personal use but that made no difference with the Bell. As soon as the trust learned that a farmer had dared to attempt to telephone across the road without asking permission, agents were sent out to order it stopped at once. They told Mr. Crump that he was violating the law, and threatened him with all manner of punishment for using a telephone protected by Bell patents. Then they seized the apparatus and carried it off.

About the same time another Indiana farmer strung a wire across his farm to a neighbor's house, and used two

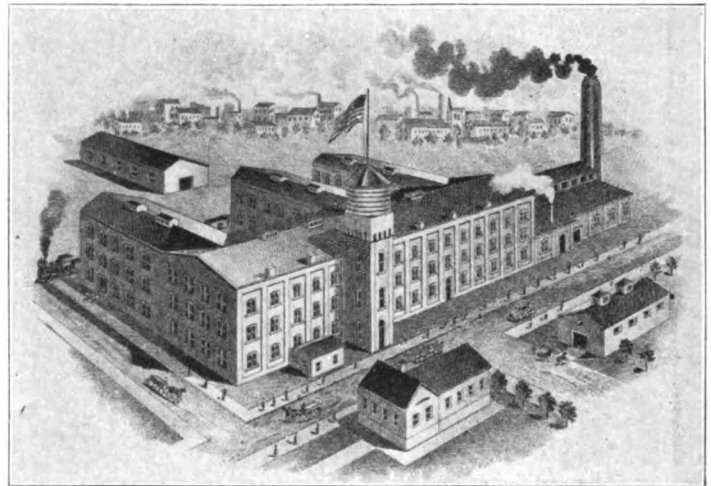


Factory McRoy Clay Works, Brazil.

telephones, also made in Canada. In due course of time the Bell agents paid him a visit, too, and ordered him to take down his line. He refused, declaring that he bought and paid for the telephones, liked them and meant to keep them. Then the Bell men tried to tear down the telephones by main force, and the farmer produced a shot gun and threatened the invaders with personal injury if they persisted in trying to carry off his apparatus. The Bell forces then discreetly withdrew and the doughty pioneer in Independent telephony in Indiana kept his telephone and continued to use it until an Independent company entered that section of the state.

The first Independent telephone company in Indiana, so far as the records go, was organized at Noblesville. Its

creation was nothing less than a strong protest against the extortion and unfair treatment practiced by the Bell monopoly. In 1893 the Bell concern was operating eighteen telephone stations at Noblesville, and for this meagre service was charging \$36 a year for residence telephones and \$48 for business telephones. All messages leaving the town had to pay exorbitant tolls, and the service was wretched even for that period. The people of Noblesville had been angrily complaining, but their clamors for relief were ignored. In many cases dissatisfied subscribers were insolently told that they might take the service or leave it. That, it may be said in passing, is what was and is possible when there is no competition. E. L. Brown, then a druggist of Noblesville, had experienced serious trouble with the local Bell company, and was longing for an opportunity to escape from its thralldom. Besides, he saw the possibilities in building a competing system, knowing well how anxious



Factory Indiana Rubber & Insulated Wire Company, Jonesboro.

the people generally were to get out of the clutches of the trust. Several years before, Mr. Brown had a tilt with the Bell combine while living in Pennsylvania. He had asked the company to install a line between his home and the nearest railroad station, and the best proposition the trust would make him was to rent him two telephones at \$100 a year if he built the line at his own expense. This extortionate offer was rejected, of course, but it opened Mr. Brown's eyes to the grasping policy of the Bell combination. He made up his mind then and there to go into the telephone business on his own account as soon as the Bell patents expired.

Afterwards, when he had settled at Noblesville, the



Factory Warner Electric Company, Muncie.

troubles of his neighbors and himself with the telephone service there strengthened this determination, and he waited only an opportunity to put his plans into effect. Mr. Brown was busy behind his prescription counter one day when Albert Church, the cashier of the Citizens' Bank, came into the place in a raging frame of mind. Without giving the druggist a chance to ask a question Church "opened up" on the telephone company.



"What has the company been doing now?" asked Brown, sympathetically, when he could get in a word.

"Oh, the same old story,—no service when you want it most,—a breakdown somewhere,—only this time it hurts worse than usual. I've lost a deal that meant hundreds, because the thing went bad. And then, on top of that, I got the regular dose from the manager."

"Could take the thing out if you didn't like the service?" suggested Brown.

"Yep,—cut me off when I threatened to sue 'em, and told me they weren't guaranteeing service and I could sue till blue blazes. Say, but I'd go to the infernal regions to get even," Church ended, savagely.

"You needn't do that," Brown put in, suavely; "I'll show you an easier way."

"How?"

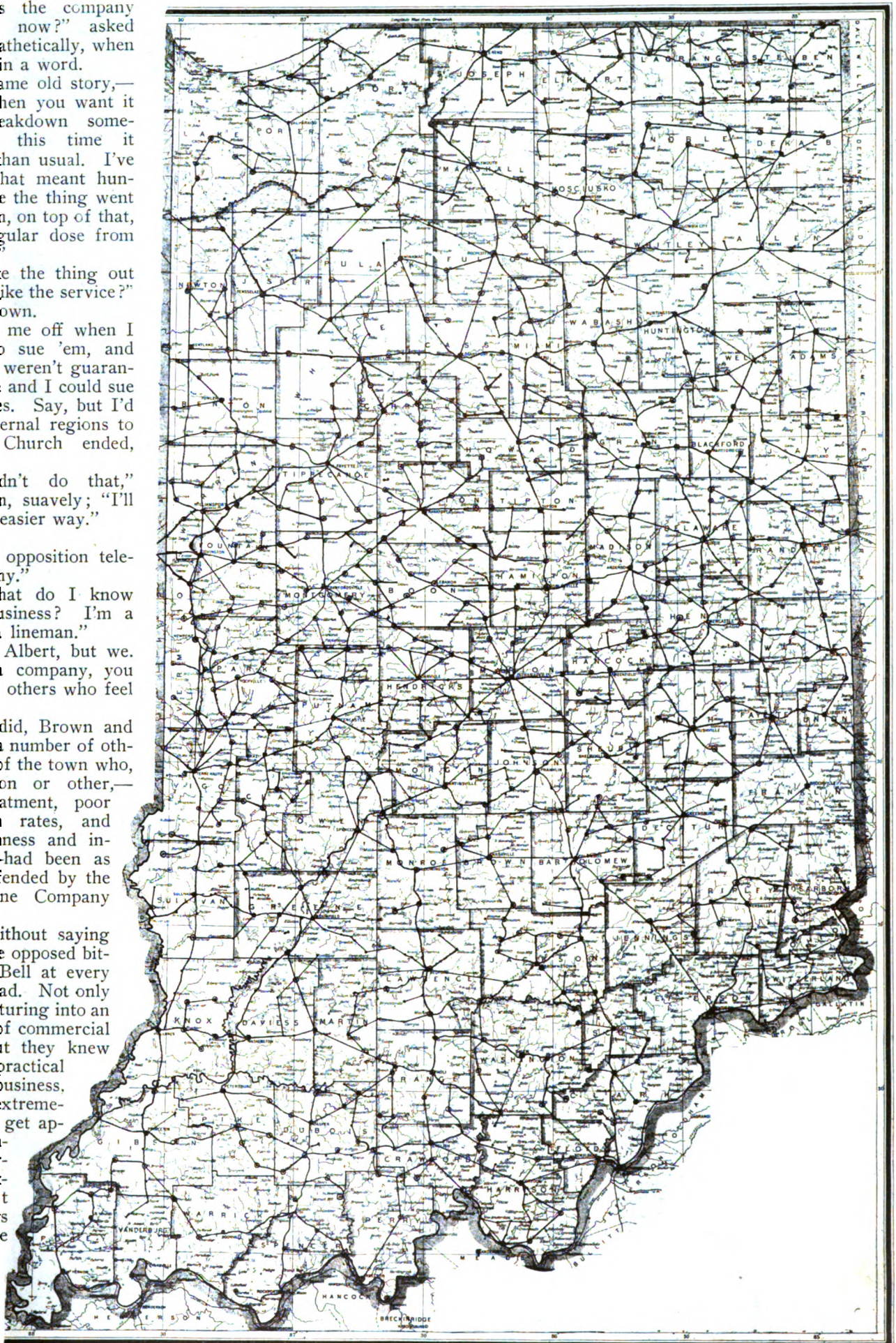
"Start an opposition telephone company."

"Me? What do I know about the business? I'm a banker, not a lineman."

"Not you, Albert, but we. We'll start a company, you and I and the others who feel as we do."

And they did, Brown and Church, and a number of other solid men of the town who, for one reason or other,—arbitrary treatment, poor service, high rates, and general meanness and incompetence,—had been as grievously offended by the Bell Telephone Company as Church.

It goes without saying that they were opposed bitterly by the Bell at every step of the road. Not only were they venturing into an untried field of commercial enterprise, but they knew little of the practical side of the business, and found it extremely difficult to get apparatus. Manufacturers were backward about taking orders to make the telephones needed, fearing a legal battle with the

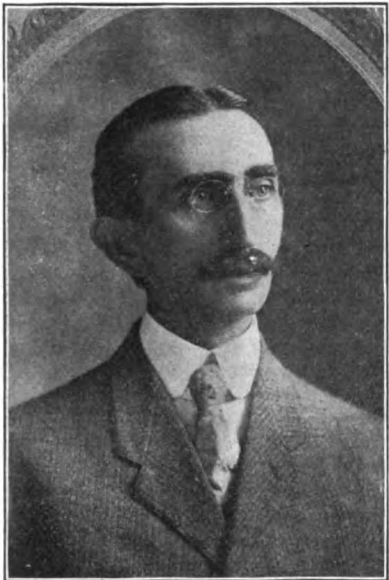


Telephone Map of Indiana Showing Exchanges and Connecting Toll Lines.





W. L. Moellering, Ft. Wayne.



C. S. Norton, Indianapolis.



Theodore Thorward, South Bend.

powerful Bell combine over the question of patent infringement. Mr. Brown was the only one of the organizers of this pioneer Independent company who knew anything about apparatus, and he traveled far and wide searching for a manufacturer who would furnish the equipment. The order was finally placed with P. C. Burns, then in business at Kokomo, and after much maneuvering the difficulties were solved and the system was built.

Thus the first Independent telephone company in the state was launched and began operations. Within a few months it had seventy-five telephones installed, which was unheard of then for a town of that size, as the Bell policy had not encouraged the general use of the telephone. The first year the Noblesville Independent company cleared thirty per cent on its capital of \$10,000, and this in spite of the fact that the Bell rates had been reduced one-half.

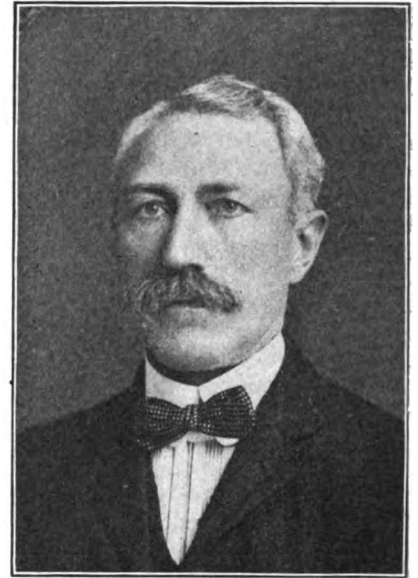
And this is only a sample of what has happened all over the state of Indiana. The soil was yearning for anti-trust seed and produced an abundant crop. The most authentic statistics show there are 400 Independent telephone companies in the state; that they have approximately 230,000 subscribers; that there are 20,000 stockholders in the various companies, and, finally, that upwards of \$20,000,000 is invested in Independent telephony within the borders of Hoosierdom. These are grand totals in more senses than one, and yet while the objection is made to telephone statistics that they are necessarily unofficial—because of the difficulty in keeping pace with development—these figures are clearly corroborated by the data found in the state tax reports. The tax reports give information regarding Independent companies which made returns to the state and county officials. These figures do not include Bell companies nor systems owned by individuals or Independent companies which reported locally for taxation purposes. According to this conservative and incomplete—yet absolutely reliable so far as it goes—statement 351 Independent companies reported for taxing purposes, showing that in 1906 there were:

Number of Independent subscribers.....	182,810
Capital stock of Independent companies.....	\$9,756,480
Bond outstanding .....	4,824,152

In order to illustrate how the Independent movement in Indiana is growing by leaps and bounds, the above figures for 1906 should be compared with the same reports for 1905. This comparison shows the following increase during the twelve months:

Increase in number of subscribers.....	37,150
Increase in capital stock .....	\$1,888,263
Increase in bonds outstanding .....	1,086,495

As Independent telephones have multiplied the Bell has trailed along, growing some, it is true, but only with the natural increase that is due to general progress in all branches of industry. Forty county seats in Indiana have uniformly refused to grant the trust a franchise to operate a telephone exchange, while every county seat in the state with but one exception has given an Independent company the right to operate. For instance, in Logansport, Danville, Greencastle, Covington, Tipton, Greenfield, Rushville, Franklin, Bloomington, Brownstown, Vernon, Martinsville, Winchester, Brookville, Scottsburg and the cities of Seymour, Veedersburg, Attica and Williamsport the Bell has no exchange nor franchise to operate an exchange, while in every one the Independents are doing a prosperous business.



A. C. Lindemuth, Richmond.



Jesse W. Weik, Green Castle.



C. D. Knoefel, New Albany.

In every Indiana city, town and village where the Bell has had the only telephone exchange, the leading business and professional men have petitioned the city council or town board to grant a franchise to an Independent telephone company. On the other hand, there is not a city or town in Indiana where the Independents have had the only exchange facilities, in which the leading business and professional men have ever petitioned the city council or town board to grant the Bell an exchange franchise.

The following table gives the telephone statistics for Indiana by counties:

County.	Independently owned and operated. Telephones.	Bell, including sub-licensee. Telephones.
Adams	1,460	5
Allen	7,200	600
Bartholomew	2,284	140
Benton	1,300	..
Blackford	850	505
Boone	3,500	815
Brown	650	50
Carroll	2,500	.....
Cass	4,000	.....
Clark	650	400
Clay	2,725	800
Clinton	1,943	1,441
Crawford	544	.....
Daviess	1,234	425
Dearborn	725	.....
Decatur	1,455	250
Dekalb	1,700	2,300
Delaware	3,475	3,300
Dubois	1,400	500
Elkhart	5,600	700
Fayette	1,384	98
Floyd	2,100	900
Fountain	2,796	310
Franklin	500	.....
Fulton	2,010	.....
Gibson	2,225	815
Grant	1,250	3,350
Greene	565	1,500
Hamilton	2,280	.....
Hancock	1,300	.....
Harrison	1,580	300
Hendricks	2,715	60
Henry	2,800	850
Howard	2,552	.....
Huntington	605	850
Jackson	1,850	.....
Jasper	1,400	.....
Jay	2,600	210
Jefferson	300	1,200
Jennings	963	.....
Johnson	2,600	700
Knox	2,600	850
Kosciusko	3,100	.....
Lagrange	1,500	210
Lake	400	2,600
Laporte	1,900	750
Lawrence	2,000	475
Madison	4,557	2,677
Marion	11,687	8,234
Marshall	1,500	130
Martin	350	.....
Miami	3,120	800
Monroe	2,450	30
Montgomery	2,500	2,600
Morgan	2,241	111
Newton	370	.....
Noble	2,000	250
Ohio	250	401
Orange	350	150
Owen	1,200	475
Parke	2,252	.....
Perry	514	175
Pike	950	550
Porter	700	800
Posey	1,500	500
Pulaski	1,245	.....
Putnam	3,545	.....
Randolph	4,120	250
Ripley	600	95
Rush	2,375	50
Scott	470	.....
Shelby	560	1,006

Spencer	1,250	1,300
Starke	600	1
Steuben	1,600	800
St. Joseph	5,000	1,200
Sullivan	3,825	1,150
Switzerland	475	.....
Tippecanoe	5,080	800
Tipton	2,100	.....
Union	910	7
Vanderburgh	250	3,500
Vermillion	1,894	1,800
Vigo	3,029	2,290
Wabash	3,100	40
Warren	1,750	.....
Warrick	275	175
Washington	600	400
Wayne	5,150	508
Wells	800	800
White	1,170	1,855
Whitley	2,892	.....
<b>Totals</b>	<b>186,226</b>	<b>64,229</b>

For purposes of comparison a table is presented herewith showing the effect of Independent competition on the growth of the Bell in a number of Indiana towns. These statistics, compiled from data furnished by Independent operators, show the number of Bell instruments in service before the Independents entered the field, the number of Bell telephones in use now, and also the date of incorporation or establishment, the capital stock and the installation of Independent companies in the towns enumerated. Lack of space prevents the publication of the entire list of towns in the state.

The statistics relating to forty towns throughout the state, selected at random, follow:

Town	Number of Bell Instruments Before Competition.	Number of Bell Instruments Now.	Independent Company Established.	Capital.	Independent Telephones Installed.	Business Instruments	Residence Instruments.
Dunkirk	35	100	1902	10,000	520	95	425
Connersville	52	98	1895	56,800	1,103	..	..
Knightsstown	0	8	1895	.....	400	80	320
Lapel	2	1	1900	5,000	320	..	..
Franklin	5	12	1896	20,000	1,100	150	950
Newport	90	90	1900	1,500	150	30	120
Hebron	7	0	1902	.....	400	100	300
Cherubusco	0	0	1889	.....	600	75	525
Rushville	50	50	1893	10,000	1,000	..	..
Warsaw	2	4	1900	50,000	900	180	720
Tipton	1	1	1895	10,000	800	200	600
Manson	0	0	1906	1,000	200	20	180
Argos	1	1	1903	.....	400	50	350
Milford	100	1	1902	20,000	480	..	..
Claypool	0	0	1902	.....	185	20	165
Sullivan	0	90	1897	50,000	725	300	425
Nappanee	1	10	1898	.....	430	82	348
Millersburg	1	1	1900	5,000	245	17	228
Mooreland	1	1	1901	10,000	230	20	210
New Market	0	8	1905	.....	92	1	91
La Grange	300	3	1901	50,000	600	50	550
Lebanon	0	350	1894	30,000	1,150	210	940
Mechanicsburg	2	2	1901	2,000	125	4	121
Mt. Zion	0	0	1904	25,000	420	25	395
Deer Creek	0	0	1903	3,000	185	5	180
Lafayette	250	550	1894	150,000	3,700	1,200	2,500
Plymouth	5	121	1894	.....	500	175	325
Angola	0	800	1895	100,000	1,700	115	1,585
West Newton	3	3	1901	7,000	160	8	152
New Market	0	1	1901	2,500	220	11	209
West Baden	25	2	1897	15,000	175	30	145
Warren	0	0	1898	18,000	425	80	345
Elkhart	100	500	.....	160,000	1,800	350	1,450
Whiteside	1	1	1902	1,000	102	..	..
Lizton	0	1	1902	.....	134	8	126
Princeton	300	600	1902	3,500	1,200	200	1,000
Greenfield	0	150	1888	25,000	550	100	450
Logansport	800	25	1901	331,100	3,445	686	2,759
New Salem	2	1	1905	2,500	100	10	90
Sheridan	1	1	1900	10,000	360	60	300

The above table contains several significant examples of the effect of competition. It will be observed that Newport has ninety subscribers which have tolerated the Bell Telephone Company for the past seven years without variation. The Independent company at Newport is a strictly mutual affair, and each of the 150 subscribers pays an equal share of the expense of running the plant. The ninety instruments which are credited to the Bell Telephone Company were not its property when the present independent company began business at Newport. This is a case where the Bell Telephone Company has bought out a prior Independent concern.



Independent Exchange Building, Muncie.

When the Independents invaded Milford, the Bell company had an exchange of 100 instruments. With a total capitalization of \$20,000 the Independents have installed 480 instruments and competition has been so marked that the Bell company is confined at present to a single toll station.

Sullivan shows a condition which prevails in a large number of other places throughout the United States. Before the arrival of the Independents there were no telephones in the vicinity of Sullivan, neither Bell nor Independent. The ninety instruments now credited to the Bell Telephone Company are being maintained by giving absolutely free service to subscribers. This condition has prevailed since January 27, 1905.

At Lebanon the Bell Telephone Company maintains an exchange of 350 instruments without cost to patrons who accept the service.

At Elkhart, Indiana, the Bell company installed its first plant in 1887, charging \$3.00 for residence instruments and \$4.00 for business instruments. At these rates an exchange of about 100 subscribers was maintained for a number of years until the legislature fixed a limit of rates at \$2 and \$3. Rather than meet the requirements of the new state law, the Bell removed its plant in all of the cities of the state equalling Elkhart in size. The inconvenience experienced by those who had had access to telephone service, became such a burden that a limited number of business men concluded to let the Bell Telephone Company re-establish itself at the old-time exorbitant rate, disregarding the statute limitation in rates. Another Bell system grew very slowly at these rates, until the Home Telephone Company invaded the field. Today the latter, an Independent company, has 1,800 subscribers to the Bell's 500.

Reliable estimates were made some time since as to the monthly progress made by the Indiana Independents, which were truly startling. In the United States as a whole, during a period of eight years, every week day there was \$100,000 capital invested in Independent development, 200 miles of metallic toll lines were built, 1,200 new subscribers were added, three new companies were incorporated, aggregating 120 stockholders. This was the daily record for eight



Independent Exchange Building, Terre Haute.

straight years. Indiana's record for seven and one-half years shows that during every month of that period the Independents built and equipped on an average one entire county system with 2,100 subscribers and 400 circuit miles of toll lines.

Indiana Independents now have 40,000 miles of toll lines, whereas ten years ago they had none. There are 40,000 telephones in the homes of the farmers of the state, every one of which has been installed since the inception of the Independent movement. It is estimated there is a telephone for every twelve people in the state. Before competition the ratio was one telephone to every 240 of population.

In the map accompanying this story of Indiana it will be seen that the state is well supplied with toll lines, most of which belong to the New Long Distance Telephone Company, which compares favorably with any company in the United States in the amount of long distance toll lines. The company has seventy-five circuits running out of the state connecting with Independent exchanges as far west as Kansas City and as far east as Wheeling. It requires a 30-position toll switchboard besides a chief operator's and monitor's desk to handle the more than 2,000 toll calls per day centering in Indianapolis.

The telephone story of Indiana would not be complete without mentioning some of the men who have made Independent telephone history.



Independent Exchange Building, Ft. Wayne.

Among those who have been born and bred in the paw paw state and who have taken part in Indiana's advancement might be mentioned the late S. P. Sheerin, who was the father of Independent telephony in Indiana; L. A. Frazee, of Connersville; A. C. Lindemuth, of Richmond; Theodore Thorward, of South Bend; W. L. Moellering and George W. Beers, of Ft. Wayne; A. F. Ramsey, of Crawfordsville; C. D. Knoefel, of New Albany; Rome Stephenson, of Rochester; Jas. B. Goodrich, of Winchester; and Charles S. Norton, of Indianapolis. Mr. Norton was for many years associated with Mr. Sheerin and has carried out many of his original plans as to the development of the state from an Independent standpoint. Mr. Norton, as secretary of the state association, has done a great deal of work in the interests of the cause, and has one of the strongest state telephone organizations in the United States.

Assisting the above named men in the development of the state might be mentioned James S. Brailey, Jr., and A. L. Tetu—two leaders in the movement who have done much for its advancement in the Hoosier state. Illustrations are also given herewith of some of the leading exchanges and factories of the state which give an idea of the substantial character of the movement in Indiana.

The Indiana Independent Telephone Association was organized July 12, 1905, when one hundred and fifty persons representing a majority of the interests of the Independent telephone companies of the state met at Winona for the purpose of perfecting a closer state and district organization of the Independent telephone interests of Indiana. At the time of this meeting there was in existence the Mutual Telephone Association of Indiana and four addi-



Independent Exchange Building, Franklin.

tional associations, representing various sections of the state, but in no wise affiliated. It was apparent to all Independent telephone companies that the state should be organized into districts, which would be auxiliary to a general state organization, and the state organization, in turn, auxiliary to the national association. The meeting adopted a constitution along these lines, and elected officers in accordance with the plan. The state was divided into eleven districts, according to their telephone and commercial interests.

The associations existing at that time have merged their interests with the present state association, and seven of the districts have organized by electing officers and adopting by-laws in accordance with the state constitution. These districts have also organized each county of their respective districts into a county association, which is auxiliary to the district association.

The association now includes nearly all of the companies in the state. Its last convention was a great success, and the work being accomplished this year by the organization is certain to achieve results of material value to the future development of the movement. Nearly 175,000 of the In-

dependent telephones of the state are represented by the association. The Indiana association shows commendable enterprise in publishing a bulletin which has been the means of distributing accurate knowledge and furnishing statistics showing the rapid growth of the Independent telephone movement to everyone in Indiana financially or otherwise directly interested in developing the business. The association headquarters at Indianapolis has become a veritable clearing house for information of interest to Independent telephone companies until a company in the northern part of the state is almost as conversant with telephone affairs in the other sections of the state as it is with matters in its adjoining county. This common knowledge of battles fought and won, of new systems installed and older systems rebuilt, of better rates secured, of successful placing of securities, is rapidly making the entire state, so far as these facts are concerned practically one vast telephone system.

Solid and extensive as has been the success of the Indiana Independent telephone movement the signs for still greater growth are most favorable and the opinion is universally held that the years to come will see its most wonderful development.

## QUESTIONS AND ANSWERS

By J. C. Kelsey

**B**EFORE starting on the queries for the month, I want to comment on the question of reserve in its application to both the Chicago Telephone Company and the Keystone Telephone Company of Philadelphia.

The management of the Keystone Telephone Company deposits \$0.34 a month, or \$4.08 per year, for every telephone in its system. This is a flat cash reserve, called a renewal reserve, and is as necessary to pay as the interest on the bonds. In addition to this cash reserve of \$4.08 per year, the company has the usual reserve for uncollectible accounts, auditing, and other expenses. The Bell Telephone Company operates a publication department, and issues what can be safely called a "yellow sheet," for it is very careless from the standpoint of adhering to the truth. The author of the mis-statements is certainly incorrigible, but it does not hurt the Independent securities for the Bell Hessians to say harsh things about them.

This Bell sheet describes the Keystone Telephone Company, and when this author arrived at the \$4.08 annual renewal cash reserve, a queer thought apparently swept through his feeble brain, for he called this reserve the "nigger in the woodpile." Also, he said, "any Bell engineer would not dream of putting in less than ten per cent depreciation."

Now, this ten per cent depreciation is a book depreciation, and anything can be shown by books. But the idea of a renewal reserve is in cash, and not in construction. Some day when a company needs money seriously, for instance after a big general fire or earthquake, it is easier to find cash deposited in a trust company than to realize cash on the construction, which has been ruined. In other words, a cash reserve for renewals of two per cent is better than a book reserve of ten per cent. But the Bell Telephone Company operating in Chicago evidently is an exception to the usual run, if we may believe the "yellow sheet" editor. The last statement of the Chicago Telephone Company shows the reserves of years ending 1905 and 1906. This statement neither shows a book reserve of ten per cent, nor anywhere near it. The following columns show total re-

serves at the end of 1905 and 1906, and the total reserve for 1906, with an average of 157,000 telephones:

	To 1906.	To 1905.	For 1906.
Reserve for switchboards, cable and plant .....	\$1,651,535	\$1,276,391	\$375,144
Reserve for buildings.....	40,530	18,763	21,767
Reserve for taxes.....	232,388	168,065	64,323
Reserve for insurance fund.....	175,000	150,000	25,000
Reserve for uncollectible accounts....	82,362	43,362	39,000
Reserve for directory expense.....	22,892	18,796	4,186
Reserve for unearned rentals.....	34,242	38,122	Loss.
Reserve for outstand toll tickets....	3,854	3,891	Loss.
	\$2,242,803	\$1,717,413	\$525,413

The total reserves to the end of 1905 were \$1,717,390. The total reserves at the end of 1906 were \$2,242,803. Therefore, the total reserves for the year of 1906 were but \$525,413.

The number of telephones at the beginning of the year 1906 were 143,223. The number at the end of 1906 were 170,834, or a net gain of 27,611 telephones, or an average for the year of 157,028.

If the Keystone Telephone Company's policy were carried out, there should have been reserves credited to the Chicago Telephone Company just 157,028, multiplied by that alleged "nigger in the woodpile," \$4.08, or a sum total of practically \$640,675 for 1906.

But the Chicago Telephone Company is not underground all over, and yet it put into the total reserve all possible losses, and such doubtful things as deferred taxes and insurance, and yet only shows an annual renewal reserve of practically \$3.34. Now, gentle reader, wherein doth the "nigger in the woodpile" apply to the Chicago Telephone Company?

Think of it! A reserve of but \$3.34 per telephone for 1906, and it is possibly not all cash, either. Not a stockholder knows just where that money is. Yet any holder of Keystone securities can see where that company's reserve is. It is cash in a stated bank, and the drawing account is in the hands of the proper people. But the Chicago Telephone Company all these years has not done



nearly as well as it did in 1906. I am going back over its record of twenty-three years and see whether it has rigidly adhered to the ten per cent depreciation. It shows:

Year.	No. of telephones.		
1906	157,000	1894	23,000
1905	130,000	1893	22,000
1904	110,000	1892	21,000
1903	95,000	1891	20,000
1902	85,000	1890	18,000
1901	70,000	1889	15,000
1900	55,000	1888	13,000
1899	45,000	1887	11,000
1898	35,000	1886	8,000
1897	30,000	1885	5,000
1896	28,000	1884	2,000
1895	25,000		1,023,000

During the twenty-three years' life of this Chicago octopus there have been approximately 1,023,000 telephone years. If the Keystone ruling had been carried out, \$4.08 per year, the reserve of the Chicago Telephone Company should stand at \$4,073,840 cash. Instead, the reserve at the end of 1906 shows but a paltry \$2,243,803. Putting this into dollars, per telephone per year, the reserve plan of the Chicago Telephone Company shows but \$2.20 per year. Surely, "let him among you who is without sin cast the first stone."

My advice to the publicity department of the Bell interests is to get busy and go after the truth. I know that a New England conscience is pliable, and the very spirit that justifies the burning of witches in those good old early days is still working overtime.

My advice to the Independent telephone companies is to create a reserve, and let it be cash. The same thing applies to the family, who cannot save much these days, but they must save just a little for a rainy day and have it out at interest. Your book reserve may show a great surplus, but when critical times come, and the sheriff is knocking at the door, your plant will not do. It will take cash to pay your debts of future renewals if you wish to retain control.

Certainly, the safety of any reserve is in its convertibility. If it is in money, no conversion is necessary. A bank often fails when it has assets exceeding liabilities. But a run causes ruin. So will a run of nature ruin a telephone plant.

If your reserves are as high as fifteen per cent annually, and are invested in the plant, and a general calamity comes along, it will destroy the plant and reserves, too. That is just when the reserve is needed. The reserve fund must be in a safe place.

Therefore, my claim that a telephone company which annually puts even \$1.00 cash away for every telephone, in the bank, is better off, and more sensibly managed, than a company which maintains a ten per cent bank reserve which no one can find.

Moral: Have your reserve money in the bank, and remember that "those who live in glass houses should not throw stones."

Will a common carrier law work any benefit to an Independent telephone company? In our state, South Dakota, the Northwestern Telephone Exchange Company, with headquarters at Minneapolis, in another state, practically controls the situation, because it has exclusive contract relations with the largest and most important company in the state. We have already communication with Minneapolis and Sioux City, but the connection we really need is the local state service which we cannot get now nor does it look as if we would get it. Our state telephone association is in favor of the common carrier law, and its members cheerfully expressed themselves in favor of it. They seemed to think that the proverbial "lion and lamb" could be made to lie down together, but I have my doubts. It looks as if we would be benefited, but why have not other states, much older in telephone ways, enacted common carrier laws?

Please give us your opinion.—A. J. B., South Dakota.

Nebraska Independents clamored for common carrier laws until the situation at Lincoln cleared and an exchange was installed there. But when the Independents found

themselves really independent, they did not want common carrier laws, because such a law was useless. I think, although knowing South Dakota rather obscurely, that the common carrier law in South Dakota will work no benefit to the truly Independent plant. Such a law is like unto a double-edged sword, because if you force the Bell to connect you, you give them a powerful reason for one telephone system. Supposing you had such a law, and supposing that the local plant at Sioux Falls had toll trunks to a common toll board, also used by the Bell company. Your subscribers would be at the mercy of the toll operators. They would have an occasional chance to remark upon some of your conditions that might make your subscribers suspicious. The operator could say, "Oh, why don't you get a Bell telephone; you could hear better," and such insidious suggestions would tend to uproot confidence in your system. Suppose the toll calls were going to the toll board from the Bell board at the same time that your calls were being sent. Of course, each call would be quickly and carefully recorded. It would be easy to detect discrimination if the Bell operators refused to record your calls. But the board having lots of business, some calls will have to wait. Do you think the Bell calls would wait? No! But do you doubt that your calls would wait? They would wait. And what legal device could detect discrimination, unless some operator peached? Go back to human nature. Two children are drowning. One of them is your very own, and is dear to you. The other child belongs to your business rival, and the loss of his child will cripple him seriously. Now, suppose that but one child could be saved. Whose child would you save? Yours, and yours every time. Likewise the Bell company would save their own customers. You know they would, and you know you would, if you were in its place. What would be the penalty upon your local service? You would have many subscribers doing an out-of-town business. They would quickly find that a call originating over your telephone would not make as swift progress as one originating over the Bell. In these days of refined greed you cannot expect gratitude, and your old subscriber becomes lukewarm, and commences to use the telephone which gives him the best long-distance service. The Independent telephone business is not a cause, as some of these modern Patrick Henrys make out, but a stern fight, and a merciless one, too. The fickle public cannot always be depended upon. One day it lauded Dewey, and the next day derided him. You cannot pose as a friend of the people long, when you are taking their money and not giving as much for it as your rival. And right here is the chance for your rival. At present he has no means of showing any superiority. He has none, compared fairly; but once you go into his exchange you give him a chance to create unfair comparisons, and you are put on the defensive. It is much easier to fight when you have an advantage and are merely defending it. Triple defenses are hard to carry, and the enemy knows it. Now, you wish to tear down your defense by putting your subscribers at the mercy of your rival. If a hungry wolf were in your hen house you would not send your youngest child out there to drive the wolf out.

I am convinced that the common carrier law aims at the very heart of Independent telephone success. It would mean the death of many meritorious enterprises. I actually believe that the Bell interests are cheerfully awaiting any action the legislature may take. It won't hurt the Bell. The Bell organization around you is a good one. It is wide awake, and never sleeps, either. No other Bell company has half as good and effective an organization. And make up your mind that, if this company makes no opposition you had better begin work against it. If the law would really harm the Bell you would see more activity than you do now. Laws can be made by the gross. Laws are made by skilled men, so that skilled men can evade them. When I was a boy on the Kansas plains, the mere

those were unwritten laws. Now, these laws are written, and skilled lawyers read between the lines and get Mr. H. Thief either an "immunity bath" or thirty days in a pleasant Kansas jail. Your legislature can make common carrier laws and hedge them about with dire penalties in language most concise and beautiful, but that won't make them obeyed in the spirit in which they are made. It is all well to theorize, but when a thirsty man in Maine wants a drink, there is always a kind-hearted druggist willing to aid him; and when you knock at Bell doors, whatever laws you have made, you will find that some instrument will be worked to your disadvantage.

Much was said at the convention about the Iowa conditions. But Iowa has solved the problem. The Bell company in Iowa is a fond joke. The Independents have met conditions there with iron hands, and they have won out. And, to cap it all, they have adopted the clearing house, which is a guarantee of future efficiency and improvement. This work is ever so ably handled by Mr. Hewes, and may he extend its operation to all the states. It is necessary. Aesop said that a wolf once met a lamb at a creek crossing, and immediately set about to eat him. The lamb gave many good reasons why he should not be eaten, and the wolf was apparently unable to meet the argument. But the wolf was desperately hungry, and said, "While I see the beauty of your argument, I am desperately hungry and may not get another chance to eat, and so must eat," which he did, and the lamb disappeared. Your Northwestern Telephone Exchange Company is a hungry wolf, and a merciless one, too. There is no use of arguing with it. You might as well swear at it, because it will try to eat you just the same. And it is hungry, too. It goes without meals for long stretches. Note the defaulted bond issue. It is smarter than any legislature you can dig up in your state. Peace be to the ashes of your proposed common carrier law.

I wish to obtain information on how to make electrical tests with a Wheatstone bridge, and at what price I can get books on this subject? I wish also to get information about storage battery.—S. A., Arkansas.

Get K. B. Miller's text book on "American Telephone Practice." You can get it from the Telephony Publishing Company for \$3.00. In it you will find data about storage batteries.

Please give me in TELEPHONY directions for adjusting a biased ringer; also a description of its operation when used with alternating current.—A Subscriber, Boston.

A biased ringer should be adjusted so that the tapper will not strike either gong when propelled by the finger. This leaves the tapper a chance to strike the gong and to be thrown in the opposite direction by the energy stored in the tapper. This adjustment is a combination of the stop, the armature and the gongs. Alternating current will ring both positive and negative adjustments. They are arranged so that a positive current will pull against a stop, while the negative current causes a free stroke. Reversing the ringer, makes the negative pull a stop, while the positive has free action. To put on an alternating current will ring both bells.

If there is any way in which I can connect from 5 to 8 receivers to 1,600 ohm. bridging telephone, so that a number of persons can "listen in" simultaneously, will you please tell me how it may be done and also tell me if a telephone will transmit more loudly by placing a larger number of batteries in the circuit, and if so, how many cells of ordinary "dry" telephone variety may be used without damaging the instrument in any way, and oblige?—C. M. G., New Mexico.

Connect the receivers in series with the present receiver. Your transmitter will transmit more loudly with more batteries, but the number will be limited to frying limit. Short-

circuit your telephone and listen. If an additional battery causes frying, take it out of circuit.

I would like to ask you why the telephone manufacturers do not solder the joints where the larger wire fastens to the small wire in ringer coils, and same in the induction coil. I have trouble at that point and have found the joints to be open.—B. E. R., Utica, N. Y.

All those manufacturers who do not solder all the joints of their telephone sets hold up their hand! I don't believe I have ever seen a telephone described as yours. The joints should be soldered—this is certain.

This is a blow to the standardization committee. In all of its deliberations it never mentioned this important point; and it certainly is important. If you have telephones with such connections they must be the result of a mistake.

#### MICHIGAN MANAGERS' ASSOCIATION.

Independent telephone men of Michigan claim to be the originators of the idea of organizing an association of managers. General Manager C. E. Tarte of the Citizens' Telephone Company of Grand Rapids evolved the plan of forming a society for men in the operating department, often finding it useful to hold conferences with the managers of the exchanges connected with his company.

The thought of forming a broader association was left to certain of the officers of the new association, and was first brought out at the last annual meeting of the state association at Ann Arbor last March. It received its next help at the annual meeting of

the Citizens' managers at Grand Rapids last May, to which Mr. Tarte kindly invited several outside men.

The committee on preliminary work was appointed at that time, and brought their work to a culmination December 12th, when the representative managers of the state met at Jackson and perfected the organization of the Independent Telephone Managers' Association of Michigan, with a membership of sixty-two. A great deal of pains has been taken in this work to keep the new movement well within the bounds it is expected to occupy. It is designed strictly as a help to the work of telephony in the Independent field, and in no wise to interfere with the state organization. This point is emphasized fully in the application which every member is required to sign. In addition to the good to be derived from a free discussion and exchange of ideas, it is expected that a closer acquaintance of the men of the state will result in a bond of fraternalism which will bring the many units of which the business is made up into closer touch and sympathy with each other and so better the service. It is hoped to be able to hold at least two meetings a year, and the officers have in mind some ideas to keep up interest in the mean time.

The officers of the Independent Telephone Managers' Association of Michigan are: President, F. V. Newman, Grand Rapids; vice president, William Robinson, Michigan; secretary and treasurer, H. T. Clough, Owosso; executive committee, F. V. Newman, William Robinson, F. M. Howard, A. A. Burch, H. T. Clough.



F. V. Newman, President.

# NORTHWESTERN CEDARMEN'S CONVENTION

*Annual Meeting Held at Duluth, January 8, and Proved a Great Success*

By E. M. Merrell

## MORNING SESSION.

THE Northwestern Cedarmen's Association held its annual convention at Duluth, Minn., January 8, and the meeting proved one of the most successful and interesting ever held by the organization. The convention met in the "sun parlor" of the Spalding hotel, and was attended by many of the leading producers of white cedar poles, posts and shingles in Michigan, Minnesota and Wisconsin. Owing to the late arrival of trains from the east and south the first business session was not called to order until noon. As President M. H. Coolidge was unable to leave home on account of illness in his family, the convention was presided over by P. W. Raber of Chicago, the vice-president, who handled the gavel so satisfactorily that he afterwards was elected president for the ensuing year.

When the session opened, the roll was called and showed the following were present:

P. W. Raber, Raber & Watson, Chicago; J. W. Benham, Naugle Pole & Tie Company, Chicago; E. C. Norton, Kellogg Switchboard & Supply Company, Chicago; Daniel Wells, Ford River Lumber Company, Wells, Mich.; F. H. Chandler, Marshall H. Coolidge Company, Minneapolis; H. M. Clark, Clark Pole & Tie Company, Bemidji, Minn.; A. T. Naugle, Naugle Pole & Tie Company, Chicago; J. W. Naugle, Naugle Pole & Tie Company, Menominee, Mich.; E. D. Beeson, Naugle Pole & Tie Company, Bemidji, Minn.; W. H. Graffis, TELEPHONY, Chicago; M. K. Bissell, Erickson & Bissell, Escanaba, Mich.; R. R. Genge, Francis Beidler & Company, Chicago; J. E. W. Branan, Francis Beidler & Company, Chicago; W. C. Moss, McCulloch & Moss Lumber Company, Minneapolis; E. Huser, Beaver Dam Lumber Company, Cumberland, Wis.; J. A. McDavitt, Cliquet Tie & Post Company, Cloquet; H. M. Dixon, Cloquet Tie & Post Company, Cloquet; L. L. Hill, Page & Hill Company, Minneapolis; H. F. Partridge, T. M. Partridge Lumber Company, Minneapolis; Ricker Van Meter, Deer River Lumber Company, Deer River, Minn.; J. P. Miller, Minneapolis Cedar & Lumber Company, Minneapolis; H. S. Gilkey, Pendleton & Gilkey, Minneapolis; H. W. Reade, Pittsburg & Lake Superior Iron Company, Escanaba; N. W. Burrell, The Valentine-Clark Company, Blackduck, Minn.; E. L. Clark, The Valentine-Clark Company, Chicago; Wm. Mueller, Jr., Wm. Mueller Company, Blaney, Mich.; W. P. Bowering, C. H. Worcester Company, Chicago; W. B. Thomas, White Marble Lime Company, Manistique, Mich.; T. P. Bradley, Duluth Log Company, Duluth; L. R. Martin, L. R. Martin, Duluth; Geo. Martin, Martin Brothers, Duluth; W. C. Church, W. C. Church Lumber & Coal Company, Des Moines, Ia.; A. D. MacIntyre, Pittsburg & Lake Superior Iron Company, Duluth; M. O. Nelson, secretary, Minneapolis; J. F. Hayden, Mississippi Valley Lumberman, Minneapolis.

Secretary M. O. Nelson was then called upon for the minutes of the last meeting of the association. This was a special meeting held in Minneapolis last fall. The minutes were approved as read.

Mr. Raber then announced that owing to sickness in the family of Mr. Coolidge he could not be present. He re-

gretted it as well for the loss to the meeting, as because he himself would have to preside.

Secretary M. O. Nelson was then called upon for his report, and, before reading the review of work of his office, passed around copies of his compilation of statistics gathered from cedar producers.

These statistics gave an estimate of the cedar to be produced in the three white cedar states for the current winter, as compared with last winter. The estimates cover nearly the entire territory. The one district not reporting in this summary reported last year a cut of 600,000 posts and 200,000 poles and probably will not vary much from that this year. The estimates follow:

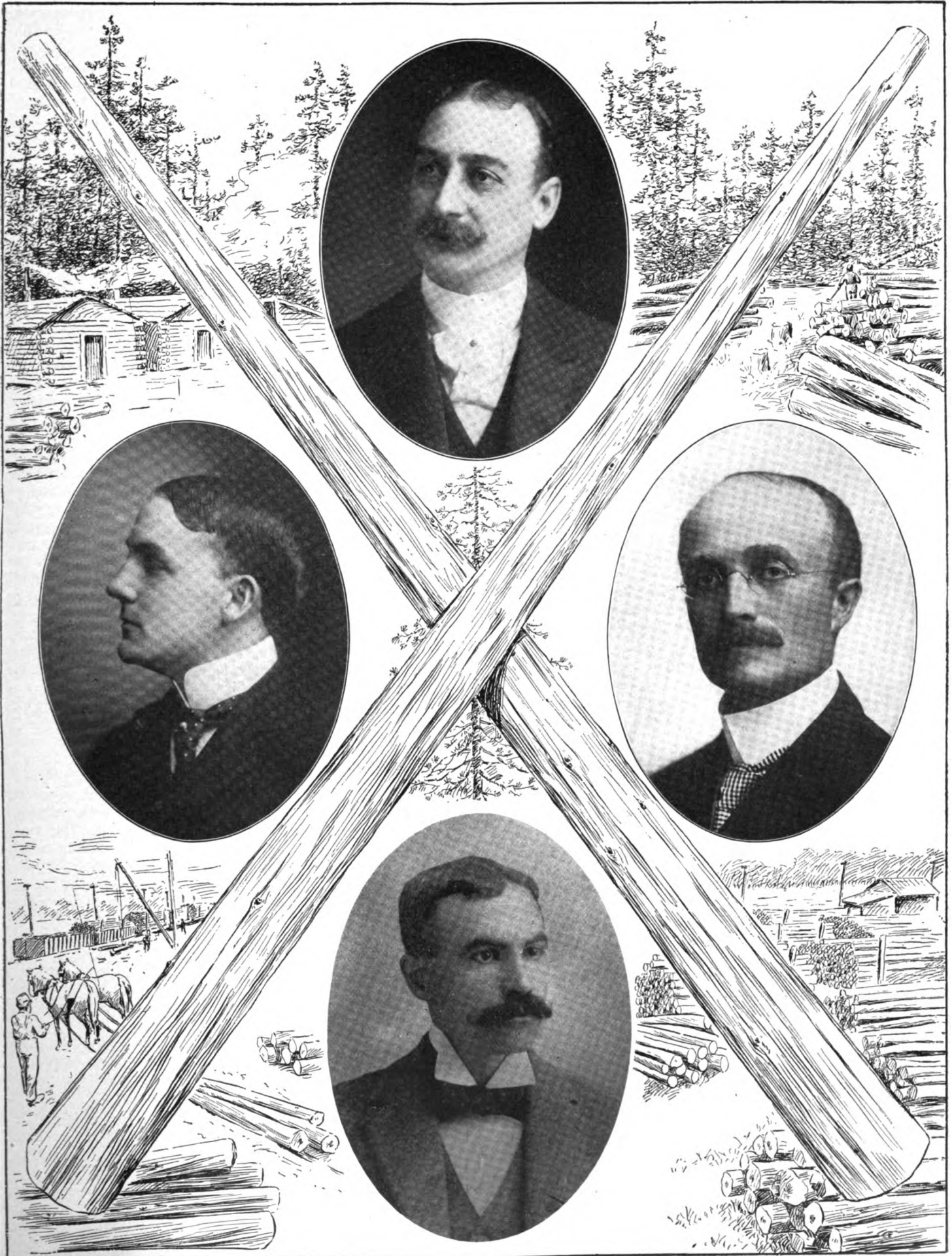
	Cut of logging season 1906-7.	Cut of logging season 1905-6.
7-foot .....	7,083,000	7,770,000
8-foot .....	1,318,000	1,321,000
10' to 16' .....	353,000	448,000
18' to 20' .....	787,500	1,019,500
25' and up .....	1,275,000	1,191,000

Secretary Nelson then continued:

"The bulk of the secretary's report and the most interesting part, is already in your hands in the form of a summary of cedar produced during 1906, as compared with 1905; of dry stocks on hand January, 1907, as compared with January 1, 1906; of short poles sold during 1906, as compared with 1905, and on estimates of cedar to be cut this year as compared with last. The report of cedar produced is the most thorough yet gathered by the secretary's office. It is furnished by one hundred and twenty wholesale dealers; of whom twenty-seven are members of this association."

Continuing, the secretary said that an analysis of this report would show that in 1906 there was a much smaller production of stocks, from 7 to 20 feet in length, than during 1905. On short poles, from 12 to 20 feet in length, the product of the past year was somewhat in excess of that reported for 1905. On long poles, 25 feet and longer, there was a slight increase in 1906, as compared with 1905.

In his review of dry stocks on hand the first of this year stocks, from 7 to 10 feet, showed a falling off, and the stock of short poles on hand also showed a decrease. There was an increase in the number of telegraph poles, but the market a year ago was nearly bare on this item. The secretary said that his report was not as complete as it might have been, as the very few days intervening between the first of January and the annual meeting made it difficult to get a full report of dry stocks on hand for convention use, but he said that the report would be extended and the summary mailed to dealers when enough reports had been received to nearly cover the field. Reporting on the sales of stock the secretary said that responses had been received, but from comparatively few white cedar producers. So far as reports have come in, sales show something of a reduction as compared with the sales in 1905, although the decrease was only a little more than one per cent. The estimates of cedar to be produced during the coming winter indicate that the total product of poles, short posts and long poles, will be about the same as last year, although some items will be produced more heavily and some less so. The remainder of the secretary's report is as follows:



OFFICERS OF THE NORTHWESTERN CEDARMEN'S ASSOCIATION.

A. T. Naugle, Vice-President.

P. W. Raber, President.  
W. B. Thomas, Treasurer.

M. O. Nelson, Secretary.



"The association has been interested this year in the progress of the car strike and equipment complaint before the interstate commerce commission. Very full and careful reports of this case have been made from time to time by the chairman of your committee, Mr. E. L. Clark of Chicago, who will give further very interesting information at this meeting.

"Our endeavors to test the reliability of our table of estimated weights of cedar is one of the principal association activities of the year. This work was done exhaustively and fairly by your committee in the presence of representatives of the western and central railway weighing associations. While the results seemed to prove our table of weights amply high, with perhaps a few exceptions in the larger sizes, the information gathered by the weighing association representatives appears to have been only such as might be used to discredit overweight claims. A majority of our members have expressed themselves formally to the secretary as desirous of canvassing at this meeting the question of higher estimated weights.

"Inquiries for and offers of stock, between members, through the secretary's office, have been numerous this year. A report of dry stocks on hand July 1 was issued, and will be made a permanent feature of the secretary's office. Market reports have been issued from time to time, and an eastern freight rate book published. For the past six months we have had reports on the conditions of railway scales, over which cedar is weighed, and these have been forwarded from the secretary's office to every member wishing such reports.

"The association has lost no member by death this year. It has increased its membership from 32 to 38. The treasurer's report will show that, while we have aided the car stake case with a remittance of \$500, and have had a few unusual expenses, the balance is still on the right side of the ledger and growing a little."

There being no objection, the chair announced that the secretary's report would be accepted as read.

Treasurer W. B. Thomas was then called upon for his report, of which a memorandum follows:

Balance on hand Jan. 5, 1906.....	\$ 748.31
Received from fees .....	200.00
Received from dues .....	2,635.00
Subscriptions to car stake fund and other sub- scriptions .....	450.00
 Total .....	<u>\$4,033.31</u>
Expenses as per vouchers .....	3,035.50

Balance on hand .....\$ 997.81

On motion the report of the treasurer was accepted.

The chair then called for reports of committees, and the first committee requested to make a report was the car stake and equipment committee.

The report was presented verbally by E. L. Clark who said that what he had to present would be but a continuation of the report made at the special meeting in the fall. The committee had held various meetings. They had raised the \$500 assessment to support the suit before the interstate commerce commission and Attorney Ross, representing the various shipping associations, had thanked the association for it. A further appeal for money had been made by Mr. Ross, but the committee was not authorized to support the work further and it was not given. Mr. Ross had asked him if he would endeavor to secure further aid, either from the association or from individual members, but he had not been able to promise anything. Continuing, Mr. Clark said: "I do not know that you all are aware of the fact that you are entitled to five hundred pounds for all cars of cedar

products shipped, which weigh over thirty thousand pounds, where car stakes must be provided by you. Freight bills should show this reduction and, if they do not, you should claim it and your claims will be recognized. One point I want to make is that it is the duty of our association to give this matter thorough thought and attention. The interstate commerce commission has succeeded in getting the railroads to experiment with permanent car stake equipment, but I do not believe that the shippers of cedar products want this permanent equipment for flat or gondola cars. Experiments with them have proven that permanent stakes are not practicable for loads of cedar products. The collapsible stake will not work in unloading. The reason for this is that when a load of poles has been sent over the road it settles more or less, and the stakes bulge and it is impossible to remove them when it comes to unloading. Cedar poles are unloaded in a different manner than lumber. The stakes are removed and the load dumps itself, but these permanent stakes cannot be taken out when a load of cedar poles has settled, and, hence the only way to unload them is to use a derrick to take them out one at a time, and that is not economical. I believe we should spend our efforts in working for a reduction in weights and for claims for overweights, but not for permanent equipment. I have been notified that the Northwestern and St. Paul roads have equipped ten cars for the use of shippers of cedar, and anyone who wishes to experiment with them can notify me and I will see that the cars are sent to you. But I do not believe that you will find them practicable. I do not want any permanent stakes for flat cars, and would suggest that a committee be appointed to draw up a resolution to the effect that permanent stakes are not practicable and that we be made an allowance for the weight of stakes. If all flat cars are equipped with these permanent stakes the pockets for temporary stakes will have to be removed to make way for the new equipment, and if cars thus equipped are not practicable for us we will see them taken from us and turned over to the lumbermen, and we will have greater difficulty than ever in securing cars to ship our products."

On motion, Mr. Clark was made a committee of one to prepare and present the resolution suggested by him.

Chairman Raber then brought up the matter of weights of cedar stock and called for a discussion.

On motion of A. T. Naugle, a committee of five was appointed to prepare and submit suggestions and revisions on the table of estimated weights at the afternoon session. Mr. Naugle's motion included the provision that the vice-president be chairman of that committee. The other members appointed by the chair were A. T. Naugle, H. W. Reade, L. R. Martin, H. S. Gilkey.

The chairman then brought up the question of the advisability of changing certain specifications, especially that regarding the circumference of poles and posts calling for five inch top diameter, and also that relating to butt rot.

H. S. Gilkey, chairman of the trades relation committee, was then called upon for a report, but said that his committee had been dissolved and that there was nothing to say in the matter.

L. R. Martin, reporting for the railroad committee, said he had received no complaints and had nothing to report.

On motion of Mr. Gilkey, the secretary read the names of the members of the permanent committees, and they were instructed to report at the afternoon session. The convention then adjourned until 2:30 p. m.

AFTERNOON SESSION.

The afternoon session was called to order by Chairman Raber, at 2:30 o'clock, and he announced that the members mention of a horse thief would make every Christian citizen go for his rope and shotgun. When they caught him the expense of his funeral was all there was to it. But

of the association were invited to a banquet in the main dining room of the hotel, at 6:30 in the evening.

The chairman of the railroad committee, L. R. Martin, was again called upon, and said that since his committee had received no complaints during the year he supposed that everybody was satisfied and that everything was lovely.

Reporting for the post and shingle committee Mr. Gilkey said that the committee was unanimous in the decision not to make any recommendation, and moved that the report be adopted. This was done without division.

In reference to the general conditions in the cedar trade, Mr. Gilkey spoke of the factors that were contributing to the increased cost of logging. He said that the value of cedar products was always determined by the relation of supply and demand and the cost of production. Every member would be able to judge for himself what his products ought to bring. Very little hauling had yet been done, although work usually commenced about the middle of December. Some people were still cutting and skidding, but a very considerable part of the stock that had been cut would probably not be gotten out at all this winter.

E. L. Clark was called upon for the report of the pole committee but, as usual, that committee had nothing to report.

The report of the inspection committee, according to T. P. Bradley, its chairman, was to the effect that there had been only two or three complaints made, and that the secretary had the details of what had been done in these cases. The secretary said that there were only two cases, and that the decision was still pending.

The principal discussion of the afternoon session was then precipitated by the report of the committee on weights. This was presented by A. T. Naugle. The original report changed the weights on nearly every item on the white cedar list, but after a thorough discussion, which was participated in by most of those present, the report was rejected.

In the course of this discussion E. L. Clark suggested, in view of the expense the association had been to the past summer in making test weights, it would be very unwise to change the schedule at all.

William Mueller asked for a summary of the report of the committee that had made the investigation during the summer, and Secretary Nelson again read that part of his report which covered this material, and which contained the recommendation that no change in weights be made.

Mr. Clark made some suggestions for change in the post weights, which agreed with those presented by the committee. These included an increase in weight of 6x20 foot and of 7x40 foot, and longer.

Mr. Naugle expressed the opinion that the weights were high enough if they could get correct weights from the railroad company, but overweight charges are so frequent and the claims so seldom paid that he believed it would be policy to raise the estimated weights.

M. K. Bissell believed that if it had been shown that the present weights were correct they should not be raised, as it would put the association in the light of acknowledging that former weights were too low.

Mr. Raber said that the committee's reason for raising the weights was to get them high enough so that the railroad weights would not be overweights.

Mr. Bradley asked if the reason for the recommendation was not merely to bring them up to the improper weights returned by the railways and, upon being answered in the affirmative, he said he did not believe that was the proper way. The correct way was to get after the roads and compel the return of correct weights. Further, if the new weights were adopted, it would knock out all claims for overweights that had been filed in the past.

W. C. Church said that the Idaho post men did not base their table of weights on the actual weight of the poles, but that they allowed enough to provide for contingencies, and hence they had no trouble with the railways.

Speaking from the view point of shippers of posts, W. B. Thomas said that he believed that the weights of posts and short poles were all right and should not be changed.

Mr. Raber said that the association had already accomplished much in correcting the errors of the railroads. He had fewer claims during the past year than in previous years. However, there would always be claims for overweights, and it was only a question whether the association members should continue to fight along the lines that had been followed or should change the weights to protect themselves.

H. W. Reade thought that the weights recommended on 7x30's. and longer, were about right.

Mr. Church said that his average during the year had amounted to upwards of five dollars per car.

Mr. Gilkey believed the present weights were about correct, but still the members were getting overweights right along just the same. He did not believe that the western weighing association was toting fair nor had showed any disposition to do so. He believed that the only way to solve it would be to put the matter of weighing in the hands of the state. He had consulted an attorney who said that the state legislatures should pass laws to that effect. He believed that the cedarmen's associations should map out a plan and present such bills in the state legislatures in the states where white cedar was produced. A vote was then taken on the original report of the committee and, the roll call having been asked for, the vote was taken in that manner and the motion to adopt was lost.

E. L. Clark then moved that the pole weights be revised and that the new weights be as follows:

	Pounds.
6 in. 20 ft. ....	190
7 in. 40 ft. ....	850
6 in. 45 ft. ....	900
7 in. 45 ft. ....	1,100
6 in. 50 ft. ....	1,150
7 in. 50 ft. ....	1,350
7 in. 55 ft. ....	1,700
7 in. 60 ft. ....	2,200
7 in. 65 ft. ....	2,500
7 in. 70 ft. ....	3,000

After some further discussion of the weight matter Mr. Clark's motion was adopted.

Mr. Gilkey then offered a motion to the effect that the secretary be instructed to communicate with the members of the state legislatures of Michigan, Wisconsin and Minnesota, and endeavor to have the legislatures put weighing into the hands of the state.

J. W. Benham believed that it would be better to have a legislative committee, and Mr. Gilkey accepted the suggestion and amended his motion so as to call for a committee of seven, made up of two representatives from each of the states mentioned and the secretary. This motion was carried.

Mr. Clark then presented the following resolution on the car stake equipment question, and it was adopted without debate:

"Whereas, It is the sense of this association we deem it not advisable or feasible to equip flat and gondola cars with permanent car stakes, as same so equipped are not adaptable for the loading and unloading of telegraph and telephone poles; and,

"Whereas, The railroads are now equipping flat and gondola cars for this and other service; be it

"Resolved, That as an association using only flat and gondola cars for its special commodity, it has been found

from tests made to be impracticable and not possible to use cars having permanent equipment, we request that the railroad companies make a reasonable allowance for weights of equipment which is now furnished by the shipper, and also request that no change be made without first investigating the requirements of the shippers of the commodity sold by this association."

Mr. Clark further moved that a copy be sent to the traffic manager of the Western and Trunk Line Weighing Association, and this motion was also carried.

The chairman then appointed the following committee on nominations: H. S. Gilkey, L. R. Martin, M. K. Bissell, W. P. Bowering and E. Huser.

After a short recess the committee returned and presented the following report recommending the election of those named therein:

President—P. W. Raber, Chicago.

Vice-President—A. T. Naugle, Chicago.

Treasurer—W. B. Thomas, Manistique, Mich.

Directors—One year, Hall L. Brooks, Tomahawk, Wis.; two years, L. R. Martin, Duluth, Minn., and E. L. Clark, Chicago.

Pending action on the recommendations of the committee, Mr. Raber said he would much prefer someone else be named for president. He thought the work of organization would be conducted to better advantage if the president were someone who would be in closer touch with the secretary's office at Minneapolis. The association, however, would not accept his withdrawal, and he was unanimously elected.

Responding to calls for a speech, Mr. Raber thanked the association for the honor. He said he had not suggested that someone else be chosen because he desired to shirk his duty. He was taking more and more interest in the work of the association and was willing to do his part. He had not formerly been very enthusiastic, but after attending one meeting he had seen how much good the organization was doing, and he would now do all he could to aid the work.

The vote on vice-president was unanimous for A. T. Naugle and, in response to calls for a speech, he said that while he would not feel equal to the duties of president he thought he was qualified to fill the office of vice-president as the only duty he would have to perform would be to admire the president.

Upon being re-elected treasurer, W. B. Thomas said he appreciated the confidence the association had placed in him.

The election followed. Hall L. Brooks was named to fill the vacancy made by the promotion of Mr. Naugle to vice-president, since the vice-president is a director ex-officio.

Mr. Clark said that he considered it an honor to be elected to any office in the Northwestern Cedarmen's Association, and particularly to the board of directors, and thanked the association for the honor.

Chairman Raber took occasion here to commend the work of Mr. Clark on the car stake and equipment complaints, and said that he would entertain a motion extending a vote of thanks to Mr. Clark for the work he had done. This motion was made by Mr. Naugle and carried unanimously.

Mr. Martin also thanked the association for the honor of electing him to membership on the board of directors, but said that it might come with better grace from him had he not been a member of the nominating committee.

Mr. Gilkey believed the time appropriate for extending a vote of thanks to retiring President M. H. Coolidge, who was not present at the meeting, and offered a motion to the effect that the secretary be instructed to notify Mr. Coolidge that the association had extended him a vote of thanks.

Some further parliamentary mix-up was precipitated by a motion offered by L. L. Hill, making some changes in the weights of poles and an amendment to this motion offered by Mr. Huser to reconsider the vote on the original report of the committee on weights, but nothing came of the discussion and the association adjourned, but was immediately re-convened on the call of the board of directors to give consideration to the motion offered by Mr. Clark regarding some changes in specifications. These were presented by Mr. Clark as follows, and adopted.

"On the specifications for standard telegraph, telephone and electric poles, in the sentence, commencing 'If poles are green,' the measurement of the tops of five-inch poles is to be sixteen inches in circumference, instead of five inches plump in diameter, as at present."

The meeting then adjourned, and after adjournment the board of directors held a meeting and re-elected M. O. Nelson secretary. They also fixed the salary of the treasurer and secretary the same as during the past year.

President P. W. Raber, following out the motion passed at the meeting, selected the following legislative committee:

For Minnesota—H. S. Gilkey and R. H. Downing.

For Wisconsin—Hall L. Brooks and W. D. Connor.

For Michigan—Ole Erickson and H. W. Reade.

Secretary M. O. Nelson is also a member of this committee.

The standing committees for the year were also appointed by President Raber as follows:

Committee on Posts and Shingles—J. E. Gerich, chairman; T. M. Partridge, T. P. Bradley, W. B. Thomas, M. K. Bissell.

Committee on Poles—M. H. Coolidge, chairman; C. H. Worcester, J. C. Kirkpatrick, Wm. Mueller, E. C. Norton.

Committee on Railroads—L. R. Martin, chairman; R. R. Genge, Daniel Wells, W. P. Bowering.

Committee on Official Inspection—H. S. Gilkey, chairman; T. P. Bradley, E. S. Norton, A. D. Watson.

At 6:30 o'clock about forty-five guests sat down to a banquet in the main dining room of the Spalding Hotel. The table where the guests were seated extended nearly the full length of the room and was beautifully decorated and sparkling with shining glass and silver.

At the head of the table, H. S. Gilkey, toastmaster, sat flanked on the right by T. P. Bradley, on the left by L. R. Martin, two of the hosts of the evening. The following carefully selected menu had been prepared by the committee of entertainers and was enjoyed from top to bottom by those who were privileged to be present.

#### MENU.

Extra Star A Stars.	Hinkley's Bone Liniment.	Cedar Boughs.
Plugged Tops.	Swamp Water.	Second Growth Cedar.
Paving Blocks.	Cat Faces and Dry Timber.	Saw Dust.
Full List (No Discount).	Competitors' Brotherly Love.	Winter, Spring and Summer Cut.
Load of Mixed Stock.	Prospects for 1907.	Butt Rot.
Mr. Becker's Sentiments Towards Cedar Shippers.		Creosote.
Sawed Ties.		

When the cigars had been lighted Mr. Gilkey, in a very appropriate speech complimented Duluth and the hosts of the evening for the banquet and reception, and called on L. R. Martin for an address of welcome.

Mr. Martin responded by saying, "It is both a surprise and pleasure to welcome all of you gentlemen as our guests. I feel incapable of expressing in a full measure our welcome to you. I wish I were better able to do so, but on

the part of Duluth and Duluth members of the organization, I extend to you a most hearty welcome. The pleasure is all ours."

Mr. Gilkey: "I know there are a great many of you who want to be called upon. In fact, as soon as it was known there was to be a banquet, Secretary Nelson was overwhelmed with letters from members of the association who wanted to be assured that they would be given an opportunity to talk at the banquet. I am sorry that it will be impossible to call upon and hear them all, and neither will it be possible to give them all the time they may want. If some of them who desired to be heard were given all the time they wanted, we would not get through here in a week. However, we will hear from our secretary, who will talk on 'Our Association.'"

M. O. Nelson: "Mr. Toastmaster, and gentlemen, I suppose that in giving me this subject it was intended that it should be as effective as one of your price lists; not a thing to stick to, but a thing to wander away from. Duluth is a city which is all scenery. A neighbor of mine built a Swiss cottage and regretted that he did not have a proper setting for it. I told him that if he could get a Duluth lot, which stood on end, it would make it a complete success." Mr. Nelson continued along this line of talk to the entertainment of the banqueters.

The committee on arrangements had prepared a very interesting program of music and other specialties, and the toastmaster then called for the first of these, which was "Gathering of the Clans," on bagpipes by McLennan and Smith, who were dressed in Highland costume, and with their bagpipes sounding marched around and around the table.

Following this number, "Paddy" Doran and "Jimmie" Myron, as they became familiarly known before the entertainment was over, sang, "Larboard Watch Ahoy." They were encored and came back with another verse of the same.

Mr. Gilkey next introduced Fred Hall, of Superior, who entertained with a Swedish dialect story and a poem from James Whitcomb Riley's writings. He was so heartily applauded that Mr. Gilkey felt impelled to ask him to repeat the French story which Mr. Hall had told him early in the evening. This was likewise received with great applause.

Mr. Gilkey then called upon Smith and McLennan, who responded with the Highland Fling, with Mr. Smith in the roll of dancer, Mr. McLennan playing the bagpipes.

This was followed by a "Scotch High Ball" song by "Paddy" Doran.

Professor Way was next introduced and proved to be a most expert sleight of hand performer.

The next number was a Scotch song, "Cameron Men," by "Jimmie" Myron. He was followed by "Paddy" Doran, who sang Chauncey Olcott's song, "My Wild Irish Rose." Mr. Smith then danced a sword dance to bagpipe music.

"Jimmie" Myron again appeared and rendered "Annie Laurie," in a pleasing tenor and responded to an encore with "Kenneth McPherson's Sow."

At this point in the program Mr. Gilkey again aroused the hopes of members of the association who had been expected to speak, but changed his mind and called for another specialty by "Paddy" Doran.

Following him Mr. Hall entertained the guests with more stories in dialect. Then after the bagpipes had again played, the entertainment ended with the singing of "Auld Lang Syne," by the entire assembly.

The entertainment and banquet were decidedly pleasant affairs, and the hosts, the Duluth Log Company, L. R. Martin, Martin Brothers, Cloquet Tie & Post Company, Marshall H. Coolidge and Marshall H. Coolidge Company, received many congratulations.

#### NEBRASKA STATE CONVENTION.

The Nebraska Independent Telephone Association held its annual convention at Lincoln January 22, 23 and 24, in the Lindell Hotel, and proved to be a well-attended and successful meeting. An interesting program was provided and included papers on "Our Liability Before the Law," by George E. Becker; "Toll Line Construction," by S. A. Hensley; "Toll Line Equipment," by R. A. Duff; "Advantages of Consolidation," by F. M. Pearl, and "Our Association," by C. J. Garlow. The annual banquet of the Nebraska Independents was held at the Lindell the evening of January 23, and was a most enjoyable affair.

At the election of officers Frank H. Woods of Lincoln was re-elected president of the state association, and R. E. Mattison of Lincoln was re-elected secretary. The association is engaged in an active campaign throughout Nebraska and starts in the new year with very encouraging prospects of success. The state is divided into five districts, organized as follows:

District No. 1—Dr. J. H. Lyman, president, Hastings; Fred W. Ashton, vice-president, Grand Island; E. C. Krewson, secretary and treasurer, Elm Creek. Counties—Hall, Hamilton, Merrick, Clay, Adams, Kearney, Buffalo, Howard, Sherman, Custer, Lincoln, Dawson and north half of Phelps.

District No. 2—T. H. Pollock, president, Plattsmouth; C. W. Nunemaker, vice-president, Tobias; R. E. Mattison, secretary and treasurer, Lincoln. Counties—Washington, Douglas, Saunders, Sarpy, Cass, Otoe, Lancaster, Seward, Saline, York and Fillmore.

District No. 3—I. E. Montgomery, president, Bloomington; Sam Patterson, vice-president, Arapahoe; T. L. Porter, secretary-treasurer, Alma. Counties—Nuckolls, Webster, Franklin, Harlan, Furnas, Red Willow, Gosper, Frontier, Hayes, Chase, Perkins, Dundy.

District No. 4—C. J. Garlow, president, Columbus; I. Lightner, vice-president, Monroe; A. S. Brown, secretary and treasurer, David City. Counties—Polk, Dodge, Colfax, Nance, Platte, Boone, Butler, Madison, Stanton, Antelope, Cummings and Burt.

District No. 5—C. W. Bartlett, president, Fairbury; A. R. Morris, vice-president, Blue Springs; C. W. Pool, secretary and treasurer, Tecumseh. Counties—Nemaha, Richardson, Johnson, Pawnee, Gage, Jefferson and Thayer.

The Telephone Traffic Association of Nebraska held its annual meeting during the convention.

Several centuries ago an English poet who was sent to prison wrote that bars and locks cannot confine the man whose mind is free and unfettered. Doubtless the same thought has led a white woman confined in an Alabama county jail for manslaughter to demand a telephone in her cell. Yohlande Degg is the prisoner and she has appealed for a new trial to overthrow the sentence which imposed a penalty of twenty-three years' imprisonment. Having powerful friends, she obtained many favors denied the ordinary prisoner, and one of her requests was to have a telephone in the cell for her personal use. It was granted her after some delay, and now she can call up and talk with all her old friends who have not dropped her from their list of acquaintances. This is believed to be the first case on record of a convicted prisoner being allowed a private telephone.

At Fort William, Ontario, the opposition to the Bell is meeting with success that should be encouraging to other sections of the Dominion. The statistics show that in 1906 the Fort William municipal plant realized a net profit of \$3,300 after providing for a sinking fund and interest and setting aside ten per cent for depreciation. At that the people of Fort William pay only \$2 a month for business telephones and \$12 a year for residence instruments.



**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done. TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

*Copyrighted, 1907, by The Telephony Publishing Company. All rights reserved.*

# Telephony

With which is incorporated The Telephone Magazine.  
Published on the first of every month by

THE TELEPHONY PUBLISHING COMPANY  
301-305 Manhattan Bldg., Chicago, Ill.

H. B. McMeal . . . . .	President
E. M. McMeal . . . . .	Vice-President
H. D. Fargo . . . . .	Secretary and Treasurer
W. H. Graffis . . . . .	Advertising Manager
H. A. Downey . . . . .	Subscription Manager

Edited by H. B. McMeal and H. D. Fargo

VOL. XIII.	TELEPHONY	No. 2
VOL. XXIX.	THE TELEPHONE MAGAZINE	No. 2

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each. In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

*Entered at the Chicago Post Office as second class mail matter.*

## EDITORIAL DEPARTMENT

*INTERNATIONAL CONVENTION AT CHICAGO.*

AT A meeting of the executive committee of the International Independent Telephone Association held at Cleveland, Ohio, on January 7, it was decided to hold the next convention in Chicago on June 4, 5 and 6. After considering the invitations of many cities which were desirous of entertaining the Independent telephone men at their 1907 convention, Chicago was selected on account of its being the center of the Independent telephone field, and especially on account of the present telephone activity there.

Monday, June 3, will be devoted to committee work and a meeting of the executive committee, the convention proper opening on Tuesday, June 4, and continuing during Wednesday and Thursday. The meetings of the association will be held at the Auditorium Hotel, which will be headquarters for delegates and visitors, and where the manufacturers will have their exhibits.

From all indications this convention will be a record-breaker, and will mark a new epoch in Independent telephony.

*THE STORY OF INDIANA.*

THE growth of the Independent telephone movement in Indiana constitutes an interesting chapter in "The Story of the States." In every field of endeavor the Hoosiers have made their mark, and the statistics show that their telephone men have fully maintained the record. Indiana is a fertile soil to produce anti-monopoly sentiment, and the records demonstrate that the organizers of Independent companies in that state have had the Bell trust on the run ever since competition began in 1896. Not only have Independent telephones multiplied all over Indiana, but the sentiment against encouraging a monopoly has shot up and con-

fronted the Bell wherever it tried to gain a foothold: The solitary fact that the county seats in forty Indiana counties have refused to grant the Bell a franchise to operate an exchange is convincing proof that the people of the state as a whole have no sympathy with trust methods and will not aid in their continuance. Equally significant is the fact that every county seat in the state, with one exception, has granted a telephone franchise to an Independent company.

Telephone competition in Indiana is not eleven years old. When it began the Bell was giving service to but one person out of every 240 population. The farmers had no telephones, and the entire industry was merely marking time, largely because the Bell policy was not conducive to telephone development. As soon as the Independents entered the field, however, there was a radical change, and conditions improved, and when the movement was fairly started the Bell was left far in the rear. To-day the Independent telephones outnumber the Bell instruments seven to one, more than 40,000 farmers have telephone service, and, taking the state as a whole, there is a telephone for every twelve inhabitants. That is what Independent competition has done in Indiana, and, needless to say, the grade of telephone-service has improved to an immeasurable degree, simply because of competition.

The avidity with which the people of Indiana—knowing a good thing when they saw it—seized the opportunity to obtain good telephone service is further illustrated by this plain statement: Before the Independents began doing business there were only, approximately, 10,000 telephones in the state. To-day there are upwards of 230,000 Independents alone. That is what Independent competition has done for Hoosierdom, and, on the other hand, it is only fair to add that Hoosierdom has done much to encourage the In-

### TABLE OF CONTENTS

Telephone Day at the Electrical Show...E. M. McMeal	71-81	Editorial Mention.....H. B. McMeal and H. D. Fargo	106-111
Wisconsin State Convention.....E. M. Rothelle	81-82	Decisions Affecting Telephony.....G. W. Hand	112-113
Manson's Practical Suggestions.....R. T. Manson	83-87	Independents Capture Boston.....C. E. Gray	114-117
Digest of Telephone Patents.....E. E. Clement	88-90	Vermont and New Hampshire Convention...E. R. Nash	117-118
Story of the States—Indiana.....H. D. Fargo	91-97	Manufacturers' Department.....W. H. Graffis	119-128
Questions and Answers.....J. C. Kelsey	97-99	Progress of the Month.....H. A. Downey	129-143
Northwestern Cedarman's Convention....E. M. Merrill	100-105	In the Rural Districts.....O. H. Brandenburg	144

dependent cause throughout the United States and Canada.

The evidence shows, too, that the cordial relations existing between the good people of Indiana and the Independent companies are growing more firmly established. There is not an instance of an Indiana town having only an Independent company ever making a request for the Bell concern to come in and operate an opposition exchange. On the other hand, in every town where the Bell has had an exclusive franchise—and there are not many such, by the way—it is a significant fact that the leading business and professional men have demanded that the council vote a franchise to an Independent company. This condition is excellent capital for the Independent movement, showing as it does conclusively, that Independent companies are giving satisfactory service, while the Bell is losing ground in the estimation of the telephone users of Indiana.

Only ten years ago there was less than \$200,000 invested in Independent telephone properties in Indiana. To-day there is more than \$20,000,000. Truly, "the land of the paw paw" is a fruitful field for Independent telephony, and, at the rate with which the industry is growing, the Hoosier soil seems to have hardly been scratched. The future promises far better things for the Indiana Independents.

#### BELL TROUBLES IN CHICAGO.

THE Chicago (Bell) Telephone Company is having a succession of troubles calculated to draw tears from a stone image. Financial papers, in announcing that the company has declared a quarterly dividend of 2½ per cent, predict that this will be the last disbursement on a 10 per cent basis. The reason assigned for this theory is the pending controversy over the renewal of the Bell franchise in Chicago and the likelihood of Independent competition. Even if the Bell secures an extension, the financial journals believe that the concessions which the company will be compelled to make will reduce the dividends to a four per cent basis. The city authorities are after the Bell management with a sharp stick, alleging that the company is violating the law in furnishing telephone service to places where gambling is said to be carried on. In some cases the company removed the instruments to get around this complaint, and only jumped from the frying pan into the fire, for the parties deprived of telephone service promptly went into court and sought legal redress. Officers of anti-crime and reform organizations have threatened to secure the indictment of the managing heads of the Bell company for aiding and abetting gambling. Frank J. Shead, chairman of the executive committee of the Anti-Crime League, makes startling charges against the telephone corporation, alleging that it has an income of \$500,000 a year from 300 switchboards used exclusively by hand books, and from slot instruments as parts of gambling paraphernalia.

Besides, in some of the big skyscrapers, telephone users were cut off several days because the Bell concern became involved in a labor trouble with a trade union. The company refused to settle the grievances of the men, and the union prevented the repair of damage done by fire, and in consequence the wires were out of service for some time in many places in the down town business district. By way of further punishing the company the men are circulating petitions urging the city council not to grant the Bell request for a franchise extension.

Still another installment of grief for the Bell concern developed in the city council, where aldermen produced evidence to show that the company was charging two prices for telephone service in the same district, some favored patrons receiving a rate lower than that assessed against others, although both were plenty high enough.

Arguments also have been made in the suit brought by the Illinois Manufacturers' Association to compel the Chi-

cago company to refund the rates charged in excess of \$125 a year. Nearly 1,500 telephone subscribers are pushing the case, and the total amount of money involved approximates \$500,000.

Altogether the Chicago Bell is under a hot fire. The public generally evidently thinks it has been oppressed long enough, and that the time has come to give back some of the same medicine. The result is that the company will have to grant concessions which a few years ago it would never have even considered.

#### CANADIAN INDEPENDENTS AWAKE.

CANADIAN Independent companies are awakening to the fact that it is dangerous to have any dealings with their arch-enemy, the Bell monopoly. The Dunwich company injudiciously made an agreement with the Bell for interchange of service at the town of Dutton, Ontario, and now a number of other Independent companies are complaining bitterly. It seems that the Dunwich company contracted with the Bell not to install Independent telephones at Dutton, and the Southwold company, which was seeking permission to operate there, finds its way blocked. The Southwold concern has now decided to have no connection whatsoever with any company engaged in any contract with the Bell.

The comment is made that the Bell is playing in Canada its same old game of using one Independent company to block and frustrate the plans of another, and that the only safe way to avoid trouble is to have no dealings with the Bell or its sub-licensees at all. The Independent movement in Canada is in too flourishing a condition to warrant the taking of any chances by doing business with the opposition, and the Independent companies are acting wisely in declaring themselves early and positively on the question.

#### GONDEN AGAIN.

TELEPHONY has called the attention of Independent telephone men to various attacks made on their cause, directly or indirectly, by H. J. Gonden, on more than one occasion. They have been warned frequently not to be deceived by any disguise which that individual may be wearing at the particular time he takes up his pen to write of telephone subjects, for his conclusions are the same. They are always to the disadvantage of the Independent movement. He impugns its motives, ridicules its pretensions and belittles its accomplishments. According to Gonden no good thing can emanate from an Independent source. The Bell alone is worthy of commendation, and Gonden argues this so persistently that he seldom fails to expose his hand, defeat his own purpose to pose as unprejudiced, and stands forth as a champion of the telephone trust. Gonden's contributions to the Bulletin of the American League of Municipalities, in which he hammered the Independent companies, won him the condemnation of the last National Convention. Now he is pursuing the same tactics in his new magazine, Public Service, which fairly bristles with venomous jabs at Independent telephony. It also contains many honeyed words for the Bell, which smack of an advertising compensation of so much per line. If the Bell is not contributing liberally to the support of Gonden's periodical the trust is more fortunate than are most corporations which are under fire because of the revolt of the people, weary and sick of monopoly.

It is a significant fact that while Gonden scans the horizon for every sign of trouble for the Independents, and magnifies them all, he ignores the many instances of Independent success and forgets entirely to mention the fact that the Bell ever encounters an obstacle. His peculiar attitude really inspires wonder as to just what would have to happen to the Bell to force him to admit that the tele-

phone monopoly is not a great charitable institution laboring for love of the people and regarded by the public as its best friend. For instance, an Independent telephone company meets opposition in an attempt to raise rates in a small Kansas town, and Gonden seizes on the incident with infinite gusto, but never a word from him about the great fight in Boston, where the Bell has failed in its frantic efforts to prevent the city council from passing an Independent franchise. Later, of course, if the mayor of Boston vetoes the Independent ordinance, or if other troubles develop, Mr. Gonden will deign to notice the Boston situation—provided it can be twisted into making capital for the Bell.

In dealing with the Chicago situation Gonden shows his Bell proclivities by designating as "ridiculous" the plans of the Illinois Manufacturers' Association to obtain an Independent franchise, and then gratuitously digresses to assert that the Independents promise the impossible, and have failed to make good in other cities. Throughout the whole article the attacks on the Independents are so vicious that the mask is dropped and the tentacles of the Bell octopus are not hard to perceive.

That the Bell considers Gonden a trusted friend is proved by the fact that the organs of the Bell companies reprint his articles, and give prominence to his arguments which attempt to prove that the idea of dual telephone systems is impracticable, and that the Independents are losing ground. Whenever a Bell company paper gives more than half a page to a Gonden article—as the Central Union News of Indianapolis did recently—it is apparent that the Bell as well as Independent telephone men have the gentleman correctly classified.

Mr. Gonden, in replying to former accusations that he held a brief for the Bell and gave the Independent much the worst of it, has denied any intention to be partial and declared that he endeavored to discuss matters as he found them. In the light of his recent remarks in Public Service, the inference is inevitable that such denial was purely perfunctory. His custom of systematically decrying the Independent movement and picturing the Bell as the only real simon pure, blown-in-the-bottle telephonic benefactor of the human race is apparently one of the habits that Mr. Gonden did not "swear off" New Year's day. Independent telephone men, therefore, should continue to regard him as a Bell advocate and the public should construe his "impartial" comments accordingly.

#### HONORARY MEMBERSHIP PLAN.

THE executive committee of the International Independent Telephone Association is to be commended for its new plan of establishing honorary memberships in the organizations. According to this proposition, which was adopted at the meeting recently held in Cleveland, every man interested in the Independent telephone movement is eligible to such honorary membership which entails a fee of \$25 for annual dues. This membership entitles the holder to admission to the annual convention of the association, a ticket to the banquet and other privileges. A material advantage to be gained from the honorary membership innovation will be that it will knit all branches of the Independent telephone movement more closely together, and enable them to work harmoniously for ever increasing success. It is contemplated that not only those connected with the operating end of the business, but the manufacturers, supply dealers, jobbers and publishers—in fact, every body interested in the Independent work can thereby become identified with the association, which is laboring to multiply the number of Independent telephones. Being associated with the organization they will feel a keener interest in its welfare and assist in promoting its prosperity.

The value of the International Association is being dem-

onstrated more clearly every year. Wherever the firing line reaches the association is there rendering efficient service for the cause. It goes without saying almost that the larger the organization and the wider its scope the more value it can be to the cause it represents. For that reason the plan of extending the membership list by means of issuing honorary certificates is regarded as a happy thought, and there is every reason to expect it will meet with a general response and be gladly accepted by many in the field who have hitherto been non-members.

#### TELEPHONE ADVERTISING.

PROGRESSIVE exchange managers can extend the business of their companies by judicious advertising, which will attract attention to telephone service, show its advantages and impress upon the community the wide uses to which the telephone can be devoted. Geo. H. Glass, the manager of the Citizens' Telephone Company at Pekin, Illinois, has devised a guessing contest on the number of calls handled by the exchange operators during a certain period. Cash prizes are offered for those who guess nearest the actual number. In order to give the contestants a basis to work upon, the announcement was made that on a certain day a year ago the calls numbered 12,360 between the hours of 6 o'clock a. m. and 6 o'clock p. m., and that there are now 200 more telephones in use. The contest is open to every person in the city, and popular interest in the guessing match has attracted the attention of many who have not been regular users of the telephone.

#### TELEPHONE ENTHUSIASM.

A HANDSOME compliment is paid to the genius, enthusiasm and enterprise of the telephone men of the United States by our British cousins engaged in the same business. English telephone men who visit this country frankly admit that we on this side of the Atlantic are far in advance of themselves so far as telephone development is concerned. Not only have we more telephones according to population, but we have better telephones and better organization, and, of course, better service. The English concede this, too, and in casting about for a reason have decided it is primarily due to the fact that there is more "telephone enthusiasm" in the United States than across the water. It is a source of never-failing amazement to our more stolid relatives of the John Bull family that Americans should put so much vim, hustle and go into their pursuit of business, and the British visitors have stared in astonishment at the zeal of our telephone system builders. They are obliged to confess, however, that this same zeal counts, and they go back to England to try to emulate the Yankee hustlers in the telephone field.

Mr. W. F. Taylor, contract manager of the London company, is the latest Englishman to visit America and experience a shock at the bubbling enthusiasm of the telephone men of this country.

"During a very short sojourn on the other side of the Atlantic," says Mr. Taylor, "I was struck more by the spirit of enthusiasm which pervades the whole atmosphere of the telephone centers I had the privilege of visiting than by anything else I saw. Every man I came in contact with was an enthusiast; he thought, talked, and dreamed telephones; in his opinion there was nothing like the telephone business in the whole world, and he lived to make that business a success in whatever department he happened to be. He looked upon himself as a public benefactor, bringing within reach of everyone a time-saving, business-getting commodity, second to none in existence, and worth untold gold to the business man or housewife who has the good sense to have the service installed. So enthusiastic is he that he infects the public with a similar enthusiasm, and in this way his business increases a hundredfold. Did I find him satisfied with the

splendid position his system and service have reached? Not by any means. He has 5 or 6 per cent of the population on the telephone now, and he looks to have 20 per cent, and if my observation is worth anything he will most certainly get it."

Mr. Taylor adds that the American business man has seen the advantages of the telephone and now considers it a necessity, whereas the British business man is more willing to do without it because his grandfather did—in other words, the Englishman is more old-fashioned. At the same time he points out that England must copy the American enthusiasm if it is to approximate even telephone development in the United States.

A striking illustration that the American enthusiasm produces results is furnished in the fact that one single American city (New York) has more telephones than London and the ten largest cities of Great Britain combined; more than all of France, Belgium, Holland and Switzerland combined; more, too, than have the twenty largest cities in Germany combined. It is estimated that the annual increase in telephones in New York exceeds the total number in all Russia. Such comparisons speak well for the "telephone enthusiasm" which has aroused the wonder of English visitors.

It is almost superfluous to point out that nine-tenths of the "telephone enthusiasm" is due to the Independent telephone men. Not until they began to stir up the dry bones did the Bell monopoly try to popularize the use of the telephone.

#### BOYCOTTS ON THE BELL.

THE Bell is being threatened with boycotts at several points throughout the country where the companies controlled by the trust are trying to increase telephone rates. At Meridian, Miss., the physicians have organized to fight the effort of the Cumberland (Bell) Telephone & Telegraph Company to raise the monthly rate, and ordered the concern to remove its telephones. The move amounts to a practical boycott, and has the sympathy of other telephone subscribers, who are growing restless under the Bell policy. In Michigan business and professional men are rebelling against the Bell's demands. At Lansing, the capital, the physicians, grocers, laundry men and butchers have held indignation meetings to plan a fight against the Bell company, and at Armada and other towns the business firms obtained the co-operation of many farmers to resist the increase in rates. Latest reports indicate that the Michigan controversy will be adjusted. In Mississippi, however, there are as yet no signs of a settlement.

A lively telephone war against the Central New York (Bell) Telephone & Telegraph Company is on at Norwich, N. Y. The company has threatened to raise rates, and the Business Men's Association is organizing to escape what the members declare is an attempt at extortion. Eighty-five business firms have agreed to use the Marquis lines, which are run by J. B. Marquis, Jr., a loyal Independent, and cut out the Bell connection. As an instance of the well-known Bell tactics, the monopoly has inserted flaring advertisements in the Norwich papers, headed "Crushing Blow to Independents," and detailing the incidents in the New York City fight. The purpose of the Bell press bureau, of course, is to discourage the Independents and their friends. Mr. Marquis is confident, however, that Norwich telephone subscribers will see through the Bell efforts to frighten the public, which is on the point of breaking away from the trust.

At Youngstown, O., the municipal board of public service has ordered the removal of every telephone of the Central Union (Bell) Telephone Company used by the city because the company has raised the rate. The Bell licensee demands \$16 more a year per telephone than is asked by

the Youngstown (Independent) Telephone Company, and the city authorities declare they will not submit to the increase.

#### A GREAT EXPOSITION.

THE second annual Electrical Trades Exposition, which was held in Chicago January 14-26, proved to be a greater success than the first, and exceeded even the expectations of its most sanguine well-wisher. Its record made both in 1906 and 1907 is a wonderful one and shows conclusively that the electrical show has become the great industrial exhibition of the year. Extensive as was the exposition of 1906—when the high water mark of attendance at Coliseum shows was reached—the 1907 record surpassed even the initial event. The exhibits this year were more numerous and elaborate, every line striving to outdo the performance of the preceding year.

In the telephone field the electrical show was marked by an especially fine and complete line of exhibits. Most of the leading telephone manufacturers showed their products and gave demonstrations of the working of their apparatus. They convinced all observers that the development in the telephone field has fully kept pace with the advancement of the electrical science in general. The electrical show was visited by thousands of people from all parts of the country, who were interested, entertained and instructed by the wonderful exhibits. The manufacturers consider the opportunity to display their goods both advantageous and profitable. The net result, therefore, is that the Electrical Trades Exposition is now regarded a permanent institution with prospects of growing bigger and

#### A CONVENTION SUGGESTION.

THERE are sound reasons for believing that it would be a wise move to hold the 1908 annual convention of the International Independent Telephone Association during the progress of the electrical show in Chicago. The electrical exposition lasts two weeks and is attended by thousands of telephone men and others interested in the telephone movement. It would, therefore, be killing two birds with one stone if the dates of the convention and exposition were made concurrent so that visitors to each could attend both events. The electrical show is a permanent institution and has come to be looked forward to as one of the most important features of the long programme of such enterprises which Chicago, the industrial center of the country, offers every year. It brings thousands of visitors to the city and fills the great Coliseum every day and night with crowds of interested sight-seers. The advantage of holding the telephone convention at such a time will be apparent to all. Not only will the delegates to the International meeting be able to attend the electrical show afternoons or evenings when there is no business session of the convention, but many visitors in the city for the exposition will be attracted to the telephone convention. In short, the two events would dovetail together neatly without interfering with each other in any particular.

The advantage of such a plan is recognized by the fact that various electrical associations hold their conventions in conjunction with the exposition and find it highly advantageous. It is not intended, of course, to advise making the International telephone convention in any sense an adjunct of the electrical show, but TELEPHONY believes that much can be gained by holding the former while the exhibition is in progress. It certainly would furnish an additional inducement to increase the attendance and add to the general interest in the Independent movement and its annual meeting. The question should be given serious consideration by the association's executive committee.



### A LAY TRIBUTE TO THE ELECTRICAL SHOW.

NO MORE conclusive evidence of the ever-increasing interest which the development in the telephone and electrical fields has for the general public is needed than the generous attention given the Electrical Trades Exposition by the press of the entire country.

The great newspapers devoted hundreds of columns to describing the exhibits and marveling at the wonderful strides made by the men whose time is spent in investigating the possibilities of the science of electricity and making these possibilities living actualities. Not only the trade journals but the metropolitan dailies manifested a keen interest in the big show, and followed its every detail and feature with intelligence and enthusiastic comment.

The *Chicago Evening Post* printed an editorial on the electrical show which evinced more than usual insight and appreciation of the magnitude and significance of such an exposition. Because of its wide comprehension and sympathetic treatment the editorial is appended:

"To grasp the full significance of the exhibition of electrical appliances now making the Coliseum a center of popular attraction in this city one must lose sight of the purely spectacular features of the show. For the main purpose of the exhibition is not to cause the eyes of the public to bulge in amazement and wonder, but to demonstrate the strides that have been made since the first exhibition of a year ago and to indicate graphically how electricity is coming to be applied to every part of our modern life.

"There is a certain witchery in the atmosphere of the Coliseum just now. There are motion and light and sound everywhere, and no readily apparent cause for it all. The connection between the big generator in one corner of the vast building and the myriad of whirling, wiggling, sparkling, humming and quivering apparatus and machinery is a mystery to the ordinary observer. Yet the relation is there, close, intimate, subtle, powerful, running along a thousand wires, manifesting itself in a thousand ways, attracting, yet baffling; seemingly ordinary, yet the most marvelous of all man's efforts to hitch his humble wagon to nature's farthest star.

"Back, then, of all the allurements at the electrical show is the unseen but ever-present force that is working in the world of to-day the greatest industrial revolution in history. To the production—or, rather, to the marshaling and harnessing—of this force Nature is being taxed in her most secret places. The wood from the forests, the coal from the mines, the onrush of mighty rivers and the sweep of great cataracts—all the vast power of these elements is being turned into electricity to drive a million wheels, to carry countless tons of freight and countless millions of travelers, to give us the wonderful telephone, to light streets and houses, to warm, to cook, to administer to our comfort, to add to our luxuries and to increase our pleasures.

"The age of steam had its conquests and its heroes. Never will history take from it and them one jot or tittle of their immense value to the world. The age of iron and steel towers like a vast mountain from the level of ordinary things. But the age of to-day, the age of electricity, claims a field peculiarly its own. It makes the ages of steam and of steel vibrant, luminant; places them under a spell of wizardry, intimately blends them with the life blood of humanity.

"Electricity, under the deft touch of the mechanic's and the engineer's skill and directed by the genius of the inventor, has done more to make life a thing to be enjoyed than any other single natural force that man has brought under subjection. If you doubt this, visit the Coliseum. And after this visit, if you still doubt, then you have not used your five senses as nature intended you should.

"It is a long time from the amber—"Electron"—of Thales to the wizardry of Menlo Park and a score of other mod-

ern laboratories, but it is a time in which the germ of the electrical age has been growing, often forgotten, often baffling, yet never motionless, never aimless.

"Perhaps no greater things have been done in electricity since then than will be done in the years to come, for the electrical age is still young, though its youth be lusty. Problems of deepest moment to humanity still have to be solved. Still too much stands between the treasured power of the coal mine and the whirling dynamo. Need we doubt that the genius which has turned coal into steam and steam into electricity will find a way to cut the middle link from this chain?"

### HOW TO HELP THE ASSOCIATION.

EVERY once in a while evidence comes to hand showing how thoroughly the Bell combine looks after every detail in its battle against the Independents. Having so many tentacles to reach out in every direction, the octopus can cover the field completely, and its vigilance is proverbial—as it is compelled to be in view of the manner in which the Independents are pressing it on every side. An Independent ally in the Southwest sends TELEPHONY a copy of the recent orders sent to managers and agents by the Cumberland company, a Bell licensee, which illustrates this policy of the trust. The order is signed by the general manager and reads as follows:

"To Managers and Agents: It is a rule of the company which must not be neglected that all newspapers be carefully scanned daily for any items relating to telephone business, and if such items appear in the papers marked copies of same should be sent directly to this office. See that the company's rule in reference to this matter is strictly observed."

The advantage of such a rule, and of its faithful observance, is seen at a glance. Through its many agents the Bell is kept informed as to the smallest detail all over the country. Independent telephone men could follow the same example with great profit to the movement they represent. They should keep their eyes and ears open for any information regarding all phases of the telephone business and promptly advise TELEPHONY. Such methods are proving valuable to the Bell else they would not be utilized, and if they are useful to the Bell they will be useful to the Independents. Therefore, help this publication to keep posted on what is happening in your particular section of the telephone field.

### CANADIAN INDEPENDENT EMBLEM.

INDEPENDENT telephone men in Canada adopted the maple leaf as their emblem, and at the rate the movement is sweeping over the Dominion the sign will soon be familiar to the dwellers of every province from Quebec to British Columbia. A cut of the Canadian emblem is herewith presented as adopted at the convention held at Toronto when the association was organized. While the maple leaf is the predominating feature of the emblem it will be seen that the setting is the shield, which is the sign manual of the International association. The blending of the distinctive features of the two emblems may be considered a promise or reminder of co-operation and united effort on the parts of the Independent telephone men of the United States and Canada, working together with a common aim and purpose.

The Canadians are following the example of the International association, and are placing their maple leaf emblem on all their directory covers, telephone booths, letter-heads and envelopes. It is predicted it will soon crowd out the old familiar Bell sign.



## CUYAHOGA'S GOOD SHOWING.

From time to time the observer of progress and developments in the telephone field encounters convincing evidence which refutes the favorite Bell argument that Independent securities are unstable and dangerous as investments. The November statement of the Cuyahoga Telephone Company furnishes excellent proof of the fallacy of the trust's envious contention. It is as follows:

	Nov., '05.	Nov., '06.	Inc.
Gross earnings .....	\$53,378.25	\$62,550.32	\$9,172.07
Exp., taxes, etc.....	30,853.09	31,945.78	1,092.69
Net earnings .....	22,525.16	30,604.54	8,079.38
<hr/>			
Int. on bonds.....	11,250.00	11,250.00	.....
Div. on pfd. stk.....	4,868.00	7,180.50	2,312.50
<hr/>			
Total .....	\$16,118.00	\$18,430.50	\$2,312.50
Surplus on com. stock...	\$6,407.16	\$12,174.04	\$5,766.88

*Finance*, the financial journal of Cleveland, makes the following comment on the above statement:

"The statement is an excellent one, showing an increase in gross of over \$9,000 and an increase in taxes and expenses of a little over \$1,000, leaving a net increase of over \$8,000. Dividends on preferred stock increased \$2,312. The total surplus for common stock shows an increase of \$5,700 despite the increase paid out for preferred stock. The statement indicates that the Cuyahoga is certainly looking fine from a financial standpoint."

According to Contract Agent Shipley, the Cuyahoga is increasing its installation at a rate of 200 telephones a month. "This is a natural growth," said he, "and is not due to solicitation. As soon as we have our new exchange on Princeton street completed and in operation we will increase the business still more rapidly."

## CHICAGO TELEPHONE COMMISSION.

To facilitate the settlement of the telephone controversy in Chicago, growing out of the rival claims of the local Bell company and the Illinois Manufacturers' Association, which is seeking an Independent franchise, a commission of engineering experts has been appointed to investigate the situation and report to the city council. The commission, which was appointed by the council committee on gas, oil and electric light, consists of Professor D. C. Jackson of the University of Wisconsin; W. H. Crumb and Professor G. W. Wilder, both of Chicago. The commission is instructed to make a thorough inquiry covering every phase of the Chicago situation for the guidance of the council in passing upon the claims of the companies who have applied for a franchise.

Professor D. C. Jackson, the chairman of the commission, was born in Kennett Square, Pa., February 13th, 1865.



D. C. Jackson.

He was graduated from the Pennsylvania State College in 1885 with the degree of bachelor of science, and then attended Cornell, graduating in 1887, after having been a fellow in the electrical department. He then became instructor in physics and later was president and engineer of the Western Engineering Company of Lincoln, Neb. In 1891 he was elected professor of electrical engineering at the University of Wisconsin. He was a member of the jury of awards of the World's Columbian Exposition in 1893 and of the Pan-American in 1901. During the past year he

was elected head of the department of electricity in the Massachusetts Institute of Technology at Boston, and will enter upon his duties immediately after completing his work

with the special telephone commission. Professor Jackson has made a special study of the economical problems connected with electrical properties.

Mr. W. H. Crumb was born in Chicago in 1872, and after completing his college course accepted a position with the Central Union Telephone Company, for whom he supervised many important pieces of construction work. Later he went with the Pittsburg & Allegheny Telephone Company, and after the construction of the Pittsburg exchange resigned to come to Chicago, where he organized the engineering firm of W. H. Crumb & Co. Mr. Crumb has built many telephone systems throughout the United States, and been identified with important enterprises in the telephone field. He is considered especially well fitted for the work that has been entrusted to the Chicago special telephone commission.



W. H. Crumb.

Professor G. W. Wilder was graduated from the University of Wisconsin in 1896. After teaching two years at the same institution in the physics laboratories, he went abroad and spent two years in the National Swiss Polytechnikum at Zurich. His work at this institution was devoted to electricity and telephony. After gaining the degree of Ph. D., he returned to Wisconsin, where he taught engineering physics and electrical measurements for three years. In 1903 Dr. Wilder entered Armour Institute of Technology as assistant professor of electrical engineering. During his three years' connection with the institute he built up a department in telephone engineering that attracted wide attention. Professor Wilder is the author of "Telephone Principles and Practice."

The commission has opened headquarters at the Great Northern Hotel, Chicago, and is engaged in compiling the data necessary to making the report.



G. W. Wilder.

## PACIFIC COAST NOTES.

Pacific coast states claim the greatest telephone density of any section of the country—if not the world. In California, Washington and Oregon, the telephone development has been marvelous and the prospects are that 1907 will eclipse all records in the extension of existing lines and the construction of new systems. The following table shows the number of telephone stations according to population in the larger cities of the coast states:

	Population.	Stations Per 100.
Los Angeles .....	220,000	13.15
San Francisco .....	325,000	5.94
Portland .....	175,000	10.90
Seattle .....	182,000	10.10
Oakland .....	106,000	11.02
Spokane .....	56,320	19.23
Tacoma .....	75,000	10.86
Pasadena .....	23,000	18.20
San Jose .....	32,000	16.53
Sacramento .....	40,000	11.32
Fresno .....	23,000	16.58
Berkeley .....	32,000	10.92
Alameda .....	18,000	12.65
Bellingham .....	25,000	9.54
Walla Walla .....	21,000	9.80

# DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

## INJURY FROM SAGGING WIRE, PRESUMPTION OF NEGLIGENCE AND HOW IT MAY BE REBUTTED.

THE facts in an Arkansas case were as follows: W. D. Reeves owned a private telephone line running from his sawmill to the city of Helena. It was strung on trees and poles along the public highway. A Mrs. Jacks, in company with two other ladies, was driving along this roadway, and they said, with a gentle horse. Owing to a broken pole the wire had become sagged enough to allow it to catch the top of the buggy when it passed, causing a rasping noise which frightened the horse and, a runaway resulting, Mrs. Jacks was severely injured. Suit for damages was instituted and certain legal propositions were declared by the supreme court which are of general application and value. It was not definitely established whether the injured person was thrown out from the vehicle or jumped out owing to fear. The owner of the line of wire testified that he had his teamsters pass the road frequently on which the line went along for the purpose of looking after the condition of the line. The only proof that the plaintiff offered to show negligence on the part of the owner of the wire was the fact that the wire had existed in the sagging condition for two days prior to the accident. The court held as follows: (1) A traveler driving along a highway is not required to look up to see if a telephone wire is in reach of the top of his vehicle in order to be free from contributory negligence precluding a recovery for damages for injuries received in consequence of the vehicle coming in contact with a wire sagging over the highway because of a broken pole. (2) That the showing by the owner that he had men charged with the duty of repairing the line was not sufficient evidence to rebut the prima facie showing of negligence made by the plaintiff, that the wire was in fact sagged sufficiently to catch the buggy. (3) That it was immaterial in what manner plaintiff received her injuries so long as the fact remained that the negligence of the owner of the line was the proximate cause of the runaway.

*Jacks v. Reeves*, 95 S. W. 781.

## RIGHT OF GENERAL CONTROL OVER STREETS INCLUDES AUTHORITY TO LEVY TAX FOR USE THEREOF.

The laws of Tennessee, 1879, provided that public streets and other property used by a municipal corporation for municipal purposes were thereby transferred to the custody and control of the state to remain public property for the uses to which it had previously been applied. A subsequent chapter provided that the city of Memphis was given power to repair all streets and other public grounds and places within the taxing districts and to open, close and widen and have entire control over all streets of the taxing district. The United States federal court had held that such act conferred full power on the city to demand and receive compensation for the use of its streets by a telegraph company for the erection of poles and wires.

*City of Memphis v. Postal Telegraph Cable Company*, 115 Federal 602.

## HUSBAND AND WIFE OWNERS OF SEPARATE BUILDINGS—LATTER OWED TELEPHONE COMPANY WHICH REMOVED FORMER'S INSTRUMENT BECAUSE HE WOULDN'T PAY HER BILL.

The foregoing suggests the situation that formed the beginning for a lawsuit recently decided by the supreme court of Mississippi. One J. H. Hobart sued the Cumberland

Telegraph & Telephone Company for the sum of \$2,000 for damages for wrongfully cutting out his telephone. He resided about a mile and a half from Vicksburg and had used a telephone of the company for several years. His wife owned a store and as a result of negotiations carried on by Hobart an instrument was placed in that building. Subsequently, she sold the store property and a small balance of unpaid rental remained. There was evidence that the company had carried the account of the store in his name but the written contract showed that it was Mrs. Hobart's contract, as it had been originally signed by a clerk representing her. Hobart refused to pay the store bill and the company took out his house telephone. His suit for damages secured him a verdict for \$150. The opinion of the court suggests one rule of law which has heretofore not been noted in TELEPHONY. We believe the rule as hereinafter stated is of general application. "It is attempted to be shown that the telephone company thought it was making the contract at the store with Mr. Hobart, instead of Mrs. Hobart, but that can make no difference in the decision of this case for the reason that the contracts were separate contracts relating to different properties, and again the company was informed that it was Mrs. Hobart's contract after it had cut out the residence and, again, the personnel of the party contracted with could make no difference for the reason that the company was bound to put in the telephone in the store at the request of either Mr. or Mrs. Hobart. These contracts were separate contracts having no connection or relation with each other, and because of failure to pay charges on one of the telephones the telephone company had no right to cut out the other. In the first place they were contracts between different parties; in the next place, if this were not true, they were separate contracts about different properties and the telephone company could only cut out that telephone for which there had been a default in payment. At the time that Mr. Hobart's telephone was cut out, he was in default on his residence, and the telephone company had the right to cut him out after notice to him, but when he tendered the money properly due on the telephone in his dwelling, the company had no right to coerce payment of the amount due on the other telephone by refusing to reinstate the service at his house."

The court approved of the law as stated in the case of *Burke v. City of Water Valley*, 40 Southern 821, saying: "If the gas is supplied to the owner of different houses under separate contracts, failure to pay the gas bill in one house does not authorize the cutting off of the gas from the other. Gas companies and telephone companies, being public service corporations, are controlled by the same principles of law."

*Cumberland Telegraph & Telephone Company v. Hobart*, 42 Southern 349.

## CONTRACT FOR RIGHT OF WAY CONSTRUED—MEASURE OF DAMAGES FOR CUTTING TREES.

Rodderick Morrison of New York State in the year 1900 was the owner of a certain hunting preserve in Sullivan county. In that year, in consideration of \$5 he contracted with the American Telegraph and Telephone Company "to grant unto said company, its successors and assigns, the right to construct, operate and maintain its lines, over and along the property which I own, or in which I have any interest in the county of Sullivan including the necessary poles and fixtures along the roads, streets or highways ad-

joining the property owned by me—said sum received in full payment for such right and in full satisfaction for the trimming of any trees along said lines necessary to keep the wires cleared at least eighteen inches, and with the right to set the necessary guy and brace poles and attach to trees the necessary guy wires, and the right to cut down trees to clear the line." There were two public highways crossing Morrison's preserve. The above contract was on a printed blank. On the authority of the above writing the company cut a strip of growing timber and everything in the way for a distance of two and a half miles across this track of an average width of twenty-four feet. Morrison sued the company in trespass for this act, claiming damages for the loss occasioned by the cutting of timber. The important point to notice is the ruling of the court on the measure of damages wherein it was held that "where forest land has been invaded and trees cut the diminution in value to the whole premises may be shown; the measure of damages was properly based upon the cutting of timber, the making of a roadway and the maintenance of a line." All of this was said after the court had decided that the contract in question only gave the telephone company the right to place its lines along the public highway, not across the tract, construing the contract against defendant and thereby declaring it a trespasser in cutting the strip across the tract of land in question.

*Morrison v. American Telephone & Telegraph Co.*, 101 N. Y. Supp. 140.

#### HEARSAY EVIDENCE TO PROVE DAMAGES.

Dr. G. Y. Hicks, a practicing physician of the city of Vicksburg, Mississippi, alleged in a case against the Cumberland Telephone and Telegraph Company, that he had been called by an employe of the company to attend an injured lineman, on the assurance that the company would pay his bill. Later a dispute arose over the question of the liability and the doctor's telephone was removed. He brought suit for damages and was permitted by the trial judge to prove his loss of practice by his own testimony that certain persons whom he named had told him after the telephone had been removed that they had tried to reach him over the telephone to secure his professional service but found that his line had been cut off. The supreme court of the state has said that this was error; that what others told him could make no difference and was immaterial.

*Cumberland Telephone and Telegraph Company v. Hicks*, 42 S. 285.

#### USE OF RAILROAD RIGHT OF WAY FOR TELEPHONE LINES IN ARKANSAS.

Sections 2934 and 2936 of Kirby's digest of the laws of this state give a telephone company the right to enter a railroad right of way and survey, locate and lay out its lines, being liable, however, for damages. Authority is also given to condemn the right of way, over that of a railroad, if there can be no agreement upon the terms by the parties. The Batesville & Winerva Telephone Company had constructed a line over prairie land on verbal authority of the owner. Later a railroad was constructed along the way occupied by the telephone line, the railway company having acquired its right of way by purchase from the land owners and vacation of the county roads. In laying its track the railway company tore up a large number of the poles of the telephone company after it had made repeated demands to remove the line from its right of way. Damages were asked by the telephone company for this alleged unlawful act. The court said that conceding, without deciding, that the telephone company was a mere licensee, and that the sale of the land containing its lines revoked the license for its being there and the vacation of the county roads ter-

minated its rights there, notwithstanding the railway company had no right to tear up the poles. The statute having authorized the telephone company to enter a railroad right of way and lay out its lines even by condemnation proceedings, the courts will not hold the act of the railroad company in removing the lines of poles a lawful act. "A telephone line is a public utility and its public importance is recognized by clothing it with the power of eminent domain, and giving it the free use of the state's highways . . . therefore it follows that the railroad company . . . was not authorized to remove the line of telephone from its right of way, and it was liable in damages for so doing."

*St. Louis, Iron Mountain & Southern Railway Company v. Batesville & Winerva Telephone Co.*, 97 S. W. 660.

#### DETERMINATION BY APPRAISERS OF VALUE OF TELEPHONE PLANT—RULE IN MISSOURI.

A contract of sale was entered into by the Clover Leaf Telephone Company and the Clinton County Mutual Telephone Company, the former to sell to the latter the total equipment of its telephone plant at its market price. It provided for an inventory to be made by two reputable experienced telephone men who were to be selected in a certain manner. It was further provided that the two men thus selected should be sole judges of all values. Litigation resulted in consequence of dissatisfaction of one of the parties with the appraisal. It has been held by the Kansas City court of appeals, deciding the matter, that "the appraisal, in the absence of fraud, was conclusive as to the amount of material as well as to the valuation." It was clearly set forth in the memorandum of agreements that the valuation was to be based upon the appraisers' expert knowledge. "We conceive it to be the well-settled law not only of this state, but also the law as decided by the federal courts and other state courts, that in such cases the award of an arbitrator is not subject to attack for mistake but only for fraud and misconduct." While it is probably true that it would not often happen that two companies would enter such an agreement, nevertheless, having done so they would be bound thereby.

*Rogers et al. v. Richard et al.*, 97 S. W. 951.

#### CUTTING SHADE TREES—RULE IN MISSOURI.

In a damage case in the above state for alleged injury to real estate the facts disclosed that a certain shade tree in front of a lot had been partly cut away some time after the erection of a line of telephone by the Kansas City Home Telephone Company. In deciding the matter the court of appeals of Kansas City had occasion to declare the rule of law on the question of presumption of liability for cutting trees as follows: "Neither the city nor the defendant, which derived its authority from it to establish the telephone line, had any right to cut plaintiff's tree, unless there existed a necessity for the act. (Lewis, Eminent Domain, 132a.) In the absence of evidence that there was a necessity for cutting plaintiff's shade tree, the presumption is that the act is unlawful."

*Betz v. Kansas City Home Telephone Company*, 97 S. W. 207.

#### MUNICIPAL TELEPHONES FOR GARY.

Gary, the town which the steel trust is building on the Indiana shore of Lake Michigan, is to have a municipal telephone system. The Chicago Telephone Company tried to invade the town which the big corporation is establishing for its employes, but the best the Bell concern could do was to get the right to install toll connections. Arrangements were made to divide the toll charges on a percentage basis. Gary will grant no franchise to any public service corporation, as the steel combine is determined to run the town in every particular.



# INDEPENDENTS CAPTURE BOSTON

*The Citadel of the Bell Monopoly Yields After Years of Battle*

By C. E. Gray

**A**FTER one of the hardest battles in modern commercial warfare, Independent telephone men have stormed Boston, the very citadel of the Bell monopoly. The board of aldermen, by a vote of 10 to 1, granted a franchise to the Metropolitan Home Telephone Company to construct and operate a telephone system in the city where the trust has ruled supreme for years in the name of the New England Telephone & Telegraph Company, the Bell licensee. Notwithstanding the overwhelming vote, Mayor Fitzgerald, ten days later, vetoed the ordinance, offering as the principal reason that there was considerable opposition to a competing system from certain prominent business interests, and urging that the question be held in abeyance until the Massachusetts legislature had passed a law authorizing the city of Boston to sell its public franchises to the highest bidder. The board of aldermen, however, was not deterred by executive interference and at the following meeting passed the Independent franchise over the mayor's veto, the vote being 11 to 2. The advocates of the Metropolitan Home grant contended that their franchise was valid regardless of the veto, as it was originally passed by a majority large enough to overcome the veto power and the affirmative action of the aldermen on the veto itself made assurance doubly sure.

It is likely, however, that the legality of the franchise will be tested in the courts before the construction of the Independent system is begun, for the Bell is determined to fight to the last ditch. The question probably will be carried into court by the city authorities refusing to issue permits for the planting of poles and construction of conduits. The Metropolitan company will then ask for a writ of mandamus compelling the city to grant such permits and thus the legal issue will be joined.

When permanently organized the Metropolitan Home Telephone Company will be capitalized at from \$10,000,000 to \$15,000,000. It contemplates the immediate expenditure of \$10,000,000 in giving Boston a telephone service in competition with the Bell monopoly which long ago became hateful to the large majority of telephone users. The company received its charter from the secretary of state, May 21, 1906, since which time there has been a bitter fight between the two forces. On the one side was the powerful Bell licensee, the New England Telephone and Telegraph Company, with all the influences it has allied during twenty years of exclusive monopoly; and on the other were the backers of the Independent company who demanded simply the right to enter into competition in furnishing Boston telephone service. It was a fierce struggle, for the Bell fought hard to bar out the invader. It was from Boston that the trust has for years directed the fight against Independent companies all over the United States and now that it was being attacked at home it redoubled its efforts

to crush the competitor which dared to beard the Bell lion in its own den. But the Independent company was not crushed this time. Telephone users who had long been at war with the New England company because of its exorbitant charges and flagrant disregard of the public's rights and privileges rallied to the support of the Metropolitan Home franchise and created a sentiment that convinced the board of aldermen that the ordinance should be passed.

Not only in Boston, but throughout all New England the people rejoiced at the opportunity to escape from the clutches of the Bell octopus. They saw a chance to get Independent telephone connection with Boston, and, that accomplished, with all other eastern states. The Independent movement is strong in Maine, Vermont, New Hampshire, Rhode Island and Connecticut, as well as Massachusetts, and the sentiment in the surrounding territory had much to do with the Independent victory in Boston. Petitions signed by thousands of telephone subscribers throughout New England flooded the city authorities. The people were eager to hit the Bell a blow and take steps looking to a release from the bondage they were enduring under the monopoly held by that corporation. Independent subscribers in Vermont alone sent a petition having 21,000 subscribers, urging the passage of the franchise. The New England commercial associations of all classes, and the various business exchanges supported the Inde-



Mr. A. W. Hoge at His Desk.

pendent end of the fight and left no stone unturned to effect an entrance into the Boston stronghold for a competitor that would force the Bell to be good. The crusade proved conclusively that the people were eager to teach the monopoly a lesson.

The Bell used its heaviest artillery in repelling the Independent attack. Frederick P. Fish of the parent Bell company and Gen. Thomas Sherwin of the New England licensee, appeared before the board of aldermen to argue against the granting of a competitive franchise. All the means at the disposal of the powerful combination were employed to discredit the new company and its purpose. The old argument against dual systems were trotted out for use on the platform, in resolutions and in the public press, but for every one advanced by the Bell the telephone users had a half dozen to offer in opposition, and in the end public sentiment was reflected by the passage of the Metropolitan franchise. The Bell interests attempted to show that competition would injure the service and prove an injury to the public, but from every quarter of New England evidence to the contrary poured in. A feature of the discussion thus precipitated was the storm of indignation that had been gathering and now broke, proving that the people of all six states were up in arms against the New England Bell company. In New Hampshire particularly the business men declared that competition had been a boon, forcing the Bell

to give better service and lower rates. The testimony of one is a fair illustration of all. He said: "I have three telephones of the Citizens' Company (Independent) and two of the New England Company (Bell). The cost of all five is about what I would have to pay the New England Company for one telephone if there were no competition." Such evidence as this indicates the feeling against the Bell throughout New England and explains why the Boston franchise was passed.

For years Boston business men have had to pay the Bell trust from \$160 to \$200 a year for the same telephone service which costs but \$80 in Philadelphia, \$60 in St. Louis and \$48 in Cleveland, where there is competition. The residence rates have been correspondingly high. Boston includes and is adjacent to many suburban towns where the Bell company maintains local exchanges. Even where only a few blocks separate these suburbs subscribers are compelled to pay an extra toll charge for calling up persons in another division, and this practice has done much to bring the existing company into disfavor. The housewife who lives on one street that comes under the designation of one exchange, owing to old lines, in calling up the grocery-keeper whose telephone connects with another suburban exchange is obliged to pay a toll fee of never less than ten cents.

Business men organized against this extortion, thousands joining the Co-operative Telephone Reform Association, made up of members of the boards of trade and commercial bodies, merchants, manufacturers, professional and other citizens.

Agitation of the matter caused the legislature at the last session to give the highway commissioners supervision of telephones. This commission is now investigating the demands voiced in a petition signed by thousands of business men and residents for a reduction of telephone rates and the abolition of the extra toll charge between adjoining suburbs. The petitioners demand that the rates be cut in half, as the discussion growing out of the Independent crusade has convinced the people that the Bell had been charging them twice too much. The chances are that the Bell will voluntarily reduce its rate and knock out the toll charge in view of the passage of the Metropolitan franchise, which promises to end the oppressive telephone monopoly.

Arthur W. Hoge, brother of James B. Hoge, president of the International Independent Telephone Association, is the consulting engineer of the new company which has secured the Boston franchise. Speaking of the plans of the Metropolitan, he said:

"Our franchise makes it incumbent upon us to install within three years a plant big enough to accommodate 20,000 telephones, but the first outlay will be upon a scale of much larger dimensions. We shall have to erect a building big enough to accommodate 50,000 telephones and a subway system that will take care of wires for 100,000, with cables actually installed from the first providing for 40,000 to 50,000.

"The actual initial outlay of the money will depend upon how large a provision is made for future growth. The business men interested in the project have signified their willingness to subscribe for the entire amount necessary to construct, operate and maintain the plant. Several banks have become interested, and among private individuals are such well known men as Col. Albert Clarke, Bernard M. Wolf, John T. Connor, M. O'Keefe, the Ferguson brothers and others.

"All arrangements have been perfected for a permanent organization. Bernard M. Wolf will probably be president. The capital stock will probably be from \$10,000,000 to \$15,000,000. If the last-named sum is adopted about \$10,000,000 of stock would have to be issued at once, the balance as necessity demanded, for extension of the system, improve-

ments, etc. This first big issue of stock will probably be all taken up by private subscription. So far as I know, no stock will be offered for public sale until the plant is installed and in working order."

It is the intention of the Independent company to furnish the people of Boston and vicinity with the most modern telephone system possible. Its promoters have the money and the disposition to install a plant that will be so far ahead of the Bell system that the trust will be obliged to rebuild in order to compete with the Metropolitan. Boston will be the hub from which Independent telephone wires will radiate in every direction. Connection will be made with all the cities and towns in New England, in many of which Independent companies already are operating. Where there is none, an Independent company will be organized. In that way, the opponent of the Bell trust will be able to furnish service for every part of New England and form connections with the trunk lines of other Independent companies in other states, giving communication over most of the country. Formation of this chain of Independent companies in the New England states will justly be considered a great step in advance, for Boston has always stood in the way as the impregnable fortress of the Bell combination.

In characteristic fashion the Bell agents in Boston are circulating the story that the franchise was obtained merely as a speculation and that if the Independent company begins operations it will later sell out to the existing concern. All of which, of course, is for the purpose of discrediting the new competitor. The Boston business men connected with the Metropolitan company deny these reports and declare they are maliciously false. There is said to be plenty of capital in sight to finance the new enterprise and the belief is general that the Bell will realize it must fight for its life as soon as the campaign for subscribers opens. Alfred S. Hoyes, legal counsel for the Independent company, is of the opinion that victory will follow the expected fight in the courts.

"We shall not want any permits to open streets until April," said he. "It is time enough then to consider that trouble. We are going right ahead with our plans, and when the time comes our engineers will file plans and we shall make application for the necessary permits for street openings. If such permits are then refused us, we shall proceed in a quiet, dignified and orderly manner to secure our rights. Of course, we have had opinions on that matter, and we feel assured from our legal advice that there is no question as to the legality of the franchise. The mayor feels disappointed. That is quite natural, when 11 members of the board of aldermen disagree with him. I believe from what I have heard in the way of opinions and conversation, that if this whole matter of our franchise was put before the voters of the city they would show by their ballots that they do desire a new and competing company to come into Boston."

The Independent victory in Boston has stimulated opposition to the Bell in neighboring states. Long distance connection is planned with Independent companies at Albany, N. Y.; Lewiston and Portland, Maine; Brockton, Worcester, Fall River, Lawrence, Springfield, Taunton, New Bedford and 25 towns and cities in New Hampshire. The Farmington Valley Telephone Company is planning to renew its fight to break into the field occupied exclusively by the Southern New England (Bell) Telephone Company and will ask the legislature of Connecticut for the privilege of extending its business throughout the state. The Home company of Providence, R. I., is reaching out to make a determined fight against the Bell in that state, and the Northeastern Company of Maine has purchased an old charter obtained in Concord, N. H., in 1891, for the purpose of pushing the Independent movement throughout New Hampshire. It is related on good authority that the Bell

has offered to sell out its business in the last-named state and leave the Independents a clear field.

The entrance of the Metropolitan company gives Boston three telephone companies, but one of them—the Massachusetts Telephone Company—has laid dormant so long that the suspicion is generally held that the Bell controls it and keeps it in the field simply to discourage other competition. The Massachusetts concern was organized in 1898, and has spent a sum estimated at \$1,000,000 in construction work. To-day the company has but 400 or 500 stations and has made little effort to extend its service. In view of the general public dissatisfaction with the Bell service, the failure of the Massachusetts company—professedly a competitor—to profit by this condition would naturally be most peculiar, but the theory that the Bell licensee has chloroformed the concern and kept it in existence only to ward off genuine competition explains this very clearly. It is, in fact, an old Bell trick and has been played before.

It is estimated that the New England Bell has invested \$15,000,000 in Boston. In the city proper there are about 45,000 stations, and 40,000 additional in the adjacent suburbs. Massachusetts has a law providing that on complaint of twenty or more telephone subscribers the state highway commission shall investigate the rates and service provided by companies doing business within the state. If the facts warrant action, the commission then can recommend reductions. Pending the construction and operation of the Metropolitan system patrons of the Bell company will seek relief from the state highway commission.

Since the passage of the Independent franchise in Boston the New England company has manifested an eager desire to cultivate the good will of the telephone public, which indicates a genuine alarm. Never before had the Bell management made concessions to the people, but with the prospect favoring active competition in the near future the representatives of the trust are busily seeking at this late hour to ingratiate themselves with telephone subscribers. In its campaign for business, and to prevent a stampede to the Independents, the Bell is working industriously in Vermont and even going to the length of giving three months' service free with every yearly contract. It is also a significant fact that the Bell is straining every nerve to secure connection with Independent companies in Vermont and other New England states for the palpable reason that the Independents are growing stronger every day in these sections. In many cases the Bell emphasizes the point that it desires to make an "amicable" arrangement for exchange of service.

Telephone men throughout the country will be interested in the following editorial entitled "The Telephone Situation," which recently appeared in *The Commonwealth* and which gives a correct review of the Boston fight:

Last week we mentioned the fact that we considered a new telephone company a desirable adjunct to the business life of Boston. Evidently the New England Telephone Company does not agree with us. Like all people, and all corporations which have a monopoly, it wishes to keep it.

The company has a monopoly on certain patents and extensions of patents, and has worked the patent business until it is stretched out further than elastic ever could be stretched. But now it is satiated with power and its appetite for coin makes it particularly avaricious at the beginning of a new year.

The New England Telephone Company is the dumping ground for every incompetent political grafter who isn't willing to do a day's work in the ordinary channels of business. All that a politician needs to-day in order to square himself with one of his henchmen is to give him an order on the telephone company, and the telephone company puts him on the pay roll as an "inspector," or under some title that means absolutely nothing, except that the money obtained from the public is given to him in return for no real service rendered.

This is one method that the company has adopted in order to square itself with the politicians. We claim that the telephone situation in Boston should be changed, and changed at once. We see only the practical end of the situation, and not the theoretical. We know, and the public knows, that competition always brings lower rates, and, if the people behind the new telephone company

are given a charter to do business in the city of Boston, then we are absolutely certain that the New England Telephone & Telegraph Company will cut out some of its useless expenses and not only give us lower rates, but better service.

We see that the New England Telephone Company, always solicitous of the public welfare, has been making investigations. It engaged the services of George W. Anderson, and Mr. Anderson went west and brought back a report. It was the weakest report that we ever saw. It actually fell to pieces of its own inertia. Not only did Mr. Anderson furnish practically no specific incidents, but he implied that all of the reports of the Independent companies in the west were "fake" reports.

Here is one little item that Mr. Anderson included in his report:

"Conclusion 17. Given a 'good' auditor, almost any telephone company can make a show of earnings for a few years. With the voting-trust-certificate-device, the selection of an auditor is left entirely in the hands of the persons who are making money out of speculative manipulations, based upon bookkeeping misleading if not absolutely fraudulent."

Well, Mr. Anderson, paragon of virtue, has anybody suggested that the report that you turned in to the New England Telephone & Telegraph Company was not on the level? Who engaged you to make this report? Are you different from any other expert employed for the purpose of getting favorable testimony only? Or are you one of those men, like Abraham Lincoln, who absolutely refused to take a case only when they believe in the absolute innocence of their client and the justice of his cause? We have seen no monuments erected to you, Mr. Anderson, and when you imply that every bookkeeper west of the Hudson river is crooked, and that you are the only telephone expert in America who works on the level, we think you are going a little bit too far. Have you hidden anything in your reports, Mr. Anderson? Did the New England Telephone & Telegraph Company send you out west to get the real facts of the case, or did it engage you, at a fat fee, to get something to pass to the public in the way of an advertising lemon? So much for Mr. Anderson.

How about the rest of the advertising that is being thrown into the Boston papers by the poor old New England Telephone Company that hasn't any money in its treasury? In some of the advertising it is intimated that the Independent companies have been selling "watered" stock to the public. Of course, the Bell Telephone Company, and the numerous subsidiary companies which it controls, never "watered" any stock. The New England Telephone & Telegraph Company has no "watered" stock, when they tell the story!

But isn't it a safe assertion that the New England Telephone & Telegraph Company, with its hundreds of millions of outstanding obligations, paid for by the public, is nothing but "water?" If the New England Telephone & Telegraph Company wished to build a big central station, it would issue bonds, and sell them to the public. Earnings are too valuable to be turned into assets. They look too pretty as "dividends." The New England Telephone Company, as a sponsor for honest methods and conservatism in finance, is about the funniest thing that we have read for a long while.

In the morning papers for Christmas, we saw a story from Fall River and New Bedford, paid for by the New England Telephone & Telegraph Company at the rate of \$600 per page. In the middle of the story we saw the very ungrammatical headline, "Neither safe or wise." Every child over seven years of age knows that the word "neither" should be followed by "nor" and not by "or," and it is evident to us that not only is the New England Telephone Company insulting the intelligence of the public in the facts of the situation, but is insulting the grammatical taste of the people of Boston when it frames up such junk as it has been passing to us the past few days. It quotes an opinion of ex-Mayor John W. Coughlin of Fall River, who says that he "does not believe in telephone competition from the standpoint of the investor." He also says that "he does not think that investing in stock of a telephone company is a safe business proposition." This is begging the question. The New England Telephone Company is trying by these methods to hamper the sale of stock, and to imply that the new company is a stock scheme, but so far as we are able to find out, no stock, as yet, has been offered for sale.

The New England Telephone Company was afraid to ask ex-Mayor Coughlin of Fall River whether the service of the New England Telephone Company was improved by the double system. Had it done so, it would have found that the rates in Fall River were lowered very materially, and the service was improved. We are not going to quote any ex-mayors of Fall River. Neither are we going to quote any undertaking establishments, or peanut vendors in order to prove the conditions in Fall River. We are going to quote the words of the present mayor of Fall River, and one of the best mayors that Fall River ever had. He told the editor of this paper, during the week, that the service in Fall River had manifestly improved, and the rates have been materially reduced because of the double telephone system in his city. Why doesn't the New England Telephone Company quote that in their advertising?

On Wednesday morning, which will be the last opportunity we

have of quoting the telephone company's indirect subsidizing of the press of Boston, we find sixteen quotations from various business men of Haverhill. It seems that Haverhill allowed an Independent company to be installed that didn't know its business. At least, that was the way the story read in the Wednesday morning papers.

Admitting that this is so, what has that got to do with an Independent company, organized by competent Boston business men, with unlimited capital behind it, agreeing to give to the people of Boston a more efficient and more competent service than we are getting at the present time?

Does the New England Telephone Company mean to imply that there are no business men in Boston capable of handling a telephone company? Does the New England Telephone Company wish us to infer that it considers itself the only telephone concern in America?

Has it all the brains in Boston corralled at 119 Milk street?

What has Boston to do with a little town like Haverhill? What has Boston to do with Auburn, Maine, and what has Boston in common with a bunch of little dinky towns out West? There is more business between No. 1 Washington street and the Columbia Theater, without going off the street, than there is in one-half of the places that the New England Telephone Company has quoted.

There is no comparison between Boston and these little towns, and there is no competition between Boston business men and the little chaps that tried to butt in and do an honest business in competition with a monopoly that was able to crush them. The great trouble with the New England Telephone Company in the present instance is that it feels that it is up against people who are pretty nearly as big as it is and it is afraid. It didn't complain much on the advent of a new telephone company in Haverhill. It simply increased the efficiency of its service, and with the added millions of capital at command, made things hot for the other company.

Even with millions of capital, it has failed to interfere with the good service of the Independent companies in New Bedford and

Fall River, and in Philadelphia and in Cleveland, Chicago and other large cities.

The only fault we have to find with the New England Telephone Company is that it is charging twice as much as it should for telephone service, and there is only one way to bring it into line.

That way is by allowing the competent people in the city of Boston to operate an Independent company, and whether the mayor of Boston signs the franchise or not, we feel that something is due the people of Boston, and the Board of Aldermen, either this year or next, will do its duty.

In another section of the same issue, *The Commonwealth* calls attention to the pertinent fact that Mayor Fitzgerald, who vetoed the Independent telephone franchise, accepted Bell advertising for his paper, *The Republic*. Now *The Commonwealth* makes no special point as to the connection between this fact and the mayor's official position in the telephone controversy, but includes the Bell advertising in a general criticism of the mayor's paper printing advertising from many corporations. What will strike telephone men as extremely significant, however, is the fact that the New England Bell pursued its same old sly tactics to ingratiate itself with the public official that had to pass on the ordinance passed to bring about telephone competition. No charge is made that the mayor of Boston was unduly influenced to veto an Independent franchise because the Bell placed advertising in his paper, but as *The Commonwealth* points out it doesn't look well. Trust the Bell to spread a little sugar around when it is trying to catch flies.

## VERMONT-NEW HAMPSHIRE CONVENTION

*An Important Gathering of New England Independents*

By E. R. Nash

**B**ECAUSE of the Independent's victory in Boston, the fourth annual convention of the Vermont and New Hampshire Independent Telephone Association, which was held at Bradford, Vt., January 8, was unusually enthusiastic this year. "Bust the trust," was the watchword of the members, reference being made, of course, to the New England Bell company. The convention was called to order at the Hotel Low by President H. W. Buchanan. Nearly 100 delegates, representing thirty-three Independent companies, were present. G. W. Buzzell, the secretary, made a report which included a great deal of matter of general interest to Independent companies, dealing with growth, construction and litigation, urging the use of "the shield" and earnestly advising all the members and all interested in Independent lines to stand together against the encroachment of monopoly and for the rights and interests of the people.

In his annual report Secretary Buzzell painted a glowing picture of the prospects of Independent success in New England. "All these states," said he, "are covered by Independent service. There is hardly a town, village or hamlet within the confines of their borders that has not been supplied with Independent telephones, and the long-distance toll lines are rapidly reaching out and connecting all of the local lines together, so that it will be possible to reach every portion of our states over these toll lines. But right here let me suggest that the only way of bringing about a first-class toll service is, in my judgment, to divorce the toll line service from the local service.

"This could be done by organizing a long-distance company, to which all the interests in the states could turn over their long-distance lines and take an interest in the new company proportionate to the number of telephones they now operate, or upon any other basis that might be mutually

agreeable to all of the interests concerned. The long-distance lines should be under a separate and distinct management and built in a standard manner. In this way alone can we expect to give first-class long-distance service and satisfactorily reach every portion of our states and connect and communicate with other states until all along our lines we can fully compete with our long-entrenched competitor, the Bell company. We cannot talk over inferior lines and through exchanges for long distances and expect to attract and maintain the support of the great business public unless we supply them with equally good, if not better, service than is afforded by our competitor, and some plan like the one herein suggested, or a better one if it can be found, should be adopted.

"In looking over the short life of the Independent movement we are struck with amazement at the wonderful showing for human progress made in this time. The Bell company as a monopoly catered only to the rich. Its motto was: 'Limited use, high charges and great profits.' Under such conditions no industry can develop. Telephones were then only used by the few who could afford to pay extravagant price. After having exclusive control of the field for eighteen years, in 1894, when its first patents expired, it only had in use in the whole United States 291,253 telephones.

"The people over the entire land revolted against this policy. Manufacturers started to manufacture Independent telephone apparatus. Companies were formed first in the west and later in the east. Independent plants were built, at first crudely, but anything to beat the monopoly, and the grand result of this revolt of the people is shown in the fact that against 291,253 that the Bell had installed in 1894, the people of the United States have now 7,000,000 telephones



in operation, of which the Independents own 4,500,000 and their competitors 2,500,000, and the end is not yet in sight and will not be in sight until the last house is built and the last child is born."

Regarding the financial strength of the Independent movement, Secretary Buzzell said: "Our competitor, the Bell, through the public press and by every means that unlimited capital could employ, has tried to depress Independent securities and belittle the value of their plants. A campaign against feared competition has steadily been conducted, voiced by subsidy. In every manner possible has the Bell sought to depreciate the true value of the stocks and bonds of Independent companies; and capital, which is at all times timid, has often listened to these slanders and failed to extend the helping hand when most needed. In spite of this the reports from 49 Independent companies representing 10 states showed an average dividend of 7.65 per cent, whereas the average of the 41 Bell companies was only 5.2 per cent.

The new officers elected are: President, H. W. Buchanan, Barton Landing; vice-president, O. D. Eastman, Woodsville, N. H.; secretary and treasurer, G. W. Buzzell, St. Johnsbury; executive committee, H. W. Buchanan, G. W. Buzzell, O. D. Eastman, Woodsville, N. H.; Fred C. Gleason, Warren, N. H.; D. L. McGuire, Albany, Vt.

### A TYPICAL BELL TRICK.

From Ironton, O., a correspondent sends information showing the tactics the Bell is employing to injure the Home Telephone Company, because it is an Independent concern operating in that district. The story is told in the Ironton paper as follows:

"The telephone war in Lawrence county is no joke. Yesterday morning a man stating that he represented the Home Telephone Company walked in to the Rock Camp exchange and stated that he had come to rebuild the exchange. The man worked on the exchange a few hours, getting his



Delegates and Visitors to the Vermont and New Hampshire Independent Telephone Convention, Bradford, Vermont, January 8, 1907.

These figures undoubtedly indicate that Independent telephone securities have reached a stage where they command the support and confidence of the investing public.

The victory won in securing an Independent franchise in Boston was the subject of general discussion. The following resolution was offered by Secretary Buzzell and unanimously adopted by the convention:

"Resolved, That we, the Independent non-Bell telephone companies, constituting the Vermont and New Hampshire Independent Telephone Association, do rejoice and are glad at the success of the Metropolitan Independent Telephone Company of Boston in securing a franchise of that city against the wishes of the great monopoly, the Bell Telephone company, and its sympathizers, and we further extend our sympathy to the men behind the guns in this great fight for their rights. When Boston and the other large cities in which the franchises have been granted to Independent telephone companies are installed, we will be glad again. That is what we are waiting for in New Hampshire and Vermont, 30,000 telephones strong, and, further, we offer our services in any way that may be beneficial to the Independent movement in Boston or elsewhere."

dinner and horses fed free and then 'skiddooed' for Ironton. A short time after Manager Knapp of the new Home Company received a message that their man had been there and worked on the switchboard and that no one could hear over the telephones. Mr. Knapp said it must be a mistake and went to investigating. He discovered that the man who represented himself to be a Home man was an employe of the Bell company, and that he had taken the relays out of the switchboard. It seems that this summer Mr. Riley of the Lawrence company had been called to Rock Camp to place new relays in the exchange, and that he had borrowed them from the Bell company, and when the Bell people wanted their borrowed goods returned, they tried to make it out as a joke on the Home company."

The incident illustrates the danger of an Independent company having any dealing with the Bell, even to the extent of borrowing apparatus.

The Emperor of Japan has a representative in the United States inspecting various rural telephone systems throughout the country, with a view toward establishing similar systems in the Island Kingdom.

# MANUFACTURERS DEPARTMENT

## TEXAS REPRESENTATIVES OF THE CENTRAL TELEPHONE AND ELECTRIC COMPANY.

In the last issue TELEPHONY announced the establishment in Dallas, Texas, of the Central Telephone & Electrical Company of Texas by the Central Telephone & Electrical Company of St. Louis in order to meet the demands of its growing trade in the Southwest. The new concern began



Royal E. Smith.



George F. Poertner.

business at Dallas January 1, under the supervision of Mr. George F. Poertner and Mr. Royal E. Smith, whose portraits are herewith presented. Mr. Poertner has traveled in the Southwest for the St. Louis company, and Mr. Smith also is well acquainted with the requirements of the trade. They start out under most favorable conditions and are prepared to fill orders from the complete stock maintained by the company at that point.

## MONARCH'S NEW YEAR'S GREETING IN GREAT DEMAND.

The handsome New Year's card distributed to the trade by the Monarch Telephone Manufacturing Company of Chicago, has created a great furore, and led to the perpetration of an amusing practical joke on R. C. Stone, the company's representative in Indiana, Michigan, Ohio and Eastern Illinois. The greeting consists of an artistic chemigraph print of "Just Apples," a painting by Prentice, which shows a boy's cap filled with rosy-cheeked apples as a symbol of prosperity and plenty. Accompanying the picture the Monarch company issued a letter saying: "The hat is full and the apples are good. Our hat has been pretty full this year with a business much greater than



R. C. Stone.

ever before. Again, like the apples, this business is good and the results are gratifying. We hope that your next year's hat will have to be a size larger to hold the prosperity of 1907."

The beautiful print made a pronounced hit with the trade

and the demand for it exceeded the supply. In insisting on additional copies of the picture, the operators of the Steuben County Electric Telephone Company at Angola, Ind., addressed a letter to Mr. Stone threatening him with dire punishment in case he failed to grant their request. The letter was "signed, sealed and delivered" before a notary public and had every appearance of being a legal process to refuse which would entail grave consequences. It follows:

### Steuben County Electric Telephone Company

GENERAL OFFICE



ANGOLA, INDIANA. 1/1/07.

Mr. R. C. Stone,  
Chicago, Ills.

Dear Sir:

We, the undersigned employees of the Steuben County Electric Telephone Company, do hereby order, command and implore the Right Honorable R. C. Stone, esq., to send each of the undersigned P. D. Q., a picture of apples the same as the one sent to our High Mogul,

and don't you forget it.



*Cynthia Kellogg,  
Cora Sickels,  
Flora Hamblen,  
Maudie Evers,  
Melchior Evers,  
Lura Damm,  
Lura Buffum,  
Effie Bennett.*

Before me, a Notary Public, in and for said county and State this first day of January, 1907, the above employees of the Steuben County Electric Telephone Company, swore that if the said R. C. Stone did not fully and quickly comply with above order and command, that they would immediately on the first appearance of said Stone in the City of Angola, Ind., stand him on his head, throw him down stairs, or do such other mischief to said Stone that will teach him to never again disregard the wishes of the above "Telephone Girls."

P. S. "JUST APPLES."

*Thad H. Miller*  
NOTARY PUBLIC, Angola, Ind.  
Commission Expires Oct. 10, 1907.

*This Defendant must pay the notary fee on the above cited card which will be due to the notary.*

In answer, the Monarch company prepared a bill in chancery seeking a writ of injunction to prevent Misses Cynthia Kellogg, Cora Sickels, Flora Hamblen and the other Angola operators from "conspiring" to injure Mr. Stone by "throwing him down stairs," or "standing him on his cranium." In seeking to protect Mr. Stone from attacks by those ready to resort to violence to obtain copies of "Just Apples," the Monarch company reports that there are a few more copies of the picture on hand, and as long as the supply lasts they will be forwarded on request.

## AMERICAN ELECTRIC FUSE COMPANY LICENSED UNDER ALL STERLING PATENTS.

The American Electric Fuse Company, Muskegon and New York, announces to the trade that it has secured from the Sterling Electric Company, of Lafayette, Indiana, a license under all the protector patents of that company, including all the patents involved in the litigation between the Sterling company and Frank B. Cook. The American Electric Fuse Company has also secured from the Sterling Electric Company a release covering all goods heretofore manufactured by the American Electric Fuse Company,

which also covers all the customers of the latter, which company claims that the recent decision of the United States Circuit Court of Appeals, which is the highest court of appeals in such cases, in favor of the Sterling Electric Company and against Frank B. Cook, therefore does not affect any customer of the American Electric Fuse Company, since all of its goods are licensed under the patents involved in that litigation. The company will be very glad to furnish full details on request concerning these patents and the decision of the court and anything additional with regard to the patent situation on protectors, from any of its customers. The company enjoys the enviable distinction of never having been sued for infringement of any protector patent and announces that it has been and always will be its policy to respect the legitimate patent rights of others, and that it will guarantee protection to all of its customers against any patent suits of any kind or nature.

#### J. ALLEN HAINES, INC.

The new year starts out with every prospect of marked success for J. Allen Haines, Inc., the new manufacturers' agency, which recently took over the sales-agency partnership existing between Mr. J. Allen Haines and Mr. Dwight G. Welling. When the new company was formed its promoters believed that a corporation operating in Chicago with ample capital, with numerous branches throughout the West and advertising independently of the companies represented, could be of great aid not only to the manufacturers but to the jobbers, electrical contractors and big buyers generally throughout the territory covered. This theory is being fully justified, and the J. Allen Haines, Inc., has good cause to anticipate a highly prosperous and successful year.

The fact that the active management of J. Allen Haines, Inc., is in the hands of men who have had long experience in the electrical field is considered a guaranty that its affairs will be wisely managed and the needs of the trade in-



Private Office J. Allen Haines, Inc., Chicago.

telligently cared for. Mr. James V. Watson, the president, is also president of the United Supply and Manufacturing Company. Mr. J. Allen Haines, vice-president and general manager, formerly was the Chicago manager of the Electric Gas Lighting Company (now the Electric Goods Manufacturing Company), and previously was president of the Haines & Noyes Company. Mr. Dwight G. Welling, sales manager and engineer, was for a number of years connected with the sales department of the Western Electric Company, and before that was with the Kellogg Switchboard and Supply Company. Mr. Otis D. Allen, general sales-

man, was formerly with the Western Electric Company, Kansas City; W. P. Crockett Company, Chicago, and I. A. Bennett, Chicago. Mr. A. Conro Fiero, manager of the railroad department, was formerly with the Chicago, Milwaukee & St. Paul Railroad Company, and the Indiana Harbor Company.

The main offices of J. Allen Haines, Inc., are located at 324 Dearborn street, Chicago, and the warehouse is at 59 Plymouth place. Branches will be opened at St. Louis, St. Paul, Denver, Los Angeles, and will be in charge of resident managers. Complete stocks of all standard lines man-



General Offices J. Allen Haines, Inc., Chicago.

ufactured by the companies represented are carried for the benefit of the trade. The company adheres to the following ideas in doing business: Complete stock, prompt shipments, courteous treatment, the best of everything of its kind, protect the trade, maintain prices, on high class articles prices always the lowest.

Following is a list of the companies represented by J. Allen Haines, Inc.:

American Electrical Heater Company, Detroit, Mich., manufacturer of electric heating apparatus; Bishop Gutta-Percha Company, New York City, manufacturer of Bishop "White Core" insulated wires and cables, and 30 per cent pure Para rubber wire. Chatterton's compound, etc.; Clifton Manufacturing Company, Boston, Mass., manufacturer of highest grade insulating tapes, compounds, rubber goods, etc.; the Dayton Electrical Manufacturing Company, Dayton, Ohio, manufacturer of "Apple" ignition apparatus, dynamos, storage batteries, magnetos, belt and friction-clutch governors, etc.; the Electric Cable Company, New York City, manufacturer of "Voltax" insulated wire, weather-proof wire, magnet wire, railroad signal wire, underground and marine cables, etc., and "Voltax" insulating compound and preservative paint; the Reed Electrical Cordage Company, Syracuse, N. Y., manufacturer of "Kalamos" insulated wires, battery cords, annunciator and office wires, and special wires and cables for all purposes; Schwarze Electric Company, Adrian, Mich., manufacturer of the Schwarze "Universal" bell, railway crossing alarms, bells for signal towers and for fire-alarm systems, etc.; Stanley & Patterson, Inc., New York City, manufacturers of the "Faraday" and "Competition" bells, Simplex annunciators, Fielding receptacles for stage use, "Matchless" flashlight novelties, weatherproof sockets, etc.; Wire and Telephone Company of America, Rome, N. Y., manufacturer of "Romeoid" interior telephone wire, rubber-covered wire, magnet wire, bare copper wire, etc.

J. Allen Haines, Inc., will forward new and interesting catalogues on application.

#### STROMBERG-CARLSON SALESMEN HOLD ANNUAL MEETING.

According to custom, the sales organization of the Stromberg-Carlson Telephone Manufacturing Company held an annual convention Dec. 28 for an exchange of ideas and to outline a sales campaign for 1907. The meetings were held in the assembly hall at the factory, at Rochester, N. Y., and extended over a period of eight days. J. P. Cracraft, sales manager, presided over the meetings which proved useful and interesting.

The above cut shows the members of the sales staff of the Stromberg-Carlson company. The salesmen and their respective territories are as follows:

No. 11—Mr. J. P. Cracraft, Sales Manager; No. 1—Mr. H. A. Jones, New Jersey, Delaware, District of Co-

Arkansas, Louisiana; No. 28—J. O. Oliver, advertising department.

It was with new ideas and enthusiastic over the opportunities at hand and the prospects for the future that the salesmen departed on Jan. 4th to their respective fields of operation.

#### BARGAINS IN TELEPHONE EQUIPMENTS.

The Bigley Telephone Company, Chicago, is offering some exceptional bargains in telephone apparatus, switchboards, telephones, parts and accessories. Among the offerings are North, Stromberg-Carlson, Chicago Telephone Supply, Kellogg and American Electric switchboards and telephones; American Pin Company's desk sets, and a complete line of coils, arresters, switchhooks, relays, etc., of all the standard makes. Prices will be made to insure prompt moving of this stock, as room is to be made for a rush of other goods consequent upon spring trade. A complete current



Meeting of the Sales Organization of the Stromberg-Carlson Telephone Manufacturing Company at Rochester, Dec. 28, 1906.

lumbia, Pennsylvania, New York City; No. 2—Mr. T. E. Wright, Virginia, West Virginia, Maryland; No. 3—Mr. J. A. Helvin, North and South Carolina, Florida, Georgia; No. 4—Mr. F. C. Redfield, New England States and Eastern Provinces of Canada; No. 5—Mr. J. B. Mockenhaupt, Chicago office; No. 6—Mr. C. S. Sifferd, Kansas, Oklahoma and Indian Territory; No. 7—Mr. F. W. King, Rochester office; No. 8—Mr. J. B. Wilkinson, Kentucky, Tennessee, Mississippi and Alabama; No. 9—Mr. J. J. Nate, North and South Dakota, Minnesota and Montana; No. 10—Mr. H. C. Slemin, Rochester office; No. 12—Mr. A. J. Kennedy, New York State; No. 13—Mr. A. M. Haubrich, Manager Chicago office; No. 14—Mr. B. C. Hyde, Missouri; No. 15—Mr. Wm. Bowen, Iowa; No. 16—Mr. A. W. Schafer, Rochester office; No. 17—Mr. A. B. Crawford, Ohio; No. 19—Mr. A. E. Reinke, Rochester office, sales department; No. 18—Mr. J. L. Keenan, Rochester office; No. 20—Mr. E. P. Shafer, Indiana; No. 21—Mr. J. S. Gibson, Representative in Canada, with sales office and large warerooms at 60-62 Front street W., Toronto, Ont.; No. 22—Mr. J. H. Wagoner, recently in Chicago office now located in Rochester sales department; No. 23—Mr. C. E. Hague, sales engineer at Rochester office; No. 24—S. W. Menefee, Michigan, Wisconsin; No. 25—Mr. D. C. Gould, Nebraska, Colorado; No. 26—Mr. P. D. Myers, Illinois; No. 27—Mr. C. F. Speed, New Mexico, Texas,

list of prices will be furnished by the Bigley Telephone Company promptly upon application.

#### THE FOX-BORDEN EZY-PHONE.

The telephone companies of the United States are always looking for something new in their equipment that will satisfy subscribers and make the use of the telephone easier, thereby increasing the number of calls used by subscribers. The Fox-Borden Manufacturing Company, of 27 Thames street, New York, has designed and constructed a telephone bracket which appeals to subscribers and for which there is a growing demand. This bracket is one that has been used in connection with desk telephones for a long time, giving perfect satisfaction. The bracket is simple but very strong in construction; the springs are large and strong, and when once adjusted give no trouble.

The bracket comes down from a vertical position, which can be used by people standing to about forty-five degrees below the horizontal, giving the widest range possible. The company has adapted the hook and switch mechanism used by the standard manufacturers and familiar to telephone men. The transmitter can be turned in nearly a complete circle, so that it faces the user, but in no way interferes in the holding of the connections.

The bracket is 22 inches in length, but by a simple device, can be extended from six to twelve inches, thereby meeting



every requirement. In fact, the Ezy-Phone is a complete telephone, which is at all times where the user desires it—in fact, it goes to the subscriber, instead of the subscriber going to it. It is especially adapted to house use, where people of several heights are using the Ezy-Phone, and instead of being an eye sore in the house, it is an ornament.

The Fox-Borden Manufacturing Company is the manufacturer of this bracket and the sole agent, and would be pleased to furnish any information in detail that telephone companies require.

#### A STERLING VICTORY.

The United States Circuit Court of Appeals recently handed down a decision in favor of the Sterling Electric Company against Frank B. Cook. The case was an appeal from the Circuit Court of Indiana and was tried before Judges Grosscup, Seaman and Kohlsaat. We quote the court:

"The bill was to restrain the infringement of letters patent No. 641,373, issued January 16, 1900, to Frank B. Cook, for a new and useful improvement in telephone switchboards, the defense being by way of plea that prior to any of the acts complained of in the bill, and prior to the issuance of the patent, the appellant made with appellee an oral agreement, whereby it granted to appellee, and to its officers and directors, in its behalf, the exclusive right to make, use, and sell, and to license others to make, use, and sell, various improvements, among which was the improvement in telephone switchboards covered by the patent in suit, such license to run throughout the United States and for the full term of the life of the patent.

"The license pleaded covered not only the patent in suit, but ten other patents then issued, and applications then pending in the patent office, the patent sued upon being then in the form of an application upon which a patent was subsequently issued. At the time the suit was brought, nine other suits were brought upon the other patents referred to, it being stipulated that these nine suits should be determined according to the decree entered in the suit under consideration. In the Circuit Court the bill was dismissed. The further facts, necessary to the determination of this cause, are stated in the opinion."

Judge Grosscup delivered the opinion:

Appellant is an electrical engineer and inventor, and prior to 1898 was in the employ of the Central Union Telephone Company, which employ he left in the year 1898, to engage in the business of manufacturing electrical machinery, devices, and appliances. This he did through a corporation known as the Sterling Electric Company, of Illinois, two-thirds of whose stock was owned by him and one-third by one Walter E. Doolittle, a corporation that in February, 1898, began to manufacture and sell electrical machinery, appliances, devices, and apparatus, used especially in operating telephonic systems.

February 23, 1898, there was executed by appellant to the Sterling Electric Company of Illinois a written license covering the inventions of appellant in telephonic apparatus, some of which inventions had matured already into patents and others were pending on application (but not covering the patent in suit, application for which had just been made), which license granted to the Sterling company the exclusive right to manufacture, sell, and use the inventions thus named.

The business of the Sterling Electric Company of Illinois seems to have grown rapidly, so rapidly, indeed, that for the purpose of getting a working capital to take care of its increasing business, negotiations were opened up between Cook and Doolittle on the one side and the Commercial Club of Lafayette on the other, looking toward the removal of the plant from Chicago to Lafayette. Some matters connected with these negotiations are admitted. It is admitted, for instance, that the negotiations contemplated that the property of the Illinois corporation should be taken over by an Indiana corporation of the same name, having a capital stock of one hundred thousand dollars; that the property thus taken over should include all the property, plant, and assets of the Illinois corporation, except bills receivable and book accounts, as also a license from appellant of the right to manufacture, use, and sell certain telephone machinery, devices, apparatus, and appliances covered by his inventions (the extent of this license being the thing in dispute); that to Cook and his wife and Doolittle should be issued seventy-five thousand dollars par value of the Indiana corporation, fully paid and non-assessable, and the other twenty-five thousand to be subscribed and paid for in cash by certain citizens of Lafayette; that of this seventy-five thousand issued to Cook and his associates, fifteen thousand should be bought from him at par, in cash, by citizens of Lafayette; and that all of these stipulations, except the disputed one relating to the license, were fully carried out in the removal that took place.

The terms of the transfer having been agreed upon between the Commercial Club of Lafayette and Cook and his associates, and the Indiana corporation having been organized, Cook and his associates formally proposed, and the appellee by resolution of its directors formally accepted, the exclusive right and license to manufacture and sell certain inventions, some of them covered by letters patent already issued, others by application pending, at the valuation of thirty thousand dollars, the balance of the property having been put in at forty-five thousand dollars, for which the seventy-five thousand dollars par value of stock was formally issued. The inventions thus named, however, in this formal proposal and acceptance did not specifically include the one in suit. The contention of Cook, so far as there is dispute as to the facts of the case, is that this formal proposal and acceptance was intended to cover the whole of his contract obligation with the committee of the Commercial Club, the contention of the appellee being that Cook purposely omitted from this proposal the invention included in this suit, as also other inventions then pending on application in the patent office, and that the directors, relying upon Cook's superior knowledge of what inventions he possessed, and his intention in good faith to carry out the preliminary agreement, inadvertently accepted the formal proposal, and thereupon issued the stock.

A careful examination of the record, keeping in view the entire setting of the transaction, as well as the specific facts testified to, convinces us that whatever Cook secretly intended, the committee from Lafayette was led by him to believe that the company to be organized would acquire a license to manufacture, use, and sell, not only under the patents and applications mentioned in Cook's subsequent formal proposal to the board of directors, but all patents and applications pertaining to the operation of telephonic systems; and that the board of directors was led by Cook to believe that in accepting his formal proposal and issuing stock the company was obtaining the patent in suit as a part of what the committee believed that it had contracted for. To go into an elaboration of the reasons for his conclusion would be a useless waste of space.

It is the conclusion to which the master came after hearing the witnesses and carefully reviewing the testimony. It was the conclusion of the judge reviewing the master. It is embodied clearly and consciously in the sworn testimony of the members of the committee who negotiated with Cook in the conference that led to the consummation of the transaction. The denial of Cook is in many respects entirely unsatisfactory. And it would be difficult to conceive that intelligent men who, in the spirit of a public interest, contemplated bringing to their town a new industry, supplementing their public spirit by embarking a substantial sum of their own money in the venture, would omit from the calculation an element so essential to the success of the enterprise. To hold otherwise would be to credit to the cunning of appellant a success, and to the committee that dealt with him a stupidity, that the care shown in all other branches of the negotiation clearly discredit.

The disputed fact of the case thus determined, the question remains whether the finding avails the defense interposed by appellee. The principal contentions of the appellant on this question are that the parol negotiations, whatever they were, were merged in the written proposal and acceptance; that the parol negotiations, having been conducted by a voluntary committee, did not become a contract, because there was no corporation then organized, no principal behind the committee; and that the license, constituting as it does an assignment, could not be made except in writing.

The contentions are not applicable to the case under consideration. True, as to the world at large, an assignment is not good unless put in writing and recorded; but as between parties to the transaction, a license by parol may be sustained, and enforced, if need be, by a decree for specific performance. True also, as a general rule, a parol contract reduced to writing, is to be held as fully expressed in the writing. But this does not exclude a court of equity from the inquiry whether by fraud, mistake, or inadvertence the writing fails to express the agreement; or (such fraud, mistake, or inadvertence appearing) from giving force to the oral agreement. Nor is it true that an arrangement entered into, in contemplation of incorporation, and followed by incorporation, is not binding upon the parties, when all the terms of the contract except the one in dispute have been fully and in good faith executed, and the disputed term fails of execution solely through the fraud, mistake, or inadvertence of the parties. To hold in this respect, as we are asked to hold, would be to make all agreements, preliminary to incorporation of no avail, notwithstanding the completion of the transaction by incorporation—a doctrine that in the present development of the law has no standing whatever.

For the reasons stated, the decree of the Circuit Court is affirmed.

The Long Distance Telephone Manufacturing Company, Siuth Bend, Ind., has issued a series of cards containing trade announcements, showing its telephones, automatic switch hooks, generators, rural bridging telephones, extension bells, transmitters, receivers, etc. Complete catalogues and price lists will be forwarded on application.

## TRADE NOTES.

L. M. ERICSSON TELEPHONE MANUFACTURING COMPANY, Buffalo, N. Y., has issued an exceptionally handsome booklet showing the new factory, and containing descriptive matter of interest to the trade.

THE PALMETTO MANUFACTURING COMPANY, of Nashville, Tenn., is offering a very complete line of locust and oak insulator pins and brackets and would like to hear from telephone buyers interested in such supplies.

THE DEARBORN ELECTRIC COMPANY of Chicago is preparing a new and interesting telephone catalogue which will be ready for distribution about March 1. The company will be glad to forward a copy to anyone in the trade on application.

SCOTT C. CUTTER, Oswego, Ill., is distributing a folder illustrating and describing his Universal test clamp that is said to practically fit all wires. Its maker claims that it is equally efficient in winter as in summer. Samples and prices will be furnished on application.

M. W. DUNTON & Co., Providence, R. I., are sending to the trade an attractive calendar for 1907, which shows the products the company manufactures. The company has also issued a circular and price list about its Nokorode, which will be forwarded with sample on application.

AN UNUSUALLY attractive souvenir postal card was distributed by the Automatic Electric Company at the Electrical show. It pictured a handsome young woman talking to her sweetheart through an automatic telephone while Cupid tries to "listen in" on the wire but is compelled to report "nothing doing."

THE TELEPHONIC AGE OF CANADA has been established to further the Independent telephone movement in the Dominion. The publication will be issued monthly from Toronto, and announces its purpose to be to create Independent sentiment so there will be a half million telephones in Canada within a few years.

BAKER & COMPANY, 120 Liberty street, New York, artisans in platinum, have sent out a folder relative to the platinum rivets, showing the sizes and prices of rivets used as contact points in telephones, spark coils and other electrical apparatus requiring non-oxidizing contact surfaces. The firm will be pleased to forward information and samples on request.

THE DEAN ELECTRIC COMPANY, Elyria, O., has issued its new folder, No. 6, which gives complete information about the Express type of switchboards manufactured by the company. The folder is copiously illustrated, and will be forwarded on request. Simplicity of equipment, efficiency of operation, ease of access and durability are features claimed for the Dean Company's Express switchboard, and to which special attention is called.

THE PUBLISHERS OF ELECTROCRRAFT have issued a descriptive and illustrated list of electrical fittings and appliances which have been approved by the Underwriters' National Electrical Association. Its sponsors claim that the list is a reliable guide in the selection of approved fittings, and will add to the work the new devices hereafter indorsed by the Underwriters' Association in the next issue. The purpose of the list is to promote efficiency in electrical work

in both method and material. The work gives the date of approval, description of the fitting or appliance and a cut of the same.

THE MAINE HUB & MANUFACTURING COMPANY, West Seboois, Me., is sending out interesting information relative to its winter-cut black birch insulator pins and brackets which will be forwarded on application. Accompanying the circular is a letter giving the results of tests of birch insulator pins made by R. Burnham, professor of experimental engineering, Armour Institute of Technology.

RECENT CIRCULAR MATTER issued by Frank B. Cook, 246 West Lake street, Chicago, urges the importance of using Cook's subscriber's station protectors which are approved by the Underwriters' National Electric Association. A statement defining "contributory negligence" and "reasonable care," according to court decisions, is included. This information and a folder describing Cook's self-welding wire joint will be forwarded on request.

THE COMMERCIAL ELECTRICAL SUPPLY COMPANY, St. Louis, announce the sale of a number of Vote-Berger telephones to the Western Union Telegraph Company to replace Bell instruments, which have been in use on its lines between St. Louis and Kansas City. The transfer was made only after the Western Union engineers had made a test of the instruments. The Commercial company has issued its monthly price list of wires and cables, which is ready for distribution.

THE PEIRCE SPECIALTY COMPANY, of Elkhart, Ind., and Chicago, Ill., has a new catalogue ready for distribution to the telephone trade.

A new article which the Peirce Specialty Company recently brought out, and which for that reason secured but a brief mention in the new catalogue just as it was going to press, is a channel steel back brace which bolts through both arms with through bolts and which, on account of the construction of the channel iron, will not break nor bend so as to throw the arms out of alignment.

THE INTERNATIONAL TELEPHONE MFG. Co., Chicago, reports a constantly increasing demand for its line of apparatus and is greatly increasing its factory output, to meet the requirements of its customers. Among the recent contracts is an order for an additional section of 360 lines to the 4,800-line capacity 1,200-line equipped central energy multiple switchboard installed at Meridian, Miss., last year, and an additional section of 320 lines to the 2,400-line capacity 1,500-line equipped convertible magneto multiple system furnished the Companhia Telefonica Do Estado De Sao Paulo, Brazil, several years ago, as well as a large number of self-restoring drop magneto exchange and toll line equipments.

### TOOLS FOR TELEPHONE PURPOSES.

Mr. Gordon D. Wilson, who for some years past has been connected with the Western Electric Company, more recently in the capacity of purchasing agent of the new Hawthorne plant at Chicago, is now associated with the Machinist Supply Company, 16-18 South Canal street, Chicago, and will look after that concern's telephone trade in the future.

Mr. Wilson has enjoyed a wide experience in the telephone field, both as regards shop practice as well as the purchasing and sales departments, and is thoroughly fa-

miliar with telephone requirements. He will give the telephone trade his close personal attention, and hopes to hear from all manufacturers, supply dealers, contractors, engineers and operating companies, which are in need of tools and construction supplies.

#### LINDSLEY BROS.' CHICAGO OFFICE.

Lindsley Bros., pole dealers of Spokane, Wash., announce the opening of an eastern office at 1009 Marquette Bldg.,



G. L. Lindsley.

Chicago. This action is taken on account of the firm's extensive operations throughout the central states for some years past and because this year the firm has been extremely fortunate in securing one of the largest and finest stocks in its entire history. In addition to this the firm has recently purchased large tracts of its own timber, which insures a continuance of this excellent pole supply indefinitely.

Mr. G. L. Lindsley, vice-president of the

company, who will be in charge of the Chicago office, has been for some years past one of the best known pole dealers catering to the telephone trade. He also was one of the earliest pioneer dealers in western poles, having shipped poles from that territory as early as 1868 to various telephone companies in the Central States, among them being the company at Elyria.

#### DETROIT INSULATED WIRE COMPANY.

One of the vigorous new enterprises that has entered the electrical field under favorable conditions is the Detroit Insulated Wire Company. This company, with energy characteristic of its organizers, has this season built and equipped a thoroughly modern plant for the manufacture of rubber covered wire. The active management of the company's business is in the hands of men long and favorably known in electrical circles.

Mr. J. H. Hunter, formerly of the National Cable & Wire Company, is vice-president, and is in charge of the manufacturing operations of the concern. Mr. Hunter is a native of Pittsburg, and his early technical training was acquired at the Western University of Pennsylvania. While there much of his attention was directed to electro-chemical problems, particularly those bearing on the manipulation of organic substance. Mr. Hunter's first active connection with the electrical business was as electrical engineer for the Allegheny County Light Company of Pittsburg, Pa., with which he was associated for seven years. Later he formed a partnership with Professor Koch, of the department of chemistry at the Western University of Pennsylvania for the manu-



J. H. Hunter.

facture of certain chemical specialties. His interest in this firm still continues. Mr. Hunter was instrumental in securing a franchise in Pittsburg and Allegheny

for the P. & A. Telephone Company. His connection with this company as engineer of ways covered the period of construction and equipment during which time he had exceptionally good facilities for studying every detail connected with the design and maintenance of large telephone installations, and became particularly absorbed in the study of problems incident to the use and maintenance of their distributing systems. In due course of time Mr. Hunter purchased an interest in and was elected vice-president of the National Cable & Wire Company, which under his management manufactured rubber covered and weather-proof wires and lead covered cables with insulation of paper and other substances for electric lighting, power and telephone purposes.

Mr. Arthur Hartwell, formerly sales manager of the Westinghouse Electric & Manufacturing Company, is secretary and treasurer of the Detroit Insulated Wire Company, and in active charge of the general management of the enterprise. Mr. Hartwell is a graduate in mechanical engineering of the Ohio State University of Columbus, Ohio. Soon after leaving college he entered the employ of the Westinghouse company with which he was associated for upwards of fifteen years. While in the employ of this concern Mr. Hartwell was at one time or another associated with every department of its manufacturing operations except the drawing room. In 1890 he had much to do with the design and installation of the first long-



Arthur Hartwell.

distance transmission plants put into commercial use in this country. These plants are at Portland, Oregon, and Telluride, Colorado. In 1895 he was appointed manager of the Pittsburg sales office of the Westinghouse company, and had charge of branch offices at Cleveland and Cincinnati, Ohio, and Buffalo, N. Y. In 1899 he was appointed to a similar position in charge of the Chicago office with branches at Minneapolis, Detroit and Omaha. Under his administration these branch offices, with the exception of Omaha, grew to the point that each was made independent of the parent office with a manager of its own. In 1901 he was promoted to be the head of the sales department with the title of sales manager. During his administration the sales organization was reorganized into the present divisions of the department—railway and light, detail and supply, and industrial and power—each division with a separate manager as an active assistant to the sales manager. In 1904 Mr. Hartwell acquired an interest in the Sterling Varnish Company of Pittsburg, of which he became a director as well as general manager. He brought this company's business up to the point where new records in sales and net profits were made at which time he sold his interests and resigned with the intention of re-entering more actively the electrical field. As a salesman and a sales manager he has always held the theory that the jobbers of electrical supplies perform as important and indispensable function for the manufacturer and that as purchasers for resale they are entitled to a liberal margin of profit and protection. Those acquainted with the conditions of the electrical business will recall the difficulty with which this principle was established.

The Detroit Insulated Wire Company's new factory is equipped with the most approved and carefully selected devices for the manufacture of rubber covered wire that have been developed. Those departments of the factory in which insulation is applied to small sizes of conductors are completed and in operation. The other departments are being put in operation as rapidly as the present congested conditions among manufacturers will permit.

## "KIRK" AND HIS BLOTTER.

Mr. E. F. Kirkpatrick, sales manager of the McRoy Clay Works, Chicago, some years ago, in an unguarded moment issued a blotter. It was innocent looking as most blotters are, and would have been forgotten long before this had he not printed some jingling verses thereon. The effect was that "Kirk" was flooded with letters from all parts of the country asking if the blotters were to be continued, and if so, requesting to be put on the McRoy mailing list. So the blotters have been issued from month to month until



E. F. Kirkpatrick at His Desk.

to-day they are sent to all parts of the civilized world, and anyone who is fortunate enough to be on "Kirk's" list looks forward to the monthly appearance of the blotter. The verses and poems selected by "Kirk" are all good, some of them he is suspected of writing himself, but being a modest man, no name appears, so there is no way of convicting him. Like his blotter, Mr. Kirkpatrick is known over the length and breadth of the land, and everyone calls him

**McROY** **McROY**  
**CLAY** **CONDUITS**  
**WORKS.**  
BRAZIL, INDIANA, U.S.A.  
CHICAGO OFFICE. 443 THE ROOFRAY

**THE MORNIN'S MORNIN'**

*(The content of the blotted verses is partially obscured and difficult to read, but appears to be a collection of short poems or verses.)*

1906 JUNE 1906

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30						

ADDRESS ALL COMMUNICATIONS TO MCKROY CLAY WORKS, 443 THE ROOFRAY, CHICAGO

"Kirk's" Blotter.

"Kirk." Everyone knows him, and no convention or gathering in the electrical field would be complete without the smiling features of the man who has made the McRoy conduit famous.

## A NEW JUNCTION BOX.

Frank B. Cook is putting out a new junction box—new, that is, in the method of manufacture. Mr. Cook says this new junction box is better in every way than the types made heretofore. In the first place, it is made of sheet steel, heavily galvanized, this construction making it very much lighter than the old painted cast-iron boxes. The difference in weight is so great that it will effect a material saving in freight. It also makes it much easier to handle on the pole.

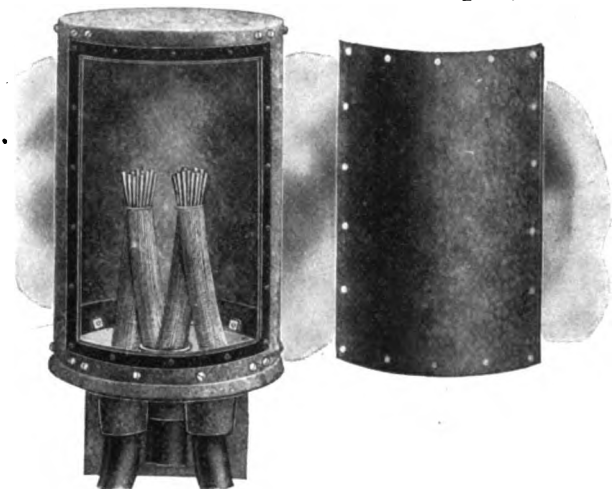
Cook's junction box furnishes a most economical and simple means for installing and splicing main leads of cable and extending branches of smaller cable to other distributing points. It renders sleeve splicing or wiped joints unnecessary. It makes cable testing a very simple matter, as the box can be opened more easily than can a cable joint. It is absolutely moisture-proof, and has a sliding galvanized

sheet-metal cover which furnishes added protection. The junction box is equipped with self-soldering nozzles, and is made, as noted above, of galvanized sheet steel, a rubber gasket rendering the joint between the cover and the box, moisture-proof.

The box is galvanized after being formed up, so that the galvanizing will fill all the joints and make the box airtight. In order to make sure that the joint is moisture-proof, the junction box is subjected to an air pressure test before leaving the factory. The bottom of the box is about two inches deep, so that parafine or a compound may be poured into that depth, after the cable has been brought in and spliced. This is an additional protection to the cable against moisture.

The Cook junction box can be furnished separate, or combined with terminal, if desired. One new and original feature of the Cook junction box is that it may be installed alone originally and the terminal can then be added at any future time.

All Cook junction boxes are equipped with self-soldering nozzles. Self-soldering nozzles are a great convenience and are really very economical as they save the services of an expert cable splicer or of a plumber to make wiped joints. All that is necessary is to scrape the lead cable sheath bright and clean before inserting it in the nozzle. To solder the cable to the nozzle, a blow torch is applied to the outside of the nozzle, first wrapping tape or paper



Cook Junction Box.

around the bottom of the nozzle to prevent the solder from running out. The necessary amount of solder and flux is inside of each self-soldering nozzle.

## SWEDISH-AMERICAN'S NEW BRANCH AT SIOUX FALLS, S. D.

Beginning February 1 the Swedish-American Telephone Company will make shipments from its new warehouse and salesroom, 300-302-304 North Phillips avenue, Sioux Falls, S. D., an illustration of which is given herewith. A complete line of telephones and equipment as well as a full stock of telephone supplies, such as wire, insulators, cross arms, brackets, etc., will be carried by the company at this point, and shipments will be made the same day orders are received. Sioux Falls is an exceptionally favorable point for western and northwestern distribution. The following railroads enter that city, affording excellent shipping facilities, and insuring prompt delivery and a considerable saving in freight charges: Chicago & Northwestern, Illinois Central, Chicago, Burlington & Quincy, Chicago & Great Western, Rock Island and Wisconsin Central.

The Swedish-American Company has access to switch track which was put in for use of the building, and all delay subject to teaming and poor shipping facilities will be entirely eliminated. Independents in territory tributary to



Sioux Falls will be much benefited by this new warehouse, not only in saving of time, but in saving of freight charges as well, and they will doubtless show their appreciation of it in a most substantial manner. The establishment of this new branch, together with branch salesroom and warehouse at Kansas City, places the company in a position to care for the wants and requirements of western Independents with promptness and dispatch.

Mr. C. L. Ward, formerly of the Fargo, N. D., office, will be in charge of the new Sioux Falls branch. Mr. Ward is a thorough telephone man with a keen insight as to telephone requirements, and has many telephone friends throughout the northwest. The Swedish-American Telephone Company has shown itself to be one of the most enterprising telephone manufacturing concerns in the business and its enterprise and good business judgment in establishing branches in the two western cities above mentioned, will be substantially appreciated by telephone buyers in this territory.

The company was one of the principal telephone exhibitors at the Electrical Show. Its display was an attractive one, and consisted of a line of the well known products. The company was located in the same space occupied during the 1906 show, and many Independent telephone men visiting the exposition made their headquarters with the company,



New Swedish-American Branch at Sioux Falls, South Dakota.

where they were cordially welcomed and made to feel at home.

#### FRANK L. MIDDLETON.

Mr. Frank L. Middleton, who has recently accepted a position with the Automatic Electric Company, as assistant sales manager, is one of the pioneers in telephone work. Some twenty-three years ago, then a very young man, Mr. Middleton was employed as night operator and later as inspector by the Central Union Telephone Company at Elkhart, Indiana. He worked his way up to the management of the Elkhart exchange, and had the distinction of being the youngest manager in the employ of that company. He remained with the Central Union for about eight years, and after a period devoted to other work returned to the telephone field as the organizer of the Elkhart Telephone



F. L. Middleton.

Company, one of the first Independent exchanges in the country. He later assumed the management of the Merchants' Mutual Telephone Company of Michigan City, Indiana, afterwards assisting in the construction of a modern Independent exchange at Waco, Texas. After leaving Waco Mr. Middleton became associated with the Stromberg-Carlson Telephone Manufacturing Company, remain-

ing three years. He then accepted a position as manager of the sales department of the International Telephone Manufacturing Company, leaving this last company to accept his present position.

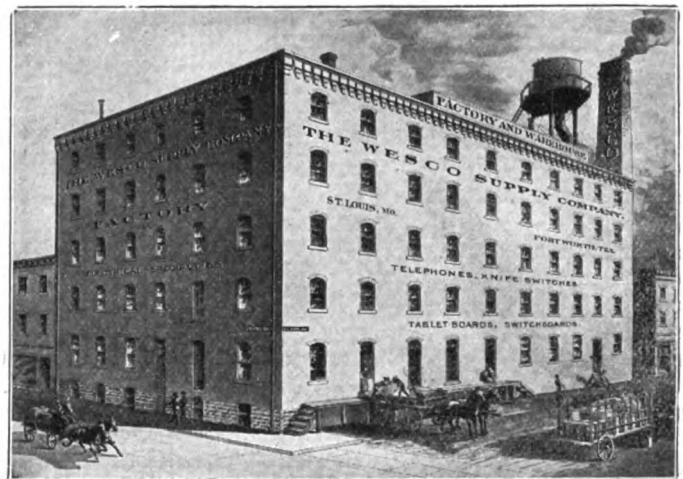
Mr. Middleton has many friends in the telephone field, and his wide experience should make him an invaluable acquisition to the Automatic staff.

#### WESCO'S NEW FACTORY.

The announcement of the new factory building of the Wesco Supply Company, St. Louis, Mo., and Fort Worth, Texas, shows the enterprise which has characterized this wide-awake electrical supply house ever since its inception.

It has always occupied a foremost position among the electrical supply jobbers and dealers, and in recent years has been venturing upon the manufacturing field in no small degree. Among the articles of recognized merit manufactured especially for this company, and which have found a ready and extensive sale, are the Wesco desk and ceiling fans, Wesco tape, Wesco soldering specialties, the "red shield" and Wesco dry batteries and Hercules pliers.

A few years ago the company began assembling its own telephones in order to insure perfect uniformity in telephone



New Factory Wesco Supply Company. St. Louis, Missouri.

instruments, and has since added the latest machinery tools and dies for the manufacture of its own specially designed parts. The strict adherence to the policy of quality first in the production of Wesco telephones has resulted in such rapid growth in the demand for the product that it has become necessary to provide larger quarters and better facilities to meet this demand. A large five-story brick building at the corner of Eighth street and Clark avenue, St. Louis, was therefore recently secured and has been equipped throughout with the very best and latest machinery for the manufacture of a complete line of telephone instruments and telephone accessories, and is now in full operation. In addition, a portion of the factory is being equipped for the manufacture of knife switches, panel boards, cut-out cabinets and switchboards. Other electrical specialties will be brought out from time to time. The company announces that everything produced in its factory will bear the stamp of quality and efficiency, and will be worthy of the Wesco name and trade-mark.

#### AMERICAN CLOCK COMPANY.

Among the exhibits at the electrical show which were of special interest was that of the American Clock Company, demonstrating the practical use of its automatic self-winding electric clocks, as synchronized over telephone wires.

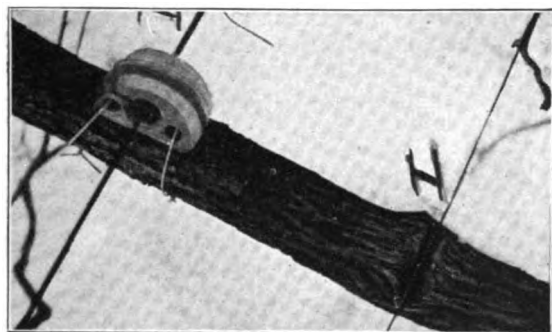
A technical description with a diagram of this system

appears in another part of this publication, and those who saw the demonstration and noted the method of synchronizing clocks over telephone wires could not but conclude that a new field had opened up in the world of telephony.

The American Clock Company's booth, which presented a complete line of electric wall and mantel clocks, time stamps and time systems, was in charge of the officers of the company.

### THE SCOTT C. CUTTER SPECIALTIES.

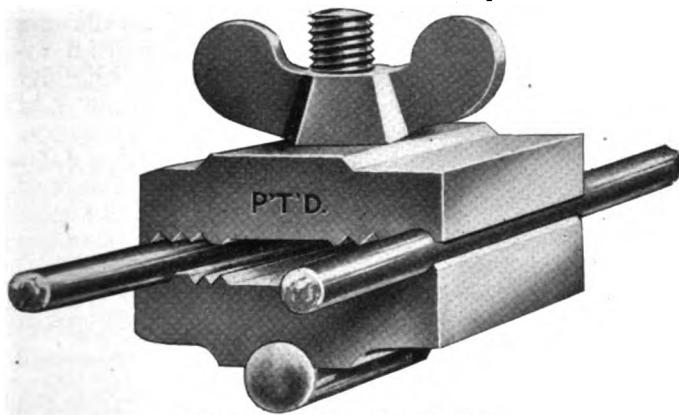
Scott C. Cutter, a practical telephone man of Oswego, Ill., has developed several devices which will appeal to everyone interested in efficient and economical telephone



Cutter Glass Tree Insulator.

construction work. Mr. Cutter's glass tree insulator has been upon the market for over a year now and has passed every test successfully. Mr. Cutter's insulator is designed to fill the demand for a tree insulator that can be easily applied to any limb or trunk of tree, giving complete insulation of wires, as well as free motion of limbs, and imposing no strain upon the wires. It is claimed that this insulator, when judiciously applied, thoroughly demonstrates the possibility of the use of bare wire in constructing through trees, eliminating the expense of insulated wire entire.

The Scott C. Cutter Universal test clamp is made to hold



Cutter Universal Test Clamp.

any size of wire firmly and with even pressure, but without cutting or mashing. It is easily adjusted without removing one's gloves and has other features which commend it to careful purchasers.

Samples, prices and descriptive matter relating to these two specialties may be had of Scott C. Cutter, Oswego, Ill.

### A NEW, TELEPHONE DRY BATTERY.

The Stackpole Battery Company of St. Mary's, Pa., has recently brought out a cell built solely for telephone work. It is styled the "Hello, No. 6," and is guaranteed to have the staying powers as well as the necessary energy. The Stackpole Battery Company claims to have the largest and best equipped factory of its kind in the world. From the beginning it has devoted the entire force of its organization and equipment to the problem of improving battery

quality and keeping within the market price. It feels that it is now fully prepared for the public's decision, and trusts that it will be given the opportunity of demonstrating its claims by at least a trial order.

### NEW INTERNATIONAL SALES MANAGER.

The International Telephone Manufacturing Company, Chicago, has secured the services of Mr. F. E. Freers as



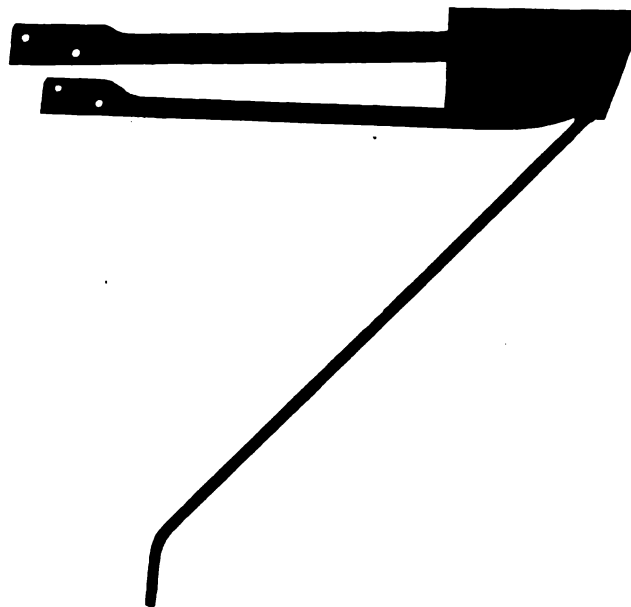
F. E. Freers.

sales manager. Mr. Freers has had a wide experience in telephone work covering a period of some seventeen years and brings to his present position the valuable knowledge acquired in the construction, operating and manufacturing field. His first telephone experience was installing switchboards for the Central Union Telephone Company in Indiana, after which he accepted the position of superintendent of construction with the Pittsburg and Allegheny Telephone Company, leaving this position to engage in the manufacturing end of the business at Butler, Pennsylvania. Of

late years he has held positions with some of the large manufacturing concerns in the telephone field and has a wide acquaintance among exchange managers.

### THE COAR SAFETY SEAT.

One of the attractive new devices offered to the telephone trade this season is the Coar safety seat. This article was designed by a practical-telephone engineer and operator, and



the company manufacturing it is composed of telephone men. Among the claims made for this device are the following:

A combination seat, safe as a cradle.

Rigid and permanently constructed of mild steel.

Lowest initial cost with no maintenance.

Applied to a pole with four bolts, two of which serve as foot rests.

Can be used as a seat or as a substitute for a lineman's safety belt.

Sightly—the seat folding up like a jack knife.

Workmen climb through instead of over it, lessening time and danger.

Roomy and comfortable; no caught or loosened belt tools. Free from accumulation of snow or sleet.

Especially applicable in systems of cable distribution.

The Coar Safety Seat is manufactured by the Telephone Appliance Company, of Minneapolis, Minn., which states that it can quote attractive prices on trial orders for this seat complete with the necessary bolts for fastening the same to the pole.

#### A NEW BINDING POST.

A new binding post that is attracting a great deal of attention is being manufactured by the Rolfe Electric Company of Rochester, N. Y.



It requires no instrument of any kind to make the connection, only the pressure of a thumb or finger. The constant pressure of the spring insures a perfect contact at all times.

The binding post is the one used in the approved Rolfe fuse box No. 2, and, the company claims, is only one of many points which mark the superiority of this protector.

The National Board of Fire Underwriters has listed this box as approved protection, and the users of it are secure from all liability arising from the introduction of currents of high potential on their lines.

A full description of this protector may be obtained by addressing the Rolfe Electric Company, Rochester, N. Y.

#### AUTOMATIC ELECTRIC ANNOUNCEMENT.

The Automatic Electric Company, Chicago, has issued the following statement reviewing the business of the year 1906 and prospects for the coming year:

"The Automatic Electric Company has enjoyed the busiest and most prosperous year of its existence. At present there are nearly \$7,000,000 worth of orders on hand to be filled. These include some large plants, Denver, Omaha, San Francisco and Chicago being among the number. So enormous has been the growth of the business that the factory has been more than doubled in size and trebled in capacity. This enlargement enables the company to cope with the constantly increasing demands for automatic equipment.

"There is no doubt that the automatic telephone system has 'arrived.' The public is awake to the merits of the system, the operating companies are fast becoming aroused to the necessity of adopting it if they are to supply the public demand for first-class telephone service at reasonable rates, and at the same time make their plant a paying one, and the investing public is learning that the securities of the telephone companies operating automatic equipment are valuable, stable and profitable. During the past year the company issued and sold the last \$1,000,000 of its \$5,000,000 capital stock, to provide additional working capital for its increased business.

"Perhaps the most important contract which the company will handle this coming year will be for the 100,000 line exchange to be built in Chicago by the Independent Telephone Company of Chicago, a \$10,000,000 corporation, which has been formed by some of the leading financiers in the Independent movement. This company has taken over the telephone rights of the Illinois Tunnel Company, the growth of whose automatic plant, serving the loop district only, has been retarded by reason of the fact that the latter company has devoted its entire capital and energy to the completion and perfection of its tunnel system for freight and mail service. The new Independent Telephone Company for Chicago is an assured fact, and within a few years the city will be equipped for automatic telephone service as fully and much more efficiently than it is at present by the manual service.

"In line with the new Independent company's advent into Chicago are the arrangements for the entrance of the Independent toll lines. The South Bend Home Telephone

Company of South Bend, Indiana, has been purchased by a company of Independents, who will make that city the clearing point for the Independent toll line business of that half of the United States lying east of that meridian of longitude. Similar arrangements will be made for the western and northern territory, and the completion of the work laid out will mark a great advance in the Independent movement, both local and long distance.

"The greatest development of the automatic business the past year has been on the Pacific Coast, where the system has been adopted by practically every city of importance from San Diego, at the southern end of California, to Bellingham, Washington, on Puget Sound, and a stone's throw from the Canadian boundary. Contracts have been made during the past year for automatic plants at San Francisco and Oakland in California (as well as large additions to the Los Angeles automatic system), at Portland, Oregon, and at Spokane, Tacoma, Bellingham and Walla Walla, Washington."

#### ONE OF DULUTH'S SUCCESSFUL HUSTLERS.

The city of Duluth is noted for its many enterprising and popular citizens, but amongst them all none is better liked



"Tom" Bradley.

nor is a more genial hustler than "Tom" Bradley, secretary and general manager of the Duluth Log Company. The Northwestern Cedar-men's Association will long remember the pleasant meeting held in Mr. Bradley's town January 8, 1907, and the active part which that clever gentleman took in making it a success. The arrangements were splendidly managed throughout and concluded with a banquet which will linger in the memories of all its guests as a most delightful event. The selection of the city of Duluth as the meeting place of the 1907 convention of the Northwestern Cedar-men's Association was due to the statement by Mr. Bradley that his home city was the greatest in the

Northwest, and that the entertainment would be all the members could wish for, and as usual with him he made good.

#### CHANGE IN MONARCH ELECTRIC & WIRE COMPANY.

It is announced that taking effect January 1, 1907, Mr. S. Mankowitz is no longer connected with the Monarch Electric & Wire Company in any capacity. The company is now under the personal supervision of the following officers: President, Louis A. Schwab; vice-president and secretary, Henry Schwab; treasurer, N. Deutsch, all of whom have been connected with the company for many years. They have surrounded themselves with very competent assistants which enables the company to take care of its constantly growing business better than ever before. Its chief aim will be to continue the policy of orders shipped the same day as received, which has been one of the important factors in its success. Through the medium of TELEPHONY the firm wishes to thank the telephone trade for its patronage in the past and express the hope of meriting its continuance.

# PROGRESS OF THE MONTH

Compiled by H. A. Downey

## NEW COMPANIES

**NEMAHA, Nebr.**—The Farmers' & Merchants Mutual Telephone Company has been incorporated.

**McDONALD, Kan.**—Articles of incorporation have been filed for the McDonald Telephone Company.

**CLEVELAND, O.**—The Cleveland Switchboard Company has been incorporated with a capital stock of \$25,000.

**QUINCY, Ill.**—The Northeast Quincy Telephone Company has been incorporated with a capital stock of \$4,000.

**PALMYRA, Ind.**—The Farmers' Metropolitan Telephone Company has been incorporated with a capital stock of \$500.

**WILLOW POINT, N. Y.**—The Willow Point Telephone Company has been incorporated, with a capital stock of \$500.

**TULSA, I. T.**—The Irving County Telephone Company has been organized in Tulsa to compete with the Pioneer Telephone Company.

**METZ, Iowa.**—A new telephone company has been organized at this place and will build lines over the northern part of Vernon county.

**SHERWOOD, Ore.**—The Sherwood Mutual Telephone Company has been incorporated by J. P. Young, L. S. McConnell and F. Langer.

**DIAMOND, Wash.**—The Diamond Telephone Company has been incorporated, with a capital stock of \$2,000 by F. W. Ertel, W. M. Lee and Henry Rock.

**LANSING, Mich.**—Articles of incorporation have been filed for the Northeastern Quincy Township Telephone Company, with a capital stock of \$4,000.

**COCHRANTON, Pa.**—The Merchants' & Farmers' Telephone Company has been incorporated, with a capital stock of \$25,000. J. H. Spear is president of the company.

**LOWES, Ky.**—The Lowes Telephone Company has been incorporated with a capital stock of \$1,000 by W. R. Slayton, J. R. Lowe, R. P. Peck and I. C. Young.

**MATEHUALA, Mex.**—An Independent telephone company has been incorporated in this place by Benito Juarez. It is the purpose of the company to install a system in this city.

**WASHTUCNA, Wash.**—The Washtucna High Line Telephone Company has been organized, with the following officers: President, E. H. Wyrick; secretary, Otis Leonard.

**LAKE VILLA, Ill.**—The Farmers' Telephone Company has been organized and will construct a line from near Monaville to Lake Villa, where an exchange will be installed.

**WOODLAND, Wash.**—The Lewis River Independent Telephone Company has been incorporated with a capital stock of \$5,000 by R. D. Lawson, J. S. Fields, and J. W. Strong.

**CRESTED BUTTE, Colo.**—The Crested Butte Telephone Company has been incorporated with a capital stock of \$10,000, by J. W. Rockefeller, S. G. Robinson, August Taylor.

**KARLSBURG, Wis.**—The Burnett County Telephone Company has been incorporated with a capital stock of \$1,000 by A. J. Myrland, S. Lundquist, P. J. Peterson and F. L. Peterson.

**LAUREL, Miss.**—The question of organizing a new telephone company is being agitated. Ex-Manager Rickey of the Cumberland Telephone Company is active in the movement.

**OKLAHOMA CITY, Okla.**—The Canadian Valley Telephone Company has been incorporated with a capital stock of \$500 by Lewis Rockwood, B. F. Dougherty and R. Schunemann.

**ADDIEVILLE, Ill.**—The Addieville Mutual Telephone Company has been incorporated with a capital stock of \$735. The incorporators are William Grattendick, C. Thoms, John Meyers.

**CASCADE SPRINGS, S. D.**—The Cascade Telephone Company has been incorporated, with a capital stock of \$1,500, by A. S. Beebe, Henry Fruday, W. P. Hamelstrom, Fred Nunenberg.

**OXBOW, Sask., Can.**—The Oxbow Telephone Company has been incorporated, with T. H. Gregson, secretary. The company contemplates constructing a telephone system at once.

**NILES, Okla.**—The Niles Telephone Company has been incorporated with a capital stock of \$1,000. The incorporators of

the company are W. F. Stipp, J. E. Starbuck and J. B. Green of Hinton; E. E. Longfello and H. W. Nance of Niles.

**MACHIAS, N. Y.**—The Machias Telephone and Electric Company has been incorporated with a capital stock of \$5,000. The incorporators are M. B. Field, C. King, D. H. Evans, Machias.

**POCAHONTAS, Ark.**—A new Independent telephone company is being organized in this place. It is the purpose of the organizers to construct telephone lines in all parts of Randolph county.

**FRANKFORT, Ky.**—The Peters Creek Telephone Company of Monroe county, has been incorporated with a capital stock of \$200 by W. H. Smith, P. L. Samson and James Moore of Jeffrey.

**PIERPONT, O.**—The Pierpont Telephone Company has been incorporated with a capital stock of \$10,000 by A. M. Mallory, W. H. Curtin, B. E. Beardslev, C. T. Appleyard and George Lillie.

**BOSCOBEL, Wis.**—The Boscobel Telephone Company has been incorporated with a capital stock of \$4,000. The incorporators of the company are Philip J. Hof, W. E. Howe, and L. H. Hayman.

**PERRY, Okla.**—The Warren Valley Telephone Company has been incorporated with a capital stock of \$1,000. The incorporators are G. D. Michael of Lucien, Fred Kukuk and W. J. Burke of Perry.

**MILWAUKEE, Wis.**—The Matteson Telephone Company, Matteson, Waupaca county, has been incorporated, with a capital stock of \$6,000, by L. A. Burgess, G. G. Fergot and Noyes Matteson.

**ROCKWOOD, Ill.**—The Ebenezer Telephone Company has been incorporated with a capital stock of \$500. The incorporators of the company are Wilbur H. Morgan, Joseph M. Vickers, Lewis Henry.

**EL PASO, Ill.**—The Pleasant View Telephone Company has been incorporated, with a capital stock of \$800. The incorporators of the company are: A. W. Shepard, W. H. North and W. G. Stokes.

**JEFFREY, Ky.**—The Peters Creek Telephone Company has been incorporated with a capital stock of \$200. W. H. Smith, P. L. Samson and James Moore, of Jeffrey, are among the incorporators.

**LA PORTE CITY, Ia.**—The farmers in and around Bruce Center have incorporated themselves into a telephone company with a capital stock of \$25,000, to build farmers' lines into this city in the spring.

**CHICAGO, Ill.**—The Rigley Telephone Company has been incorporated with a capital stock of \$3,000. The incorporators of the company are as follows: H. R. Gillick, E. M. Snyder and B. Samuels.

**MILWAUKEE, Wis.**—The Independent Long Distance Telephone Company has been incorporated with a capital stock of \$25,000. The incorporators are H. D. Critchfield, Richard Valentine, and C. J. Chapin.

**CLAYTON, Ill.**—The Clayton Farmers' Mutual Telephone Company has been incorporated, with a capital stock of \$800. The incorporators are: Daily C. Lewis, Robert L. Bauton, William Meatheringam.

**GUYMON, Okla.**—The Guymon & Hansford Telephone Company has been incorporated with \$7,000 capital stock. The directors are R. B. Quinn, S. C. Tyler, D. F. Vincent, G. W. Bard, E. C. Summers, all of Guymon.

**MAYWOOD, Neb.**—The Farmers' Co-operative Telephone Company has been incorporated, with a capital stock of \$1,500. The following officers have been elected: President, A. C. Barry; secretary, H. H. Cleveland.

**GREENWOOD, N. Y.**—The Greenwood Telephone and Telegraph Company has been incorporated with a capital stock of \$2,500 to operate a telephone or telegraph line. E. L. Tebbets of Auburn is president of the company.

**LONG PRAIRIE, Minn.**—The Sauk Valley Telephone Company has been formed. The farmers in Birch Dale, Kandota and southern Little Sauk are back of the enterprise and A. H. Hendrickson is one of the prime movers.

**PALOMA, Ill.**—The Paloma Telephone Company has been organized in this place. It is the purpose of the company to construct and maintain a telephone system in Paloma and to extend lines to the surrounding country.

**RUSHVILLE, Ill.**—The Rushville, Pleasant View and Browning Mutual Telephone Company has been incorporated with a capital



stock of \$1,250. The incorporators are M. S. Strong, William R. Lawler and M. W. Greer.

**GARDEN CITY, Kan.**—The Garden City Light, Telephone & Manufacturing Company has been incorporated with a capital stock of \$150,000 to do a general telephone business in Kansas and ultimately in adjoining states.

**HAVANA, O.**—The Havana Telephone Company has been incorporated with a capital stock of \$5,000. The incorporators of the company are G. G. Van Horn, W. E. Clymer, Ed. Moose, Fred Wolfram and R. T. Wolfram.

**St. Louis, Mo.**—The Mill Creek Telephone Company of Washington county has been incorporated with a capital stock of \$3,000. The directors of the company are Marion Hungate, Robert Rexwot, Walter Short and Albert Batt.

**COOPERSTOWN, N. Y.**—Articles of incorporation have been filed with the secretary of state for the Delaware and Otsego Independent Toll Company, a new telephone corporation, which will operate lines in the counties mentioned.

**St. Louis, Mo.**—The Gate Telephone Company of Iowa has filed notice of intention to do business in Missouri; capital stock, \$10,000, of which \$5,000 is to be used in this state, with office and headquarters at Kahoka, Clark county.

**BEVERLY, O.**—The Beverly Telephone Company has been incorporated with a capital stock of \$5,000. The incorporators of the company are as follows: J. A. Hart, L. A. Dixon, W. B. Hartwell, James Strahler and B. F. Jackson.

**GUTHRIE, Okla.**—A territorial charter has been issued to the Long Distance Telephone Manufacturing Company of South Bend, Ind., with a capital stock of \$100,000, and Charles A. Davidson of Oklahoma City as territorial agent.

**GUTHRIE, Okla.**—The B. R. Electric and Telephone Manufacturing Company of Kansas City, incorporated under the laws of Missouri, with \$80,000 capital stock has been granted a charter in Oklahoma City as territorial agent.

**BUENA VISTA, Ill.**—The Valley Telephone Company has filed articles of incorporation with a capital stock of \$1,000. The incorporators of the company are as follows: D. F. Gates, L. E. Wentworth, H. H. Rood, and J. W. Boursler.

**BREWSTER, Minn.**—The Brewster-Round Lake Telephone Company has filed articles of incorporation with a capital stock of \$20,000. The incorporators are: F. R. Geyerne, C. R. West, A. L. Wells, of Brewster; T. Bahis, Round Lake.

**CROTON, O.**—The Hartford Telephone Company has been incorporated with a capital stock of \$10,000. The incorporators of the company are as follows: J. N. Potter, W. E. Hatfield, J. G. Case, Harry D. Willison, R. B. Stumph, Bert Wells.

**MAPLE CITY, Kan.**—The Maple City Telephone Company has been organized and will install an exchange at this place. The officers of the company are as follows: President, E. D. Gilkey; secretary, J. F. Thomas; treasurer, J. W. Bivins.

**COLUMBIA, S. C.**—The Rural Telephone Company of Columbia has been chartered by the secretary of state, with a capital stock of \$1,000. The officers of the company are as follows: President, J. B. S. Lyles; secretary and treasurer, E. L. Craig.

**SEBEKA, Minn.**—The Sebeka Telephone Company has filed articles of incorporation with the secretary of state. The company is capitalized at \$10,000 and the incorporators are Dr. O. V. Johnson, F. C. Haverkost and W. R. Keewen, all of Sebeka.

**PLEASANT VIEW, Ill.**—The Pleasant View Telephone Company has been incorporated with a capital stock of \$800 for the purpose of operating a telephone system. The incorporators of the company are A. W. Shepard, W. H. North, and W. G. Stokes.

**SILVERDALE, Kan.**—The Silverdale Telephone Association has been organized and will build a line from Silverdale to Arkansas City. The officers of the company are: President, C. M. Clemens; secretary, J. W. Campbell; treasurer, F. M. Vaughan.

**ROGERS, Ark.**—A farmers' rural telephone company is being organized by the energetic farmers of this section. The territory embraces Rogers, Bentonville, Pea Ridge, Avoca, Brightwater and Garfield. Already sixty subscribers have been secured.

**ODEBOLT, Ia.**—The Eden Mutual Telephone Company has been incorporated with a capital stock of \$5,000. It is the purpose of the company to install and operate a telephone system. The incorporators are residents of Eden township, this county.

**LADNER, B. C., Can.**—The question of organizing a mutual telephone company in competition with the British Columbia Telephone Company, which will co-operate with the Farmers' Mutual Telephone Company of Lulu Island, is being agitated in Ladner.

**CARTHAGE, Mo.**—The farmers in this vicinity have organized an Independent Telephone Company. The officers of the company are as follows: President, Leslie Smith; secretary, Benjamin Jones; treasurer, Peter Wakefield; superintendent, Harry Waddell.

**HOLSTEIN, Ia.**—W. F. Hutton has organized a stock company for his telephone lines, to be known as the Advance Rural Telephone Company. He still retains the controlling interest and will manage

the lines. The officers of the company are: President, Anton Groner; vice-president, W. F. Hutton, Jr.; secretary and treasurer, W. F. Hutton, Sr.

**ABIE, Nebr.**—A new telephone company to be known as the Farmers' Telephone Company has been organized in Abie. It has an authorized capital stock of \$1,500 and the incorporators are as follows: J. J. Shonka, J. J. Matous, F. J. Roh, and Frank Marusak.

**DOUGLAS, Ariz.**—A company is being formed with a capital stock of \$25,000 to build a telephone line from Portal to Douglas. The officers of the company are as follows: President, W. C. Hogan; vice-president and manager, J. A. Landowski, of Douglas.

**BIG TIMBER, Mont.**—The Big Timber Telephone Company has been incorporated with a capital stock of \$10,000. The incorporators of the company are J. S. Haley of Livingston, and J. F. Asbury, H. O. Kellogg, J. G. McKay and W. A. Moore of Big Timber.

**INDIANAPOLIS, Ind.**—The Farmers' Co-operative Telephone Company has filed articles of incorporation with the secretary of state. The company has a capital stock of \$10,000 and it is the purpose to operate in Fulton, Marshall, Miami, Wabash, Kosciusko and Whitley counties.

**MAPLE GROVE, N. Y.**—An Independent telephone company has been formed at this place with the following officers: President, A. H. Wilson; vice-president, M. A. Platt; secretary, C. E. Pittsley; treasurer, H. A. Starr; directors, A. H. Tillson, Wm. Barber and F. E. Pittsley.

**CARRICO, Neb.**—Articles of incorporation of the Maywood and Carrico Telephone Company of Hayes county have been filed with the secretary of state. The company has a capital stock of \$1,500 and the officers are as follows: President, D. Teeters; secretary, F. P. Viens.

**OKARCHE, Okla.**—The Hoebing Telephone Company has been incorporated with a capital stock of \$6,000. The directors of the company are T. F. Hausem and J. W. Thiems of Calumet, and John Hoebing, Mat Weivel, G. D. Lovell, H. Frederick and Charles Thiems of Okarche.

**MARION, Mo.**—Farmers in this vicinity have organized a telephone company with the following officers: President, Leslie Smith; secretary, Ben Jones; treasurer, Peter Wakefield; superintendent, Harry Waddell. A constitution and by-laws have been drawn up and adopted.

**SEDALIA, Mo.**—An Independent telephone company to be known as the Sedalia, Warsaw & Southwestern Telephone Company, has been organized at this place with a capital stock of \$5,000. It is the purpose of the company to establish exchanges at Warsaw, Lincoln and Cole Camp.

**NEWBURGH, N. Y.**—The Newburgh Telephone Company has been incorporated with a capital stock of \$150,000. The incorporators of the company are as follows: Theodore M. Brush, Irving H. Griswold, Frederick H. Sudro, Elyria, O.; Howard Hendrickson, Albany, N. Y., and others.

**ALAMOGORDO, N. M.**—Articles of incorporation have been filed for the Sacramento Telephone Company, with a capital stock of \$10,000, of which \$2,000 has been paid in. The headquarters of the company will be Alamogordo and among those interested in the enterprise is J. L. Lawson, of this city.

**BURLINGTON, W. Va.**—The Burlington Telephone Company has been incorporated, with a capital stock of \$6,000. The incorporators of the company are as follows: Dr. F. L. Baker of Burlington, L. J. Forman of Petersburg, C. D. Bowman of Moorefield, G. P. Miller of Romney, and associates.

**CHARLESTON, W. Va.**—Articles of incorporation have been filed for the Longdale Independent Telephone Company with a capital stock of \$15,000. It is the purpose of the company to install a telephone system through the state. The incorporators of the company are C. B. Rickard and others.

**DAVIS, Ill.**—A certificate of the incorporation of the People's Mutual Telephone Company of Davis, issued by the secretary of state last April, has been placed on record in the recorder's office. J. W. Johnson, William Arnsmeier and Fred Alberstett are the incorporators and the capital stock is \$10,000.

**NEW BLOOMFIELD, Pa.**—Articles of incorporation will be filed for the Perry County Telephone Company, with headquarters at New Bloomfield. It is the purpose to construct lines to Blain, New Germantown, Ickesburg, via Centre and Kistler, Shermansdale and possibly to Dellville and Grier's Point.

**PORTLAND, Me.**—The Royal Phone and Record Manufacturing Company has been incorporated with a capital stock of \$1,000,000 to manufacture and deal in talking machines. The officers of the company are as follows: President, C. F. Perkins; treasurer, T. H. Gately, Jr.; clerk, C. E. Perkins, Portland.

**AMITY, Pa.**—The different telephone lines being operated in this section have been consolidated into one concern known as the Amwell Independent Telephone Company, with main offices at this place. The company is arranging to extend its lines. The

officers of the company are as follows: President, L. M. VanDyke; vice-president, C. L. Baker; secretary, Frank H. Condit; treasurer, T. M. VanDyke; directors, F. R. Baker, N. M. Ramsey, S. C. Luellen, Grant McCollum, and S. P. Thorp.

**SPOTTSYLVANIA, Va.**—The Spottsylvania Telephone Company has been incorporated, with a capital stock of \$10,000. The incorporators of the company are as follows: G. W. Perry, J. P. H. Crismond, T. A. Harris, T. W. Dew, W. B. Warren, C. R. Coleman, W. G. Dillard, N. L. Mills, A. H. Crismond.

**WATERLOO, Ia**—The Empire State Construction Company has filed articles of incorporation with a capital stock of \$250,000. The company is authorized to construct, equip, and operate railroads by steam or electricity; also to equip and operate telephone and telegraph lines in connection with any railroad.

**RENFREW, Pa.**—The Pennsylvania Telephone Company has been organized with the following directors: T. G. Kennedy, W. Marks, L. S. Reilly, Dr. Campbell, and F. T. Niggell. W. J. Burton is president of the company. It is the purpose of the company to construct a telephone line from Renfrew to Mars.

**FRANKFORT, Ky.**—The Carrs Fork Telephone Company, of Knott county has been incorporated with a capital stock of \$3,000. The incorporators are G. W. Kelly, Jr., James Stacey, Spencer Combs and Eli Hall, all of Knott county. The company proposes to construct lines in the counties of Knott, Letcher and Perry.

**DODGE CITY, Kan.**—The Arkansas Valley Telephone Company has been organized, with a capital stock of \$60,000. The company is composed of business men in central and western Kansas. The company's lines will connect towns along the Atchison, Topeka and Santa Fe as far west as Garden City, with eastern points.

**OKLAHOMA CITY, Okla.**—Articles of incorporation have been filed for the Edwards Telephone Company with an authorized capital stock of \$300,000. The directors of the company are as follows: Duncan G. Smith, J. R. Keaton, and M. R. Smith of Oklahoma City, and J. E. Woolbright and W. T. Perkins of Quanah.

**URBANA, Kan.**—A new telephone company has been organized in Centerville township for the purpose of building a rural line connecting with the Urbana exchange. Among those interested in the project are Harry Baldwin, Leo Smith, John Swank, Mark Swank, Charles Wians, Frank Ticknor, Charles Holzer, Charles Stipp and Ed Ticknor.

**DUBLIN, Tex.**—The Dublin Farmers' Rural Telephone Exchange has been incorporated with a capital stock of \$20,000 for the purpose of operating a telephone system in Erath, Hamilton, Comanche and Bosque counties. The incorporators are J. C. O'Brien, R. L. O'Brien, M. D. Gallagher, J. W. Higginbotham, Q. H. Humble and J. H. Tull.

**OSCEOLA, Ark.**—Amendments to the articles of incorporation of the Tri-State Telephone Company of Osceola have been filed changing the name of the Tri-State Telephone and Telegraph Company and increasing the capital stock of the company to \$120,000. The company proposes to erect a telegraph line from Memphis, Tenn., to Osceola.

**YAMPA, Colo.**—At a meeting recently held in this place it was decided to organize an Independent Telephone Company, to be known as the Routt County Mutual Telephone Company. It is expected that the new organization will take in all the mutual companies operating in the vicinity of Yampa, Huggins, Pinnacle, Dunkley, and Eddy, and possibly Hayden and Craig.

**FAIRMONT, Minn.**—Farmers in the vicinity of Iowa Lake have organized a company to be known as the Iowa Lake Telephone Company with the following officers: President, C. W. Watts; vice-president, Wm. Simpson; clerk, R. P. Livingston; treasurer, E. J. Edwards; directors, P. H. Fealey and G. L. Comstock. The lines will start at Iowa Lake and extend to Fairmont.

**GOSHEN, Ind.**—Incorporation papers for the Dunlaps Mutual Telephone Company are being prepared. It will be on a stock company basis and yet have features of a mutual association. The new company, which assumed charge November 1, has already increased the number of subscribers to 175, which number is expected to be increased to 300 by the end of the year.

**COOKS MILL, Ill.**—A mass meeting of the farmers residing northwest of this place was held recently and it was decided to build a mutual telephone line from this place connecting with a line from Arthur. A permanent organization was effected by the election of the following officers: President, Clifford Clark; secretary, Fred Hunt; trustees, W. E. Clark, J. W. Wright and Frank Ellison.

**CHENOA, Ill.**—At a called meeting held in Chenoa by representatives of independent telephone companies, a new organization was formed, to be known as the Free Service Association and the following officers were elected: President, Clinton Elder of Lexington; vice-president, E. Hoobler of Gridley; secretary and treasurer, Mr. Arnold of Colfax. Thomas Boyd of Chenoa, and Charles Monk of Fairbury, will act with the above officers as a committee to have charge of the entire business of the association. The companies

who have joined the new organizations are: Prairie Hill, South Chenoa, Weston, Fairbury, Cooksville, Meadows, Gridley, Fifer and Hudson. Meetings will be held semi-annually.

**GUTHRIE, Okla.**—The Eldorado Telephone Company of Oklahoma City, Tulsa, El Dorado and Quanah, Tex., has been incorporated, with a capital stock of \$3,000, to build and acquire telephone lines in Oklahoma and Texas. The incorporators of the company are as follows: Duncan G. Smith, J. R. Keaton and M. R. Smith of Oklahoma City; J. F. Woolbright and W. T. Perkins of Quanah.

**NEODESHA, Kan.**—A new country telephone line south of this place has just begun operation. The company is known as the Verdigris Valley Telephone Company and has the following officers: President, E. G. Miller; vice-president, L. B. Hutchins; secretary, William Basore; treasurer, Tom Tazen; directors, C. E. Kerwin, W. S. Gray, and Peter Beurskin. The line is connected with the exchange in this place.

**MOAB, Utah**—The Blue Mound Telephone and Electrical Company, formed to do a general telephone and telegraph business in Utah and Colorado, has filed articles of incorporation with the secretary of state with a capital stock of \$10,000. The officers of the company are as follows: President, D. Goudelock; vice-president, J. M. Cunningham; treasurer, V. P. Martin; secretary and manager, J. N. Corbin.

**KEYSVILLE, Va.**—The Ontario Telephone Company has been organized to build a line from Keysville to the surrounding counties, with long distance connections. The officers of the company are as follows: President, Major J. W. Morton; vice-president, W. E. Hailey; secretary, treasurer, and general manager, P. H. Dodson. Directors, C. A. Osborne, C. M. Hailey, Walter Williams, Samuel Bentley, and John Keeling.

**LONE ELM, Kan.**—The farmers' mutual telephone lines at Lone Elm recently held a meeting and three out of the five lines decided to incorporate, while the other two will continue to operate on the mutual plan, and will extend their lines to Colony. The service on the mutual lines has not proven satisfactory, it being found that an initial investment of \$30,000 and no provision for maintenance would not give good service.

**RICHMONDVILLE, N. Y.**—The Richmondville, Seward and Sharon Telephone Company has been incorporated to build and maintain lines extending from Richmondville to Hyndsville, Warnerville, Seward, and Sharon Springs. The capital stock of the company is \$3,000, divided into shares of \$10 each. The directors of the company are O. R. Mann, A. D. Frazier, J. D. Holmes, and I. J. Harrington, all of Richmondville.

**LEXINGTON, Ill.**—Representatives of a number of telephone companies operating in this vicinity recently met in this place and organized the Central Illinois Free Service Telephone Association. Messrs. Chas. E. Monk, of Fairbury; Jo. Arnold of Cooksville, and Thomas Boyd of South Chenoa were appointed a committee to draft by-laws for the association. The association is formed for the mutual benefit of the companies concerned.

**DOVER, Dela.**—Articles of incorporation have been filed by the Diamond State Company of Jersey City. The company will carry on, promote and maintain telephone and telegraph lines in New Jersey, Delaware, Pennsylvania and elsewhere. The capital stock is \$5,000,000 and the incorporators are Charles Schlegle, Arthur Robertson, J. Valentine Forster and James Ross of Jersey City, N. J., and W. L. Missmer of Wilmington, Dela.

**GRANTFORK, Ill.**—A new telephone company to be known as the Saline Rural Telephone Company has been organized at this place. It is the purpose of the company to build lines in all directions for a distance of from three to five miles. The following officers were elected: President, John Schwarz; vice-president, Jul Reinhardt; secretary, H. L. Bell; treasurer, J. L. Schwarz; directors, Henry Schrupf, John Leef, Aug. Determan and Jul Reinhardt.

**CHECOTAH, I. T.**—A new telephone company to be known as the Canadian Telephone Company has been organized at this place and the following officers elected: President, R. H. Berry of Checotah; vice-president, S. J. Logan, Brush Hill; treasurer, Dr. George McGuire, Checotah; manager, Golden Berry, Brush Hill; secretary, H. K. Shepard, Brush Hill. Lines will be built at once between Checotah and Brush Hill and later to many other points.

**ALBANY, N. Y.**—The Aero Telegraph and Telephone Company of New York has been chartered by the state department to build and maintain lines from Trenton, N. J., to New York City, to Montauk Point on Long Island and generally in the boroughs of Manhattan, Brooklyn, Queens, the Bronx and Richmond. The capital stock is \$50,000, consisting of shares of \$100 each. The directors of the company are L. H. Gunther of Brooklyn, J. D. Baker of Yonkers and E. B. Howard and B. S. Mantz of New York City.

**OTTAWA, Ont.**—Application will be made to parliament at the present meeting for an act incorporating the Bonaventure and Gaspé Telephone Company, Limited, with power to construct, maintain, acquire and operate lines of electric telephone and telegraph in the provinces of Quebec and New Brunswick, operate branch lines

of its telephone and telegraph lines, acquire machinery and plant required for such works, acquire, manufacture, lease poles, cables, wires and conduits, establish offices and do all and everything in connection with the said business, and other powers.

**HARRISBURG, Pa.**—The American Union Telephone Company, a consolidation of nearly all the Independent Telephone Companies in Pennsylvania, Southern New York, Maryland, Virginia and West Virginia was permanently organized at a recent meeting of the Board of Directors in Harrisburg. The officers are as follows: President, Ellis Orvis, of Bellefonte; vice-president, B. F. Meyers, of Harrisburg; secretary and treasurer, S. R. Caldwell; general solicitor, Lyman D. Gilbert; assistant solicitor, C. M. Clement, Sunbury; member of executive committee, George W. Reily; general manager, F. D. Houck.

**St. PAUL, Minn.**—Articles of incorporation have been filed for the Monson Automatic Telephone Company, with a capital stock of \$500,000. The incorporators of the company are as follows: Harry Dranger, G. P. Sandberg, J. M. Anderson, L. Rosness, Adolph Johnson, H. E. Wolkow, all of St. Paul; and A. E. Monson and J. G. Allen of Minneapolis. The officers of the company are: President and treasurer, J. M. Anderson; vice-president, G. P. Sandberg; secretary, L. Rosness. The principal place of business will be St. Paul, although the company is at liberty to maintain offices and places of business in other cities throughout the state.

**CRIPPLE CREEK, Colo.**—Articles of incorporation will be filed for the Crescent Telephone Company with a capitalization of \$5,000. The incorporators and directors of the company are: President, James D. Husted; vice-president, secretary and treasurer, Raymond Husted; general superintendent, Joseph G. Long. The company proposes to construct and operate a telephone line between Cripple Creek, Divide and Florissant, and eventually to reach out to points in Douglas, Park and Jefferson counties. The immediate object of the company is to give service to ranches and more especially to the stations of the Crescent Cattle Company in the places named.

**PALMYRA, Ind.**—With a view to operating telephone exchanges in several counties in southern Indiana, the Farmers' Metropolitan Telephone Company has been organized with headquarters at Palmyra. It is proposed to operate exchanges in Floyd, Clark, Washington, Harrison, Crawford, and Orange counties. The following officers have been elected: President, Clarence Quibbeman; secretary, James Rector; treasurer, Fred Haub; directors, A. N. Wolfe and Samuel Hendricks. A company is also being organized in Washington township, Harrison county, to operate local telephone lines. At a preliminary meeting the following officers were elected: President, Harvey Kendall; secretary, Dr. J. H. Reader; treasurer, A. M. Kemper.

#### ELECTIONS AND MEETINGS

**MT. STERLING, Ill.**—The Elkhorn Central Telephone Company has elected Mr. M. L. Sandige president, secretary, and treasurer.

**WHEELING, W. Va.**—Announcement is made that the West Virginia Independent Telephone Association meeting will be held in Wheeling early in March.

**VINTON, Ia.**—The Baer Creek Telephone Company has elected the following officers: President, John Meggers; secretary, J. M. McKee; treasurer, Elmer Nahloz.

**HENNIKER, N. H.**—At the annual meeting of the Henniker Telephone Company the old board of officers was elected. The company was found to be in good condition.

**BLOOMINGVILLE, O.**—The Bloomingville Telephone Company has elected the following officers: President, F. P. Schnee; manager, H. F. Byington; secretary, J. V. Ramsdell.

**WEST HOPE, O.**—The Citizens' Mutual Telephone Company has re-elected the following officers: President, August Hoopes; secretary, Worline Winner; treasurer, Henry Andrix.

**WATERFORD, Ont.**—The Norfolk County Telephone Company, recently organized, has elected the following directors: S. L. Squire, P. G. Pearce, Waterford; H. Bartholomew.

**CORONA, Cal.**—The Home Telephone & Telegraph Company has elected the following directors: A. C. Wood, S. S. Willard, John P. Triolo, D. M. Browning, R. F. Billings, J. C. Gleason.

**SULPHUR SPRINGS, Ind.**—The Sulphur Springs Co-operative Telephone Company has elected the following officers: President, Mark Modlin; secretary, Luther Shively; treasurer, Jas. Ball.

**BRYAN, O.**—At the annual meeting of the stockholders of the Bryan Telephone Company the following directors were elected for the ensuing year: J. A. Devore, E. B. Willett, C. S. Roe.

**MIDDLETOWN, Ill.**—The Middletown Mutual Telephone Company has elected the following officers: Gilbert Gunsten, H. A. Binns, Middletown; Wm. Behrens, Greenview; L. Deaton, Middletown.

**KALONA, Ia.**—The Kalona Switchboard Association has re-elected its old officers for the coming year. The financial condition of the company was found to be better than at any previous time.

**GALESBURG, Ill.**—The stockholders of the Galesburg Union Telephone Company recently held their annual meeting in this city

and the old directors were re-elected as follows: B. F. Arnold, W. E. Phillips, G. L. Price, Neis M. Burgland, D. L. Peterson, E. P. Robson and W. E. Terry.

**SEYMOUR, Ia.**—At the annual meeting of the Farmers' Mutual Telephone Company the following officers were elected: President, J. C. Phillips; secretary, Byron Hoscher; treasurer, Samuel Bonner.

**GUYSVILLE, O.**—The Guysville Telephone Company has elected officers as follows: President, Isaac Brewer; vice-president, Lewis Finsterwald; secretary, A. B. Sounders; treasurer, John F. Starkey.

**YARMOUTH, Ia.**—The Farmers' Mutual Telephone Company has elected the following officers: President, Dr. Mathias; vice-president, Frank Smith; secretary, C. A. Thompson; treasurer, L. Koerner.

**VERONA, Mo.**—The Lawrence County Telephone Company has elected officers as follows: President, L. W. Allen; vice-president, R. L. Matthews; secretary, W. T. Troughton; treasurer, C. A. McCause.

**READING, Mich.**—At the annual meeting of the Reading Telephone Company the following directors were elected: R. E. Bailey, Henry Schultz, O. E. Quackenbush, Elmer Van Sickle, and William Sell.

**LUSK, Wyo.**—The Rawhide Telephone Company recently held its annual meeting at this place and elected officers for the coming year. It was found that the affairs of the company were in excellent condition.

**LEXINGTON, Ill.**—At the annual meeting of the stockholders of the Prairie Hall Telephone Company the following were elected directors for a term of three years: G. C. Elder, G. W. Bishop and Robert Vaughn.

**WILKINSON, Ind.**—The Wilkinson Telephone Switchboard Company has elected the following officers: President, Dr. A. M. Benjamin; vice-president, John Power; secretary, H. Welborn; treasurer, George W. Sourwine.

**DANVILLE, Ill.**—At a recent meeting of the Vermillion County Telephone Company the following officers were elected: President and general manager, J. H. Davis; secretary, G. M. McDowell; treasurer, L. D. Gass.

**SHERMAN, Tex.**—The North Texas Telephone Company of this place has elected the following officers for the ensuing year: President, S. W. Porter; vice-president, Dr. S. D. Donoho; secretary and manager, C. A. Shock.

**LA GRANGE, Ind.**—The Northern Indiana & Southern Michigan Telephone, Telegraph & Cable Company has elected the following directors: A. J. Hostetler, C. B. Sears, M. L. Johnston, A. H. Ellison and H. H. Smith.

**ADAZA, Ia.**—The Northwestern Mutual Telephone Company recently held its annual meeting and elected officers as follows: President, I. Connor; vice-president, J. Siemann; secretary, J. Gaffney; treasurer, J. Pulley.

**FREETOWN, Ind.**—The Freetown Telephone Company has elected officers as follows: President, C. R. Mann; vice-president, Calvin Bowman; secretary, Walter Harbaugh; treasurer, Albert DeLong; superintendent, H. H. Tinch.

**DALLAS CITY, Ill.**—The stockholders of the County Line Telephone Company have elected the following officers: President, T. H. B. Walker; secretary-treasurer, Phil H. Farren; directors, O. H. Burr, E. F. Noland, J. G. Lung.

**STUTTGART, Ark.**—The Arkansas Mutual Telephone Company recently held its annual meeting and elected the following officers: President, I. Thacker; vice-president, Robert Blohm; secretary, R. G. Harper; treasurer, J. C. Jackson.

**WILLIAMSTOWN, Mich.**—The Stockbridge-Vantown Telephone Company held its annual meeting at Milville recently and elected the following officers: President, Chas. Lowe; secretary, Chas. Atwood; treasurer, Harvey Haynes.

**PONTIAC, Ill.**—The Pontiac Telephone Association held its annual election in this city and elected the following officers: President, Oliver Buland; treasurer, Charles Quaife; trustees, Gunder Mitchell, B. Peterson, Charles Collins.

**WESTON, Ill.**—The Weston Telephone System held its annual meeting and elected the following officers for the ensuing year: President, Edwin Brady; secretary and treasurer, C. E. Graves; directors, R. P. Cooper and O. O. Dillon.

**UTICA, N. Y.**—The stockholders of the Utica Home Telephone Company have elected the following directors: E. B. Odell, H. F. Miller, T. H. Ferris, E. L. Barber, George R. Fuller, W. I. Taber, F. W. Zoller, J. C. Woodbury, C. H. Poole.

**EAU CLAIRE, Wis.**—At a recent meeting of the Eau Claire County Telephone Company the following officers were elected: President, E. E. Tobey, Union; vice president, Walter Hobbs, Union; secretary and treasurer, C. W. Cheney, Eau Claire.

**JOHNSTOWN, Pa.**—The Salix Telephone Company has changed its name to the Windber Telephone Company. The following officers have been elected: President, Charles R. Glock, Johnstown; vice president, H. A. Kinney, Windber; treasurer, G. A. Smith, Wind-

ber; manager, R. L. Sproat, Windber; directors, C. R. Glock, C. W. Hoyer, M. P. Boyle, W. R. Foster, Johnstown; J. D. Shaffer, G. A. Smith, H. A. Kinkard, and W. L. Heisel of Windber.

**HUTSONVILLE, Ill.**—At a meeting of the board of directors of the Hutsonville Telephone Company the following officers were elected: President, Dr. C. D. Ryerson; vice president, Dr. C. H. Voorheis; secretary, A. C. Musgrave; treasurer, M. P. Rackerby.

**NORTHWOOD, Ia.**—The directors of the Northwood Telephone Company have elected the following officers for the ensuing year: President, O. V. Eckert; vice-president, C. H. Beckett; treasurer, R. P. Johnson; secretary and manager, W. A. Willing.

**HIGHLAND, Mich.**—The Highland Rural Telephone Company held its annual meeting recently and elected the following officers for the coming year: President, W. S. Seaver; vice-president, H. Gaunt; secretary, Fred Skinner; treasurer, Geo. Potts.

**BRIGHTON, Ill.**—The Brighton Mutual Telephone Company has elected the following officers: President, Charles P. Long; vice-president, John C. Heyer; treasurer, Dr. Ash; secretary, Nellie Flanagan. The company adopted a new set of by-laws.

**MIDDLETON, Idaho.**—The Star Independent Telephone Company has elected the following officers: President and general manager, J. S. Clark; secretary, L. B. Wehr; treasurer, S. S. Foote; directors, Jacob Alchenberger and Ray Blessener.

**HARDY, Ark.**—At a recent meeting the stockholders of the Spring River Telephone Company declared a dividend of 10 per cent and elected the following officers: President, Walter Clayton; secretary and general manager, C. C. Price; treasurer, A. M. Metcalf.

**AURORA, Ill.**—The Rural Telephone Company has elected the following officers: President, E. R. Thomas; vice-president, George Harrison; secretary, William Halstead; treasurer, O. A. Getchell; directors, Robert Attridge, O. A. Getchell, and George Harrison.

**ELK MOUND, Wis.**—The Elk Mound Telephone Company has elected the following officers: President, J. C. Smith; secretary and treasurer, O. J. Garton; directors, J. C. Smith, O. J. Garton, S. Repine, John Shannon, E. C. Mason, O. House and S. C. Langdell.

**CROTON, O.**—The Hartford Telephone Company, recently incorporated, has elected the following officers: President, Wm. E. Hatfield; vice-president, Jason Potter; secretary, H. D. Willison; treasurer, R. B. Stumph; directors, the above officers and J. G. Case.

**ROME, N. Y.**—At a meeting of the stockholders and directors of the Wire and Telephone Company of America the following officers were elected: President, Oliver Shiras; vice-presidents, F. M. Potter, Jr., and S. C. Houghton; secretary and treasurer, H. T. Dyatt.

**MT. CORY, O.**—The Farmers' Mutual Telephone Company has elected the following officers: President, W. A. Williamson; vice-president, Scott Whistler; secretary, C. J. Folk; treasurer, A. C. Ewing; trustees, G. F. Steinger, Robt. Bowersox, and U. B. Moyer.

**INDUSTRY, Ill.**—The Industry Mutual Telephone Association has elected the following directors: Ed Jones, F. L. Lawyer, Fred Rexroat, Charles R. Lownes, F. P. Updegraff, Alvin Chadderdon, D. H. Payne, Albert Glass, J. P. Young. It was voted to incorporate.

**HARMON, Ill.**—The directors of the Green River Telephone Company have elected the following officers for the coming year: President, Elmer Cotton; vice-president, Wm. E. Hopkins; secretary, Benj. F. Swab; treasurer and general manager, Wm. H. Kugler.

**JOHNSTOWN, Pa.**—The Johnstown Telephone Company has re-elected its old board of directors, consisting of the following: Charles Griffith, P. F. McAneny, C. J. Mayer, H. H. Weaver, P. S. Fisher, John Emmerling, Dr. J. S. Lowman, W. H. Smith, J. P. Thomas.

**GRIDLEY, Ill.**—The heads of the different telephone companies of the northwest part of the county held a meeting at Gridley recently and elected the following officers: President, J. W. Kirkton; secretary, Alex Helbing; treasurer, C. M. Coyle; manager, Ward Hiserodt.

**HUNLOCK'S CREEK, Pa.**—The stockholders of the Farmers' Telephone and Supply Company at its annual meeting elected the following officers for the ensuing year: President, Dr. C. A. Long; vice-president, M. W. Brittain; secretary, R. H. Shaw; treasurer, W. Garrison.

**AKRON, O.**—The annual meeting of the stockholders of the Akron People's Telephone Company was held in this city recently and the following directors were re-elected: Will Christy, H. E. Camp, C. W. De Voe, J. R. Nutt, R. S. Iredell, William Clerkin and W. F. Laubach.

**JOSLIN, Ill.**—The Crescent Telephone Company has elected the following officers for the coming year: President, W. H. Whiteside, Joslin; vice-president, Leslie Hanna, Joslin; secretary, A. A. Matthews, Erie; treasurer, E. O. Hansen, Hillsdale; directors, James Dillon, Canoe Creek; Wm. Farber, Port Byron; Wm. Ziegler, Hampton; Wm. Slaymaker, Newton; Jere Pearsall, Coe; John

Dailey, Zuma. The stockholders decided to abandon the exchange system entered into with the Central Union Telephone Company, which went into effect a few months ago. The raise in rates by the latter company is said to be the reason for this step.

**PALMER, Ia.**—The Pomeroy-Palmer Mutual Telephone Company has re-elected its old directors for the coming year. The company now has 150 telephones in service and some new farm lines will be added in the spring. The matter of improvements has been left to the board of directors.

**HAZELGREEN, W. Va.**—The Ritchie County Telephone Company which has changed its name to the Progressive Telephone Company and has been incorporated, has elected the following directors: M. L. Law, H. H. Goff, P. J. Fling, J. C. Bush, L. S. Vannoy, J. W. Goff and T. L. Hartman.

**MONROEVILLE, Ind.**—The election of the Monroeville Home Telephone Company resulted in the election of the following officers: President, S. E. Mentzer; vice-president, Joseph Clem; secretary and treasurer, G. E. Spake; directors, the above officers and J. E. Whitney and John Driver.

**KALONA, Iowa.**—At the regular annual meeting of the Kalona Mutual Telephone Company the following officers were elected: President, Wm. Hesselschwerdt; secretary, J. L. Shilling; treasurer, Levi Troyer; directors, J. M. Bonham, Bert Britton, W. W. Jones and David Flexner.

**ROME, N. Y.**—The Rome Home Telephone Company recently held its annual meeting at this place and directors were elected as follows for the ensuing year: John S. Wardwell, Daniel M. Hall, William J. Grogan, Charles H. Poole, John E. Mason, George R. Fuller and Frederick Zoller.

**EMDEN, Ill.**—The annual meeting of the representatives of the various farmers' telephone lines centering at Emden was held recently and the following officers re-elected: President, Thomas Perry; secretary, William Zimmerman. Reports showed the different lines to be in good condition.

**BINGHAMTON, N. Y.**—The Delaware Valley Telephone Company has elected the following officers: President, C. B. Teed, Trout Creek; vice-president, E. E. Crane, Sanford; secretary, Le Roy McCulley, Nineveh; assistant secretary, A. I. Colvington, Afton; treasurer, J. W. Smith, North Sanford.

**KENNEDY, N. Y.**—The Chataqua Telephone & Telegraph Company has elected the following officers: President, G. W. Appleby; vice-president, secretary and treasurer, A. H. Appleby; directors, G. W. Appleby, A. H. Appleby, Thomas Crane, J. H. Wright, D. D. Dorn, A. J. Peterson and F. J. Davis.

**BROWNSVILLE, Ind.**—The Brownsville Telephone Company has elected the following officers: President, George Job; vice-president, H. L. Maher; secretary and treasurer, O. C. Brown; directors, J. L. Maher, C. A. Brown, Geo. Ridge, Lee Keller, A. J. Bond, Albert Wadsworth, W. H. Hawkins.

**BURR OAK, Mich.**—The Southern Michigan Telephone Company held its annual meeting at this place recently and the old board of directors was re-elected by unanimous vote, consisting of A. C. Himebaugh, Chas. A. Sturgis, R. L. Himebaugh, T. A. Hilton, Geo. S. Sheffield and R. C. Himebaugh.

**MEDIAPOLIS, Ia.**—The annual meeting of the Mediapolis Mutual Telephone Company was held in this city recently and the old officers were re-elected as follows: President, Henry Breder; vice-president, Herman Walker; secretary, John L. Jones; treasurer, David J. Kelly; manager, Amos Bolick.

**NEMAH, Nebr.**—The Farmers' and Merchants' Telephone Company, recently incorporated with a capital stock of \$25,000, has elected the following directors: M. W. Knapp, William Maxwell, John Crother, Henry Seid, Rufus Rowen, J. I. Weber, W. W. Seid, Earl Gilbert, J. E. Crother and others.

**LE MARS, Ia.**—The Plymouth County Telephone Company has elected the following officers: President, A. C. Colledge; vice-president, F. A. Post; secretary and treasurer, O. L. Loudenslager; superintendent, C. F. Lettow; directors, A. C. Colledge, F. A. Post, E. A. Datlon, I. S. Mahan, O. L. Loudenslager.

**LESLIE, Mich.**—The Leslie and Onondaga Telephone Company held its annual meeting recently at which time officers were elected as follows: President, H. Baldwin; vice-president, A. De Laur; secretary and treasurer, Fred C. Baldwin; directors, Frank Younglove, Rob Lyon, A. DeLong, J. Featherly, W. B. Butler.

**COOPERSTOWN, N. Y.**—The Delaware and Otsego Independent Toll Company, recently incorporated with a capital stock of \$15,000, has elected the following directors: Harvey F. Ferris, H. T. Harrison and Delia D. Harrison of Utica and H. D. Arbuttle, F. A. Ward, L. O. Millard and Ralph P. Stoddard of Oneonto.

**BYGLAND, Minn.**—The Byglund Telephone Company recently held its annual meeting and elected the following officers: President, Andy Grundyson; vice president, Oscar Wick; secretary, Ludwig Olson; treasurer, George Olson; directors, Gunder Nomland, T. A. Tarkelson, Asmund Asmundson, Joseph Crary.

**BUFFALO GAP, S. D.**—At the annual meeting of the Cheyenne River Telephone Company the following officers were elected:



President, Wood Smith; vice-president, T. B. Miller; secretary, N. B. Streeter; treasurer, W. M. Smith; directors, Tom Wilson, Chas. Peterson, Chas. Baker, Lon Ayers, Sam Garlock, A. A. Haaser.

**SPENCER, Ia.**—The Northern Rural Telephone Company has elected officers as follows: President, Harry Heikens; vice-president, B. D. Dunning; secretary, G. W. Greaves; treasurer, L. B. Peeso; superintendent, E. C. Starke; directors, J. T. Goldsworthy, L. C. Anderson, J. C. Johnston, J. L. Berkholder, Fred James and M. Doty.

**Mt. CARMEL, Ill.**—At the annual meeting of the stockholders of the Wabash County Mutual Telephone Association the following directors were elected: William Schrodtt, Jacob Leibold and John Hockgeiger. The lines will be put in first-class condition and it is probable that a new line giving connection with Keensburg will be built soon.

**CHIPPEWA FALLS, Wis.**—The Chippewa County Telephone Company has elected the following officers: President, Lem Richardson, Eagle Point; vice-president, Joseph Maloney, Bloomer; secretary and manager, H. V. Bartlett, Eagle Point; treasurer, Charles H. Liehe, Eagleton; directors, S. B. Nimmons, S. Fletcher, and A. J. Edminster.

**CENTERVILLE, S. D.**—The stockholders of the new Centerville Telephone Company have completed its organization by the election of the following officers: President, W. E. Ege; vice-president, A. J. Struble; secretary and treasurer, James Mee; directors, the above officers and Chas. Prinslow, W. J. Henrich, Marvid Carlson, Fred Krause.

**KANSAS CITY, Mo.**—The stockholders of the Home Telephone Company have re-elected the following directors for the coming year: J. J. Heim, Hugh C. Ward, O. C. Snider, Edward George, J. J. Swofford, W. S. Dickey, Kansas City; E. L. Barber, Wauseon, O.; Max Koehler, Henry Kochler, Jr., Lee Benoist, A. W. Lambert, St. Louis.

**KELLOGG, Ia.**—At the annual meeting of the Kellogg Mutual Telephone Company the following officers were re-elected for the ensuing year: President, Fred Lemke; vice-president, C. T. Powers; treasurer, C. J. Irish; secretary, R. C. Birchard; trustees, James Powers, E. J. Birchard and C. E. Powers; directors, C. J. Irish and W. P. Coutts.

**LADORA, Ia.**—At a meeting of the stockholders of the Iowa County Mutual Telephone Company the following officers were elected for the ensuing year: President, H. M. Rathjen; vice president, R. A. Rosenberger; secretary, W. H. Whitehill; treasurer, H. C. Gates; directors, Peter Schafbuch, Frank Grimes, and Dennis Sullivan.

**ROCKFIELD, Ind.**—The annual meeting of the Rockfield Co-operative Telephone Company was held recently and the following officers were elected for the ensuing year: President, John Kerlin; vice-president, A. L. Surface; secretary, P. W. VanGundy; general manager, Thomas Robinson; trustees, Samuel Clauser, C. L. Million and A. M. Rankin.

**LOS ANGELES, Calif.**—The California Independent Telephone Association recently held its regular business meeting and a banquet in this city. The officers of the association are as follows: President F. L. Swaine, Los Angeles; vice-president, Louis Blankenhorn, Los Angeles; secretary, A. L. Orton, Pasadena; treasurer, W. L. Frew, Compton.

**WARREN, N. H.**—The Baker's River Telephone Company held its annual meeting in this city and elected the following officers for the ensuing year: President and manager, Fred C. Gleason; treasurer, Chester B. Averill; clerk, George M. Williams; directors, Fred C. Gleason, Warren; James B. Brown, Wentworth; George C. Craig, Rumney; James H. Williams, Edward D. Cotton, Warren.

**FRANKFORT, N. Y.**—At the annual meeting of the Litchfield, Frankfort Hill and Norwich Corners Telephone Company officers were elected as follows: President, Merritt F. Joslin; vice-president, Pliny Lints; secretary and treasurer, A. L. Budlong. An agreement has been made with the officials of the Home Telephone Company to connect the local line with the county line at the central office in this village.

**TRUMANSBURG, N. Y.**—The Trumansburg Citizens' Telephone Company recently organized has elected the following officers. President, R. J. Hunt; vice-president, W. A. Garvey; secretary, S. E. Ormsbee; treasurer, L. J. Wheeler. It is the purpose of the company to construct lines in Trumansburg, Mecklenburg, Reynoldsville, Jacksonville, Searsburg and Covert.

**ALPENA, Mich.**—The annual meeting of the Alpena Mutual Benefit Telephone Company was held in this city recently and the following officers elected for the ensuing year: President, C. H. Reynolds; secretary, J. H. Kerr; treasurer, W. H. Johnson; directors, W. H. Johnson, W. A. Constock, C. H. McKim, J. J. Potter, C. H. Reynolds, J. H. Kerr and John Monaghan.

**HARMON, Ill.**—The stockholders of the new Green River Telephone Company have elected the following directors: Elmer Cotten and Wilber Gatchel for one year, G. F. Brooks and Wm. E. Hopkins

for two years, and W. H. Kugler and H. J. Durr for three years. Officers will be elected later. The stockholders of the old company have executed a bill of sale to the new corporation.

**RED LODGE, Mont.**—The annual meeting of the stockholders of the Fishtail and Red Lodge Telephone Company was held in this city recently and resulted in the election of Herman Kuhl, Swan Youngstrom, William Dell, James M. Burnett and Jonathan Hayworth as a board of directors for the coming year. The work of constructing the line is being pushed as rapidly as possible.

**BLOOMFIELD, Ia.**—The stockholders of the Citizens' Mutual Telephone Company and the connecting lines held their annual meeting in this place recently and elected the following directors: N. S. Johnson, N. E. Merry, H. C. Leach, C. E. Young, S. S. Standley, C. C. McAvoy, J. T. Kline and L. C. Warthen. Officers will be elected later. The system has over 480 telephones in service.

**DAVIS, Ill.**—The annual meeting of the People's Mutual Telephone Company was recently held in this city and the old directors were re-elected. It was voted to charge 50 cents a month rent on telephones of the stockholders, to be used in wiping out the debt, when the rent will not be charged, and the line will then be self-supporting as the annual rentals will amount to over \$1,200 a year.

**MERCER, Me.**—The People's Telephone Company of this place has elected the following officers: President, C. K. Allen; vice-president, A. M. Pattee; clerk, F. A. Cutting; treasurer, N. E. True; directors, David Tracy, J. H. Jones, George Gray, Alfred Watson; auditor, A. M. Pattee. The Franklin Farmers' Co-operative Telephone Company will probably unite with the People's Telephone Company.

**KINCAID, Kans.**—At the annual meeting of the Eastern Kansas Telephone Company the following officers were elected for the coming year: President, J. W. Garrison; vice-president, A. P. Caldwell; secretary and general manager, R. L. Fraser; treasurer, J. M. McCaslin. The price of stock remaining unsold was increased from \$25 to \$35. The company contemplates making extensions and improvements during the coming season.

**LOGANSPORT, Ind.**—The directors of the New Telephone Company have elected the following officers for the ensuing year: President, Geo. Seybold; vice-president, J. F. Digan; secretary, Walter Uhl; treasurer, M. A. Jordan. The directors found the company in a more prosperous condition than in any previous year of its history, it is stated, with excellent connections and increasing prospects for local and long distance business.

**SWEETSER, Ind.**—The annual meeting of the stockholders of the Sweetser Telephone Company was held on the 15th inst. for the purpose of electing new officers and discussing plans for the coming year. A number of the best known citizens of Sweetser and vicinity are members of the company, which has been a success since it was first organized a few years ago. The company started with a small list of subscribers, but at present has nearly 400.

**CAIRO, Ill.**—The stockholders of the Thebes and Cairo Telephone Company have completed its organization by the election of the following officers: President, W. W. Wilbourn of Olive Branch; vice president, John L. Bowers of Willard; treasurer, C. E. Miller of Willard; secretary, John S. Norman of Thebes. Directors, B. F. Brown, John S. Norman, D. C. P. Spann of Thebes; C. E. Miller, W. S. Cavendar, John Bowers of Willard; W. W. Wilbourn, W. P. Daggett and C. O. Patier.

**GOSHEN, Ind.**—The stockholders of the Home Telephone Company of Elkhart county held their annual meeting at Elkhart recently and elected the following officers: President, Dr. I. W. Short; vice-president, James A. Arthur; treasurer, H. B. Sykes; secretary and general manager, W. L. Shoots; directors, Dr. I. W. Short, H. B. Sykes, E. D. Zeisel, Wilson Roose, and J. B. Pollard, of Elkhart; and P. R. Judkins, W. C. Peters, Chas. W. Miller, and James A. Arthur, of Goshen.

**CHELSEA, Vt.**—At the annual meeting of the Orange County Telephone Company the following officers were elected for the ensuing year: President, G. R. Andrews of Northfield; vice-president, E. H. Kennedy of Chelsea; secretary and treasurer, R. H. Williams of Corinth; directors, R. H. Williams and Dr. E. E. Ellis of Brookfield, C. S. Booth of Randolph, C. N. Barber of Barre, W. C. Daniels of Woodbury, C. W. Lathrop of Williamstown, A. L. Patterson of Washington, and C. C. Coval of Berlin.

**LEWIS, Kans.**—At a meeting of the Edwards County Mutual Telephone Company the following officers were elected for the coming year: President, D. D. Thompson; vice-president, E. T. Fox; secretary, E. M. Johnson; treasurer, Chas. Sturdevant; directors, E. M. Johnson, A. Gatterman, T. J. Weese, U. G. Leslie, Dan. White, F. Hardey, H. F. Fell, O. M. Hager, J. W. Bridges, D. D. Thompson, J. H. Norris. The financial report showed the company to be in a prosperous condition.

**HANSELL, Ia.**—The Ingham Township Telephone Company held its annual meeting at this place recently and elected officers as follows: President, J. V. Blackford; vice-president, William Held; secretary and treasurer, T. L. Wells; directors, A. C. Wolf, N. B. Claypool, Jr., William Anderson, A. D. Allen and W. N. Titus.

The lines of the company will connect with the Central Iowa Telephone Company at Hampton as heretofore, although an effort was made to get the company to connect with the Bell lines.

**SIoux Crry, Ia.**—The annual convention of the Iowa Independent Telephone Association will be held in this city March 12, 13 and 14. About six hundred owners, managers and officers of independent telephone companies in Iowa, South Dakota, Nebraska and Minnesota are expected to be present, and the most important session in the history of the association is anticipated. Invitations have been extended to the associations of South Dakota, Nebraska and Minnesota, and assurance of large attendance from each state has been received.

**BRADFORD, Vt.**—The second annual meeting and banquet of the Vermont & New Hampshire Independent Telephone Association was held in this city recently. The following officers were elected for the coming year: President, H. W. Buchanan, Barton Landing; vice-president, O. L. Eastman, Woodsville, N. H.; secretary and treasurer, G. W. Buzzell, St. Johnsbury; executive committee, H. W. Buchanan, G. W. Buzzell, O. D. Eastman, Fred G. Gleason, Warren, N. H.; D. L. McGuire, Albany, Vt. The association represents over 30,000 subscribers in the territory.

**BOISE, Idaho.**—The regular annual meeting of the stockholders of the Independent Long Distance Telephone Company, Ltd., was appointed for the 14th inst. for the purpose of electing nine directors and voting on the following propositions: A proposition to increase the common stock of the company in the sum of \$750,000, increasing the same to the par value of \$1,000,000; a proposition to diminish the preferred stock of said corporation in the sum of \$250,000, said proposed decrease being an entire withdrawal and cancellation of the preferred stock of this corporation.

**KENESAW, Neb.**—The stockholders of the Kenesaw Independent Telephone Company held its annual meeting at this place. A dividend of 8 per cent was declared on last year's business. This company has in the past year greatly extended its system and has built toll lines connecting with all the surrounding towns. Copper toll lines are now being built to take care of the long distance business. The following board of directors was elected to serve for the ensuing year: S. A. Westing, D. D. Norrin, H. R. Coplin, E. J. Latta, Stephen Schultz, G. W. Wolcott, W. H. Parmenter and A. S. Howard.

**BLUE SPRINGS, Neb.**—At the annual meeting of the Gage County Independent Telephone Company the following officers were elected for the coming year: President, A. R. Morris; secretary, A. R. Patton; treasurer, A. H. Krauss; directors, J. B. Reiff of Holmesville, S. C. Van Riper, Julius Neumann, Charles Mason, L. M. Swett and George Searle. The reports of the officers showed the company to be in splendid condition. The company has been organized five years and has over 300 telephones in service. The plant in this place is valued at \$12,000. The election of the above officers is an indorsement of the action of said officials in steadfastly refusing to tie up with the Nebraska Telephone Company.

**BELFAST, Me.**—The Liberty & Belfast Telephone Company recently held its annual meeting and changed the name of the corporation to the Liberty & Belfast Telephone & Telegraph Company, increasing its capital stock from \$5,000 to \$7,000. The line has over 100 subscribers and over 100 miles of poles. The newly elected officers are as follows: President, J. R. Pearson, Norrell; vice-president, Volney Thompson, Montville; secretary, S. W. Shibles, Morrill; treasurer, D. F. McFarland, Montville; general superintendent, Edward Evans, Waldo; directors, M. M. Wentworth, Montville; A. J. Skidmore, Liberty; J. A. Colley, Waldo, and V. A. Simmons, Searsmont.

**KEARNEY, Neb.**—At the meeting of the district association of Independent telephone companies, held in this city recently, officers were elected as follows: President, Dr. J. H. Lyman of Hastings; vice president, Fred Ashton of Grand Island; secretary and treasurer, E. C. Krewson of Elm Creek. The matter of issuing a state directory containing names of all the Independent telephone subscribers was taken up and given favorable consideration. The matter had already been decided by the other districts in the state and the action of this meeting now makes the issue of the directory a certainty. It will be published shortly after New Year's and it is said will contain 50,000 names.

**SIoux FALLS, S. D.**—The fourth annual convention of the South Dakota Telephone Association, which has just closed in this city, was the largest in the history of the association. Mitchell has been selected as the next place of meeting. It was decided to change the name of the organization to the South Dakota Independent Telephone Association. It was decided to make application for the admission of the association to membership in the national association. Officers were elected for the ensuing year as follows: President, C. B. Kennedy, Canton; vice-president, J. A. Steninger, Parker; secretary-treasurer, E. R. Buck, Hudson; executive committee, George W. Burnside, Sioux Falls; H. P. Hartwell, Irene; M. B. Ryan, Beresford; P. R. Crothers, Brookings.

**WATERLOO, Ia.**—The annual meeting of the Corn Belt Telephone Company was held in this city recently. The reports of the officers indicated the most prosperous year in the history of

the company. The growth of the exchange and toll line business have kept pace with each other, and both have been entirely satisfactory to the stockholders. The company is conceded to be in better shape than ever before, and an even larger measure of success in the coming year is anticipated. James H. Shoemaker is general manager of the company. The following is the board of directors for the coming year: A. T. Averill, Cedar Rapids; G. E. Lichty, Waterloo; G. W. Dawson, Waterloo; C. E. Purdy, Independence; G. D. McElroy, Vinton; J. C. Brocksmit, Cedar Rapids; J. H. Shoemaker, Waterloo.

**MOBILE, Ala.**—The Home Telephone Company recently held a reception in honor of the completion of its new telephone system, which was largely attended. It is stated that the long distance service of the Independent Long Distance Company, with which the Home Company is associated, will be in operation by June 1. At the annual meeting of the stockholders of the company the following officers were elected for the ensuing year: President, W. C. Polk, Birmingham; vice-president and general manager, W. H. Bryant, Mobile; treasurer, J. C. Monteith, Birmingham; secretary, P. L. Douglass, Mobile; directors, W. C. Polk, J. C. Monteith, Pat J. Lyons and W. H. Bryant. The directors and officers of the company have voted to increase the preferred stock from \$20,000 to \$150,000 and the common stock from \$350,000 to \$500,000.

**SYCAMORE, Ill.**—The annual meeting of the stockholders of the DeKalb County Telephone Company was held in this city recently. The company's lines cover practically three-fourths of the county, having 2,349 telephones in service, an increase of 293 during the year. There has been expended during the year \$12,788.99 for the construction of lines and the addition of new telephones. The total expenditure for the year, including the cost of construction work, dividends and current expenses has reached the large sum of \$50,890.20, part of which was provided for by the sale of stock, most of which stock has been distributed among the people of DeKalb county. The receipts of the year from tolls and rentals amounted to \$39,000. The company has an authorized capital stock of \$150,000 and of this amount about \$105,000 has been sold and paid for.

**BELLINGHAM, Wash.**—The annual meeting of the Farmers' Mutual Telephone Company of Whatcom county was held in this city recently and the following officers elected for the coming year: President, Ed Brown of Custer; directors, Luke Norton, Blaine; W. L. Galbraith, Lynden; P. D. Harkness, Everson; James Bailey, Nooksack; J. N. Miller, Ferndale and L. G. Van Valkenburg, Sumas. A set of resolutions was introduced in which it was decided to fight the Sunset system to a finish, and put a Farmers' telephone in every farmhouse in the county if possible. It was voted to borrow money on the system and place it in the very best condition possible, improve the service with additional lines and extensions and work up every bit of business that is obtainable. The Farmers company has 2,000 miles of wire strung in the county, 700 telephones, served through seven switchboards, all of which represents a value of over \$35,000. It is estimated that the work done in Blaine will cost \$1,000.

#### ORDINANCES AND FRANCHISES

**GRETNA, Neb.**—The Farmers' Telephone Company has been granted a franchise in Gretna.

**WYOMISSING, Pa.**—The City Council has granted a franchise to the Consolidated Telephone Company.

**PULLMAN, Wash.**—The Inland Telephone Company has applied to the city for a twenty-year franchise.

**CAMBRIDGE, N. Y.**—The Commercial Union Telephone Company will apply for a franchise in Cambridge.

**STROMSBURG, Neb.**—The Polk County Telephone Association has asked for a franchise to enter Central City.

**HERMOSA, S. D.**—The Hermosa Telephone Company has been granted the right of way through Rapid City.

**WASHINGTON, KANS.**—The Washington Mutual Telephone Company has applied for a franchise in this place.

**CARLINVILLE, Ill.**—The City Council has granted the Carlinville Telephone Company a twenty-five year franchise.

**LA HARPE, Ill.**—The city council has granted the Farmers' Telephone Company a franchise to install a system in this city.

**BATH, N. Y.**—The Steuben County Telephone Company has made application for the right to build additional lines in Bath.

**SIoux CITY, Ia.**—An ordinance has been passed making it necessary to place all wires in conduit in the business section of the city.

**EAST GREENWICH, R. I.**—The Home Telephone Company of Providence has made application for a franchise in East Greenwich.

**LONDON, Ont.**—The Independent Long Distance Telephone Company of Ontario, which was organized at the request of many Independent Ontario companies, for the purpose of giving them connection with each other, and which is to operate in competition with

the Bell company has applied for a twenty-five year franchise in this city. It is the purpose of the company to construct lines from Fort Erie to Windsor and Toronto.

**GALENA, Kans.**—The Galena Mutual Telephone Company has made application for a franchise to operate a telephone system in Galena.

**MEMPHIS, Mich.**—The common council has granted a franchise to F. S. Church to establish an Independent telephone system in this village.

**BENTON HARBOR, Mich.**—The city council has granted a franchise to the Lake Shore Telephone Company to put in a telephone system in this city.

**ST. JOSEPH, Mich.**—The Lake Shore Telephone Company, which recently secured a franchise in Benton Harbor, has also applied for a franchise in this city.

**DEEP CREEK, Wash.**—The Deep Creek Telephone Company has made application for a franchise to construct telephone lines in the direction of Medical Lake.

**PORT HOPE, Ont.**—G. W. Jones and W. H. Burley of Newtonville have been granted a franchise here on behalf of the Rural Farmers' Telephone Company.

**BELLINGHAM, Wash.**—The trustees of the Silver Lake Telephone Company have applied to the commissioners for a franchise to build a line along the country roads.

**WESTON, Ore.**—The various rural telephone companies centering at this place have joined in a petition to the city council for a franchise for ten years for rights of way.

**PAPILION, Neb.**—The Sarpy Mutual Telephone Company will ask the village board for a franchise in Papilion, which will be identical with the one granted the Home Telephone Company.

**RENO, Nev.**—It is stated that the Automatic Telephone Company of Los Angeles will make application for a franchise at Reno, in response to an invitation from the citizens, who are dissatisfied with the present service.

**BAKER CITY, Oreg.**—R. C. Robertson, of Portland, and his associates, have applied for a twenty-year franchise with the intention of constructing telephone lines throughout Baker county and establish an exchange at Baker City.

**HERRIN, Ill.**—The Farmers' League Telephone Association has applied for a franchise to build lines in Herrin. This company operates in all the principal towns in Union and Jackson counties, and a part of Johnston and Williamson counties.

**CARRINGTON, N. D.**—The town of Carrington has granted a telephone franchise to the Haven Telephone Company, the incorporators consisting of a number of business men and farmers of Foster county, including the Carrington and Casey Land Company.

**TULSA, I. T.**—A telephone company, which is said to be backed by Don Farnsworth of Chicago, has applied for a franchise in Tulsa, to compete with the Pioneer Telephone Company. The corporation is capitalized at \$25,000 and promises cheaper rates.

**PORT HOPE, Ont.**—After a long controversy the Port Hope council has granted a telephone franchise to G. W. Jones and W. H. Burley, of Newtonville, representing the Rural Farmers' Telephone Association, which has lines through Clarke and Hope townships.

**WASHINGTON, Pa.**—It has been announced that J. G. Splane, president of the Pittsburg & Allegheny Telephone Company, of Pittsburg, has transferred the franchise controlled by that company in Washington, to the State Mutual Telephone & Telegraph Company.

**NEWPORT, Wash.**—A. C. Flandus and Manager Woodson of the Pend d'Oreille River Navigation Company are interested in the promotion of a telephone line extending from Newport to the Meta-line mining district. A franchise has been granted and arrangements are being made for putting in the line.

**WAYNESBURG, Pa.**—The Greene County Telephone Company was recently granted an ordinance in Waynesburg and immediately started off with contracts for over seven hundred telephones. This ordinance was secured by the energetic efforts of T. B. Lee, manager of that company, after a long and tiresome fight.

**DRAKE, N. D.**—A meeting was held in this city recently for the consideration of a telephone proposition submitted by Mr. John Jacobson. Mr. Jacobson presented a petition asking that a franchise be granted for the purpose of establishing and maintaining a telephone exchange in the village as soon as incorporated.

**CLEVELAND, N. D.**—Geo. Kurtz and others have made application to the county board for a franchise for a local and rural telephone system. It is the purpose to install an exchange in Cleveland and also give service to the farmers in the vicinity. The Cleveland Telephone Company will be incorporated, with Chas. Anderson as manager.

**BUSHNELL, Ill.**—At a special meeting of the city council the permit granting the Farmers' Telephone Association the right to establish its system in this city was rescinded. The permit was granted nearly two years ago, and no advantage had been taken of the provision. The association is composed of twelve or thirteen

companies. It is the purpose of the Farmers' association, through its president and secretary, to ask the council for another permit similar to the one rescinded.

**FAYETTEVILLE, N. C.**—The Carolina Telephone and Telegraph Company has been granted a franchise in this city. The company contemplates the rebuilding of the local exchange and other improvements to its system, which will involve the expenditure of between \$20,000 and \$30,000. George A. Holderness is president of the company.

**BERKELEY, Cal.**—The Home Telephone Company secured a franchise in this city at the regular meeting of the Town Trustees at a cost of \$47,000. The bidding was opened by a representative of the Home Telephone Company at \$25,000, but a competitor in the person of Dr. Ferdinand Butterfield of Oakland, entered the field and raised the bid.

**NEW YORK, N. Y.**—The Municipal Bureau of Franchises, acting in conjunction with the Board of Estimate and Apportionment, has requested the Independent Atlantic Telephone Company, which has asked for a city franchise, to prepare and submit at once to the board its detailed plan for a complete city service. The working plan will be prepared immediately, showing proposed changes, location of trunk line connections, and all other matters pertaining to such a system. One of the first preliminary steps will be the installation and operation of a specimen plant at police headquarters, which is intended to show the secrecy and efficiency of the new system and which will be operated at the company's expense.

**KEYSER, W. Va.**—The City Council has granted a franchise for the construction of a telephone system in this place, with lines extending through Mineral and Grant counties. Among those interested in the project are: C. W. Siever, H. I. Welsh, James W. Carskadon, S. L. Twigg, V. M. Alkire, J. W. Wagoner, O. A. Hood, and A. A. Welton.

**CINCINNATI, O.**—It is stated that Mr. P. Fitzsimmons has secured a telephone franchise in Cincinnati running to 1921. He has already strung 100 miles of wires, installed 3,000 telephones, and erected trunk lines to the outskirts of the city. He now desires to interest persons and capital in the organization of an Independent telephone company and the project of bringing Independent lines into the city.

**BOSTON, Mass.**—The board of aldermen at a recent meeting voted in favor of granting the Metropolitan Home Telephone Company's petition to operate in Boston. The action of the aldermen will be ratified in public meeting. The petition for a franchise in Boston is signed by many prominent business men. Now that the aldermen have decided to grant a franchise it is expected that immediate locations will be asked for. The securing of a central exchange will soon be looked for.

**EDMONTON, Man.**—A delegation of three from the Strathcona city council was recently in conference with the commissioner at this place, as a result of which an agreement between Edmonton and Strathcona for a fifteen-year telephone franchise in the south town was reached, and will be submitted to the councils of both towns. The terms of the franchise are not made public, but it is understood that Edmonton proposes to string a 300-line cable to Strathcona and connect the Strathcona service with the Edmonton board direct, having but one exchange.

**DETROIT, Mich.**—It is stated that the Citizens' Telephone Company of Grand Rapids has applied to the common council for a new franchise and proposes to install an automatic system and erect a new telephone exchange at a cost of \$150,000. Under the present franchise the rates cannot be raised and the company does not feel it can afford to make the desired improvements under the current rates, which are fixed at a maximum of \$18 for residence telephones and \$24 for business telephones. The company does not name the amount of increase desired, but it recommends that a committee of thirty prominent citizens be appointed to fix the new rate and make a recommendation to the new council.

**MEXICO CITY, Mex.**—Manuel S. de Corbera and J. Sitzenstatter, residents of Mexico City, have secured a fifty years concession from the state of Vera Cruz for a network of telephone lines throughout the state, both for wire and wireless systems. The concession covers the wireless system in the hope that before its expiration that system may have been so perfected as to be used commercially. The concession calls for construction work to commence within eighteen months, but Mr. Corbera states that the work of laying an underground system in the city of Vera Cruz will begin at once. A company is being organized to take over the concessions and carry on the work. It is expected that the cities of Jalapa and Vera Cruz will be connected by long distance telephone before the close of the year.

**HARTFORD, Conn.**—Following the petition of the Farmington Valley Telephone Company for power to establish exchanges in any town in the state is a petition from Lewis Sperry, counsel for the proposed company, Harry W. Reynolds and Robert P. Lyon for incorporation under the name of the Connecticut Telephone Company, with the necessary power to construct, operate, and maintain a telephone system within the state. These two petitions outline the fight to be waged in the legislature against the monopoly now held

by the Southern New England Telephone Company. It is stated that the headquarters of the new company will be in this city and whatever funds may be needed to put the company in working order will come from within the state. The proposed company will work in harmony with the Farmington Valley Telephone Company.

#### UNDERGROUND CONSTRUCTION

**PETERSBURG, W. Va.**—The Petersburg Telephone Company contemplates the expenditure of \$10,000 on its underground work in this city.

**DETROIT, Mich.**—The City Council has passed an ordinance requiring all wires to be placed under ground within a mile circle in Detroit.

#### NEW CONSTRUCTION

**RICHMOND, Cal.**—The Independent Telephone Company of this place will install an entirely new system.

**HUTCHINSON, Minn.**—The Hutchinson Telephone Company contemplates the construction of additional lines.

**CLARENDEN, Tex.**—The Clarendon Telephone Company recently incorporated, will erect an exchange building.

**WINONA, Minn.**—The Winona Telephone Company will rebuild its plant and put in an automatic system.

**GEORGETOWN, Ind.**—The Independent Long Distance Telephone Company will establish an exchange in this place.

**LA GRANGE, N. C.**—The Carolina Telephone & Telegraph Company will install a new telephone system in this place.

**TRIUMPH, Minn.**—The Mills County Telephone Company intends to construct a complete metallic toll line service.

**EMAUS, Pa.**—The Consolidated Telephone Company has purchased a site in this place and will install a new exchange.

**CEDAR RAPIDS, Ia.**—The Cedar Rapids & Marion Telephone Company will rebuild the local exchange at a cost of about \$40,000.

**ROSEVILLE, Cal.**—The Capital Telephone Company of Sacramento contemplates establishing a telephone exchange in Roseville.

**MONROE, La.**—The Home Telephone Company of this place will change its system to metallic. Considerable cable will also be installed.

**BEDFORD, Pa.**—The Bedford County Telephone Company contemplates the construction of additional lines and the installation of a new switchboard at Fishertown.

**GREAT BEND, Kan.**—The Great Bend Telephone Company contemplates the construction of a telephone line from Great Bend to Garden City for the purpose of handling long distance business.

**FULTON, N. Y.**—The Oswego County Home Telephone Company, which is installing its system in this city, expects to construct lines to Hannibal, Fair Haven, Oswego, and Mexico at an early date.

**INDIAN BOTTOM, Ky.**—The Lewis Telephone Company, recently organized at this place with a capital stock of \$1,500, will build lines from Cornettsville up the Kentucky river to Whitesburg and from Indian Bottom to Colson.

**VERA CRUZ, Vera Cruz, Mex.**—The government of the state of Vera Cruz has made a contract for telephone lines to connect the cities of Jalapa, Orizaba, Vera Cruz and Cordoba. It is intended in the near future to extend the new system to various other points in the state.

**BOWDON, N. D.**—Theodore Stramblad has in contemplation the construction of a telephone line, work to commence on same in the near future. The line will probably be built from Hurdsfield, reaching Chaseley, Bowdon and Wallace; also a line from Hurdsfield to Moyerville and thence to Steele.

**WINNIPEG, Man., Can.**—The Manitoba cabinet has called for tenders to construct 1,000 miles of telephone lines in the province following the mandate of the vote authorizing a public-owned system. The whole contract involves several million dollars which will be met through 20-year debentures.

**LA HARPE, Kan.**—The La Harpe Telephone Company contemplates the erection of a telephone line to the country south of La Harpe. Heretofore the company has had very few lines to the country, but as the business has increased it has been found necessary to build such a line. Connection will probably be made with other country lines.

**ANACONDA, Mont.**—T. S. Lane of Butte, general manager of the Montana Independent Telephone Company, has closed a deal for the purchase of a lot where a two-story building will be erected by the company. Mr. Lane and H. J. Minhinnick, superintendent of construction, have been making preliminary arrangements for the construction of the lines and the installation of the exchange. It is thought by early spring the system will be in operation.

#### COMBINATIONS

**PURDY, Mo.**—The Purdy Telephone Company and the Enterprise Telephone Company have merged, and stock certificates will be issued by the Purdy company.

**JANSEN, Neb.**—An effort is being made to merge the Jensen Telephone Company with the neighboring country lines into one organization, to be known as the Farmers' Coöperative Telephone Company.

**CENTERVILLE, S. D.**—A consolidation of what has been known as the Ege and Riverside telephone exchanges has been effected. Centerville has been selected as headquarters by those who have incorporated a company for the consolidation of the two systems. The company will be known as the Centerville Telephone Exchange Company, with an authorized capital stock of \$50,000 and a paid up capital of \$26,000. The incorporators of the new company are Frank R. Dirks, Fred Krause, W. J. Henrich, and Charles Prinslow.

**CAIRO, Ill.**—A consolidation has been agreed upon between the owners of the Cairo Telephone Company and the Central Home Telephone, the latter being the new long distance company, by which subscribers to the Cairo exchange will be given the use of the long distance service. The name of the Cairo Telephone Company has been changed to the Home Telephone Company. The present owners of the Cairo company will retain a half interest in the new company. Hal R. Aisthorpe is president of the company. A new exchange building will be erected and extensions and improvements will be made.

#### EXTENSIONS AND IMPROVEMENTS

**WESLEY, Pa.**—The Venango Telephone Company, recently incorporated, will extend its lines.

**ELGIN, Neb.**—The Northern Antelope Telephone Company will make improvements in its system.

**WILLOW POINT, N. Y.**—The Willow Point Telephone Company will extend its lines to Binghamton.

**BATTLE CREEK, Mich.**—The Citizens' Telephone Company contemplates extending its system in this city.

**RAVENNA, O.**—The Portage County Telephone Company is planning to install an automatic switchboard in this city.

**VALATIE, N. Y.**—The Valatie Telephone Company recently installed a new switchboard and will make other improvements.

**SPRINGFIELD, Mo.**—The Springfield Home Telephone Company will install considerable cable in the construction of its plant.

**DECORAH, Ia.**—The Standard Telephone Company will spend about \$10,000 this year on improvements on the Decorah exchange.

**MAQUON, Ill.**—The Maquon and Northeastern Telephone Company contemplates extending its lines from Maquon to Gates City.

**ASTORIA, Oreg.**—The Young River Telephone Company will extend its system. Joseph Bartoldus is president of the company.

**MONTICELLO, Ind.**—The Monticello Telephone Company will install a new switchboard, the old one having been destroyed by fire.

**LACONA, Ia.**—The Lacona Telephone Company contemplates the installation of a new switchboard and other improvements in its system.

**NORMAN, Okla.**—The Norman Telephone Company will make many improvements in its system. It is estimated that \$7,000 will be spent for cable alone.

**FLORA, Ind.**—F. P. Lyons, who is at the head of the company which recently purchased the Flora telephone system, proposes to make extensive improvements.

**HUME, Mo.**—The Home Telephone Company has in contemplation the installation of a new switchboard in this place and the establishment of an exchange at Foster.

**PORT ARTHUR, Tex.**—The Texas Telephone Company is rebuilding its exchange at this place. Many other improvements in its system are contemplated by the company.

**SPRINGFIELD, Minn.**—The Farmers' and Citizens' Telephone Company intends to install a new switchboard in this place to meet the demands of its rapidly increasing business.

**EUREKA, Utah.**—The Utah Independent Telephone Company will open a new central office in this place. It is the company's intention to make other extensions in the near future.

**REVELSTOKE, B. C., Can.**—The Revelstoke, Trout Lake and Big Bend Telephone Company is planning a number of extensions to the surrounding towns. The company has recently made connection with Arrowhead, B. C.

**SPENCER, Ia.**—The Northern Rural Telephone Company contemplates the construction of a new exchange at this place, also many improvements in its rural lines. The company now has over 1,200 farmers' lines in the county.

**SIDNEY, O.**—The Sidney Telephone Company has just received about 25,000 feet of cable, which will be installed at once. The steady demand for telephone service has made it necessary to



install this cable. The system is growing constantly and there are demands for service which cannot be furnished until the cable is installed.

**GARRETT, Ind.**—The Garrett Telephone Company is making arrangements to improve its service by installing a new switchboard. The company is in a very prosperous condition and new subscribers are being added continually.

**ANN ARBOR, Mich.**—The Washtenaw Home Telephone Company will extend its system in various directions during the coming spring. The company now operates exchanges at Ann Arbor, Ypsilanti, and Dexter. C. B. King is general manager of the system.

**ROSCOMMON, Mich.**—The Northeastern Telephone Company will extend its lines early in the spring from Pinconning to Gladwin. A line will be erected from Pinconning to Crump this winter and in the spring one will be built to Mt. Forest, Rhodes, Bertie, Whitefeather and Worth.

**SAND POINT, Idaho.**—General Manager Fisher of the Interstate Telephone Company contemplates the expenditure of several thousand dollars in the improvement of the system. Wires will be placed in cables and later a new switchboard will be installed. The company will remove to larger quarters.

**PORT BYRON, Ill.**—The Crescent Telephone Company is planning several improvements and additions during the present year, which will include the construction of a trunk line between Port Byron and Hillsdale. Reports at the annual meeting showed the company to be in good financial condition.

**HASKELL, Kans.**—The farmers on the mutual telephone lines running into Haskell find that their native pole lines must be replaced at once. These lines were built about a year and a half ago and the poles are rapidly decaying. The question of forming a corporation and rebuilding the lines with cedar poles is being agitated.

**ALDEN, Minn.**—The Alden Telephone Company is considering changing to a metallic system. This system, although it had a small beginning, has grown steadily until it is the largest independent telephone company in the county. The officers of the company are J. A. Hazle, president, and B. C. Hazle, secretary and treasurer, who were the originators of the system.

**DANVILLE, Ill.**—The Vermilion County Telephone Company is to spend \$35,000 more in Danville and \$24,000 has already been authorized. Most of the money will be spent in extensions. The lines in Oaklawn will be rebuilt and extended, work to begin at once. During the past year the company has spent a vast amount in this city and has one of the best equipped plants in the state.

**HACKETTSTOWN, N. J.**—The Hackettstown Telephone Company has applied to the Board of Freeholders of Morris county for permission to extend its lines over Schooley's mountain between Hackettstown and German Valley. If successful, it is the company's intention to connect the Independent system of Sussex county with the Independent lines of Hunterdon county and the Chester Company of Morris county.

**MITCHELL, N. D.**—The Dakota Central Telephone Company is preparing to improve its service between Mitchell and Yankton by the addition of another copper wire through to that point. The company has just received a car load of copper wire which represents an outlay of \$12,000, and which will be used in further improving the lines radiating from this city. Manager Reeves states that he contemplates some important improvements in the local system during the spring and summer.

**GOSHEN, Ind.**—The directors of the Home Telephone Company have voted to install a complete central energy system in Goshen, tearing out the present equipment altogether. The present system is not rapid enough to suit the company. A committee was appointed to ascertain the best system that could be secured and will report at the first monthly meeting in February. The contemplated improvements will cost between \$12,000 and \$15,000. The company has 1,780 telephones in service in Elkhart and 1,010 in Goshen.

**SANDPOINT, Idaho.**—M. A. Phelps, president of the Interstate Telephone Company, announces that the lines will be extended into the Coeur d'Alene mining district in northern Idaho. The total cost of this extension will amount to about \$125,000. It is the purpose to reach all the mining districts and other points in Idaho, making 450 miles. Work will begin in the early spring. The company has just executed a mortgage for \$500,000 in favor of the Spokane & Eastern Trust Company of Spokane, Wash., for twenty years at 6 per cent. The plant at Sandpoint has been enlarged, the improvements consisting of a double switchboard and a number of cables; also a second copper circuit from Sandpoint to Laclede, sixteen miles; also a second circuit from Rathdrum to Athol.

#### PERSONAL MENTION

**APLINGTON, Ia.**—J. H. Schnirman has been appointed manager of the Aplington Telephone Company.

**LAWRENCE, Kan.**—Fred McKinnon, manager of the Home Telephone Company, has resigned his position with the company to take

effect February 1, and will be succeeded by A. B. Clarke of Oskaloosa.

**BOWLING GREEN, O.**—W. H. Moore has been appointed manager of the Wood County Telephone Company.

**GALLIPOLIS, O.**—Mr. Harry Gatewood has assumed the management of the Gallipolis Telephone Company.

**MANHATTAN, Ill.**—Mr. Fred Frye has again assumed the management of the Manhattan Telephone Company.

**BLUE MOUND, Kan.**—C. W. Smith, owner of the telephone system at this place, is installing a local electric light plant.

**SPOKANE, Wash.**—W. J. Mogridge of this city has invented a device for holding the telephone receiver when in use.

**CARROLL, Ia.**—Frank McNally, of Washington, Ia., has been appointed manager of the Carroll County Telephone Company.

**SPRING VALLEY, Ill.**—Dave Burnell has been appointed manager of the Bureau County Telephone Company's system at this place.

**HOPKINSVILLE, Ky.**—Mr. H. P. McCord has taken charge of the management of the Home Telephone Company's plant at this place.

**DANVILLE, Ill.**—Birch E. Baum has been appointed general superintendent of the Vermilion County Telephone Company, with headquarters in this city.

**EAST AURORA, N. Y.**—H. L. Green has resigned his position as manager of the East Aurora Telephone Company and will be succeeded by J. G. Siger of St. Louis.

**COLUMBUS, Ind.**—William H. G. Butler, manager of the Citizens' Telephone Company has resigned his position and will be succeeded by J. W. King of Indianapolis.

**PRINCETON, Ill.**—Anson Field, for the past year manager of the Bureau County Telephone Company at Ladd, will accept a similar position in Princeton after the first of the year.

**MOOSE JAW, Assiniboia, Can.**—G. V. Reed, superintendent of the Moose Jaw electric light plant, has been appointed manager of the electric power and telephone system at Kenora, Ont.

**TEXARKANA, Tex.**—J. B. King, who for several years has been superintendent of the Texarkana Telephone Company, has resigned his position and will engage in the newspaper business at Columbus, Ohio.

**TERRE HAUTE, Ind.**—W. F. Atchison of this city has been reappointed manager of the Kinloch Telephone Company's exchange at Alton, Ill., which position Mr. Atchison held for some time before coming to Terre Haute.

**PINE BLUFF, Ark.**—The Pine Bluff Telephone Company is installing cables, and preparing for long distance connections over the lines of the Telegraph Company. Everything will be made metallic. The company is owned and managed locally by Mack Hammett.

**WACO, Tex.**—The directors of the South Texas Telephone Company at a recent meeting elected J. B. Earle, of Waco, Texas, general manager of the Brazos Valley Telephone Company, general manager of that company also. This places about two thousand miles of line and a dozen or more exchanges under Mr. Earle's care.

**GRAND RAPIDS, Mich.**—Edmund Land, superintendent of equipment for the Citizens' Telephone Company, will leave the service of the company in the near future and will start an electrical engineering company in Chicago, the line of business of the proposed company being consulting engineers and the construction of telephone plants. Mr. Land has been with the Citizens' company since 1900 in practically the same capacity. He will be succeeded by H. H. Ide, at present his assistant.

#### TRANSFERS

**RUTLAND, Ill.**—The Lostant telephone exchange has been purchased by F. Z. Ames of Rutland.

**CONDON, Oreg.**—The telephone system owned by Louis Doonar has been purchased by L. E. Lawrence.

**PLAINFIELD, Wis.**—The stock of the Union Telephone Company has been acquired by the Almond Telephone Company.

**ADDISON, Mich.**—Wm. Greenleaf has purchased the Addison telephone exchange and connecting lines of F. A. Saunders.

**SULPHUR, I. T.**—The telephone plant at this place has been acquired by O. O. Spencer and R. S. Goffe, who will improve the system.

**MORAN, Kans.**—The telephone plant at this place, owned by J. O. Thompson, has been purchased by a Mr. Lenhart of Waverly, Kans.

**FAYETTE, Ill.**—The Fayette Telephone Company has been purchased by R. E. L. Smith of this place, the consideration being \$1,818.

**KILBOURN, Wis.**—A deal has been consummated whereby the Wisconsin Telephone Company has sold its plant to the Inter-County Farmers' Telephone Company for a consideration of \$1,300.

The old system will be changed from a grounded to a metallic circuit.

**TORONTO, Ont.**—The Stark Telephone Power and Light Company has purchased the Erindale Power and Telephone Company for \$47,500.

**KENDALL, Wis.**—The telephone system in this village, formerly owned by Charles W. T. Heath, has been purchased by the Elroy Telephone Company.

**WARRENTON, Va.**—The Warrenton Telephone Company's plant has been purchased by Paul C. Richards, who will make many extensions and improvements.

**ALTON, Ia.**—The Telephone exchange at this place owned by L. L. Wilcox has been purchased by Jelle Dystra, who will take possession of same about March 1.

**SILVERTON, Tex.**—The telephone exchange at this place, formerly owned by W. D. Demic has been purchased by J. W. Hancock who will extend and improve the system.

**VERSAILLES, Mo.**—The telephone exchange at this place, formerly owned by John Brokmeyer, has been purchased by Dresle Brothers of Kansas City, the purchase price being \$12,500.

**KINGMAN, Me.**—The local telephone line owned by Edgar McFarland and Jerome Butterfield has been purchased by the North Benobscot Telephone Company of Bangor.

**STITES, Idaho.**—Dr. Alcom has purchased the telephone line belonging to the Farmers' Co-operative line between Lowe and Trimway. The line will be extended to States and Green Creek.

**ORIENT, Ia.**—The Orient Telephone Company has taken possession of the telephone system at this place, which has formerly been owned and operated by the Nevinville Telephone Company.

**GLENWOOD, Minn.**—The Glenwood Telephone Company has been purchased by the Minnesota Central Telephone Company, which will rebuild the same. The system consists of 225 local and thirty rural subscribers.

**MARYSVILLE, Kan.**—The Marysville Telephone Company, formerly owned by W. W. Hutchinson, has passed into the hands of Marysville capitalists. James Morris has been appointed superintendent of the company.

**GAFFNEY, S. C.**—The Gaffney Telephone Company has sold its property and franchises to the Piedmont Telephone and Telegraph Company of Gastonia, N. C.

**MOOSE LAKE, Minn.**—Hugo Wickstrom, representing the Consolidated Telephone Company, has completed negotiations for the purchase of the Moose Lake telephone system and the company now controls both lines in Moose Lake and Barnum.

**PANA, Ill.**—The Christian County Telephone Company has closed a deal whereby it has come into possession of the Edinburg Telephone Company's exchange for a consideration of \$35,000, the new owners assuming charge February 1.

**ST. JOSEPH, Ill.**—The telephone system at this place has been purchased by L. C. Schwerdtfeger of Lincoln, who will have control of the business in the future. The transfer includes all apparatus and the ninety-nine year lease of the building in which the exchange is located.

**ELGIN, Minn.**—The Elgin Telephone Company has passed into the hands of the Greenwood Prairie Telephone Company of Plainview, which operates exchanges at Plainview, Elgin, Millville, Kellogg and Wabasha and has 1,000 telephones in service. Andrew French is manager of the system.

**SCOTT, O.**—The local telephone exchange, consisting of about one hundred and fifty telephones, has been purchased by James W. Miller, formerly superintendent of the Van Wert Home Telephone Company, and Frank Miller. It is the purpose of the new owners to make a number of improvements and extensions.

**HEREFORD, Tex.**—After negotiations covering a period of more than three months, the Hereford telephone plant has been sold to Claude J. Bain of Trenton, Mo. Mr. Bain is a prominent attorney of Trenton and is president of the telephone company of that city. The wires will be placed in cables in all parts of the city.

**SHELDON, Ill.**—A deal has been closed whereby S. W. Holloway of Sheldon becomes the owner of the Bundy telephone lines with an exchange at Iroquois. There are 256 telephones on the line, with 200 miles of wire and 100 miles of poles. The number of subscribers will be increased, as many applications are now on hand.

**MT. STERLING, Ky.**—A. J. Wilson of Rochester, Ky., has purchased of the Howe Realty and Financial Company of Kansas City the stock of the East Kentucky Telephone and Telegraph Company of this city. Mr. Wilson also secured the line at Owingville, Clay City, Morehead and Beattyville. The consideration is about \$11,600.

**AUBURN, Neb.**—J. C. Killarney, president of the Auburn Telephone Company has sold a controlling interest in the company to the following representative business men of the city: H. A. Lamber, G. E. Codrington, E. Ferneau, E. M. Boyd, L. R. Young, H. E. Furlong, W. W. Harris, R. C. Boyd and S. W. Eustice. Plans and specifications had been previously prepared for the installation of a

new multiple board and cable plant and it is the intention of the new owners to carry forward the work as previously planned, which will cost approximately \$15,000.

**CHILLICOTHE, Mo.**—The Missouri and Kansas Telephone Company has withdrawn from Chillicothe, turning its business over to the People's Telephone Company, a corporation with local stockholders. All business going over the Missouri and Kansas lines will be handled by the People's company and the former company will no longer have an office here.

**PANA, Ill.**—The Christian County Telephone Company has changed hands, Jones & Winter of Chicago having sold their interests to local parties. The new stockholders are Ben Beckenheimer, Warren Penwell, O. E. Penwell, John M. Kuhn, Julius Broehl, F. J. Eberspacher, Louis Schilerbach, F. W. Howell and G. W. Sanders. H. W. Johnson, J. C. McBride and W. S. Rigley of Taylorville are also interested in the system.

**COLUMBIA CITY, Wash.**—The control of the local Citizens' Telephone Company has past into the hands of the Independent Telephone Company of Seattle. The local system will be maintained as of old, with E. A. Marsh as manager. The new owners will make a number of extensive improvements. A 100-line trunk cable will be strung to Columbia at once and the line will probably be extended to Renton in the near future.

#### LEGAL ITEMS

**WOOSTER, Ohio.**—Marcus Van Nest of this city has been appointed receiver for the United Telephone & Switchboard Company of Orrville.

**RAVENNA, O.**—Harvey C. Nichols of Hiram has begun suit against the Portage County Telephone Company for \$10,000 damages for injuries claimed to have been sustained by tripping over a fallen wire.

**PARIS, Ill.**—The suit of James C. Vance against the Wabash Valley Telephone Company for \$3,000 damages for injuries sustained while in the employ of the company, has been compromised in the circuit court for \$800.

**FORT WAYNE, Ind.**—The Home Telephone Company has filed a mortgage for \$250,000, replacing the old mortgage which the transfer of the bonds made necessary. The new mortgage makes the Tri-State Trust Company the trustee. The transfer of bonds has reached about 85 per cent of the whole.

**PHILO, Ill.**—J. R. Thickson and other stockholders of the Philo-Fairland Telephone Company have brought suit in the circuit court of Urbana to dissolve the concern and to have the property of the company sold and the proceeds divided among the stockholders. It is charged that the affairs of the company are being mismanaged. The company was organized in December, 1900, and incorporated in January, 1906.

**CLAYTON, Mo.**—The Suburban Telephone Company, which was organized at Clayton by a number of St. Louis county capitalists, and later sold to the Kinloch Telephone Company of St. Louis, has filed a deed of trust on its property in the county securing bonds to the amount of \$600,000. The bonds draw 5 per cent interest and are dated May 1, 1906, due May 1, 1936. The deed is given to the Mississippi Valley Trust Company as trustee.

**NEW YORK, N. Y.**—Judge Davis of the Supreme Court has appointed Charles M. Meyers and Edward M. Colie auxiliary receivers for the property in this state of the Telephone, Telegraph and Cable Company of America, of 100 Broadway, and fixed their bond at \$10,000. They were appointed receivers in New Jersey in April last. The assets in this state consist of claims and rights of action which can only be collected by actions brought about in the courts of the state, of face value \$925,562, but of unknown actual value.

**LINCOLN, Neb.**—Representative Whitman has introduced a bill requiring any incorporated telephone company doing business in the state of Nebraska to connect its lines with the lines of any other incorporated telephone company in any city or any village where such telephone company has now or may hereafter establish a public telephone station, and to provide the necessary switchboard and other apparatus necessary to connect the two lines for the transmission of messages over both. All of which, of course, is governed by certain provisions.

**LOCKPORT, N. Y.**—Manager H. W. Shannon of the Lockport Home Telephone Company has notified the city authorities that an order of the Supreme Court has been handed down reducing the company's franchise valuation from \$22,000 to \$17,820. The company claimed the valuation was excessive and took the matter to the courts. The order has also been served on the State Tax Commissioners at Albany. The company has paid its taxes under protest on the original assessment and has requested the city for reimbursement on the difference.

**GREENFIELD, Ind.**—The \$15,000 damage suit of Mrs. Himes of Greenfield against the Indianapolis and Eastern Interurban Railway Company, and the Hannah Jackson Telephone Company, resulted in a verdict for \$6,000 in her favor. A similar suit is pending by her husband, William Himes. This action was based upon

the fact that when attempting to use their telephone, it was found so heavily charged with electricity, that he could not release his grip. Mrs. Himes went to his assistance and both were badly burned. It is said the trouble was due to the telephone wire coming in contact with the trolley wire.

JEFFERSON CITY, Mo.—Representative Noyes of Kansas City has introduced a bill into the legislature which provides that as many telephone companies as may be in the various cities of a state must establish exchanges which will connect with all telephone systems. By the provisions of the bill a subscriber may, upon depositing \$50 with the company or companies, other than the one whose telephone he is using, secure a connection with the telephones of the other companies at 3 cents per message, lasting not more than three minutes. Should any company violate the provisions of the bill it would be liable to a fine of from \$5 to \$50 for each and every offense.

OWENSBORO, Ky.—The Cumberland Telephone Company has secured control of the country lines of the Home Telephone Company operating in Davies and adjoining counties, thus cutting off the service of the Home company with the surrounding country. To prevent such occurrences in the future a movement will be started to have the legislature make all telephone companies common carriers and require them to connect their exchanges and toll lines with all other telephone exchanges and lines so that the message of any telephone user, whether of a competing company, or otherwise, may be transmitted to any point reached by the wires of any company, a division of the tolls to be pro-rated as is now done by railroads, express and telegraph companies.

PHILADELPHIA, Pa.—The liabilities of stockholders to the stock of the Telephone, Telegraph and Cable Company for the full amount of their subscriptions is to be tested in the courts, and suits have been filed by Sidney Young, attorney for J. Wilson Bayard, the auxiliary receiver for this state, against a number of prominent stockholders to test the question. Those sued included William Maloney, A. Lowden Snowden, William Henderson, Joseph B. McCall, A. D. and W. P. Fell, Ervin & Co., Chandler Bros. & Co., Edward Maloney, Andrew P. Maloney, James F. Welsh, Frank S. McManus, H. C. Lucas, Franklin S. Harris, L. S. Filbert, Henry Clay, Thomas J. Budd, E. D. Mullen, J. Morton Fultz, P. J. Filbert, William McLean, jr., Isaac D. Hetzell, W. C. L. Eglin, Kennedy Crosson, William D. Conover, jr., Frank B. Ball, Louis Wagner, Harry J. Ferner, H. G. Keppler and James Gay Gordon.

ST. JOSEPH, Mo.—Application for a receiver for the Citizens' Telephone Company has been filed in the circuit court by Rice McDonald. The suit is directed against the telephone company and the United States Trust Company of Kansas City. The plaintiff states that a \$100,000 bond was authorized by the Citizens' company in 1894, and that a deed of trust was given to the United States Trust Company to secure the bonds. Although authorized to issue \$100,000 in bonds, only \$67,000 were issued. McDonald recites that he is the owner of bonds of the face value of \$12,000. He alleges that interest has not been paid on fourteen bonds of the face value of \$50 each. The company has defaulted in the payment of interest, he states, for more than ninety days. The plaintiff asks that the mortgage securing the bond issue of 1894 be foreclosed, and that a receiver be appointed immediately to operate the plant during the pendency of the suit.

WASHINGTON, D. C.—Two suits have been instituted in the Supreme Court of the District of Columbia by Edward M. Collie and Chas. M. Myers as receivers of the Telephone, Telegraph and Cable Company of America—one against Amzi L. Barber for \$12,500 and the other against Ann Augusta Thomas, widow of Samuel Thomas, for the sum of \$25,000. In the declaration filed by attorneys Brandenburg & Brandenburg it is charged that the corporation, organized under the laws of the state of New Jersey, had a capital stock of \$30,000,000 and was thereafter reduced to \$9,000,000, made up of 600,000 shares of the par value of \$15 per share. The declaration further charges that Mr. Barber purchased 2,500 shares of the capital stock, for which he paid \$10 per share, and suit is now brought by the receivers to recover the sum of \$12,500, being the difference between the amount actually paid and the par value of the stock purchased by him. In the suit against Mrs. Thomas it is charged that she purchased 5,000 shares of the stock of the par value of \$75,000, while she actually paid \$50,000, and the difference is now being claimed by the receivers, pursuant to a call made by the directors.

#### FINANCIAL NOTES

ELKHART, Ind.—The Home Telephone Company has paid a semi-annual dividend of 2½ per cent.

ALBANY, N. Y.—The Albany Home Telephone Company has declared a quarterly dividend of 1 per cent.

MIDDLETON, Idaho.—The Star Independent Telephone Company of this place has declared a 12 per cent dividend.

COLUMBUS, O.—At a meeting of the board of directors of the Columbus Citizens' Telephone Company the regular quarterly dividend of 1½ per cent was declared on the capital stock of the com-

pany, and the regular quarterly dividend of 1¼ per cent on the stock of the Franklin County Telephone Company.

NEW CASTLE, O.—The New Castle Telephone Company has increased its capital stock from \$5,000 to \$10,000.

HILLSBORO, Ill.—The People's Mutual Telephone Company has increased its capital stock from \$10,000 to \$15,000.

ATWOOD, Ill.—The Atwood Mutual Telephone Company has voted to increase its capital stock from \$9,000 to \$12,000.

PANA, Ill.—The Christian County Telephone Company will increase its capital stock from \$160,000 to \$200,000.

LANDIS STORE, Pa.—The Mountain Telephone Company will declare a dividend of 3 per cent to its stockholders.

TROY, N. Y.—The Commercial Union Telephone Company recently declared a semi-annual dividend of 3 per cent.

NORTHWOOD, Ia.—The Northwood Telephone Company has declared a 7 per cent dividend on last year's business.

RICHMOND, Ind.—The Richmond Home Telephone Company has increased its capital stock from \$150,000 to \$400,000.

SEWARD, Neb.—The Seward County Telephone Company contemplates increasing its capital stock from \$50,000 to \$100,000.

MONMOUTH, Me.—The Lewiston, Greene & Monmouth Telephone Company has increased its capital stock from \$10,000 to \$50,000.

CHelsea, Vt.—The Orange County Telephone Company at a recent meeting voted to increase its capital stock from \$25,000 to \$35,000.

CORSICANA, Tex.—The Corsicana Telephone Company has filed an amendment to its charter increasing its capital stock from \$50,000 to \$100,000.

CHIPPEWA FALLS, Wis.—At a meeting of the stockholders of the Chippewa County Telephone Company a cash dividend of 7 per cent was declared.

FORT WAYNE, Ind.—The Home Telephone Company of this city has declared a 2 per cent semi-annual dividend. The capital stock of the company is \$250,000.

ELK MOUND, Wis.—The Elk Mound Telephone Company has declared a dividend of 10 per cent this year, an increase of .4 per cent over that of last year.

GENEVA, O.—The Madison Telephone Company has declared a semi-annual dividend of 3 per cent. C. W. Devoe of Conneaut has been elected president of the company.

BELLEFONTE, Pa.—The Bald Eagle Telephone Company, composed of Centre and Clinton county capitalists, and which has been in operation six months, has declared a 3 per cent dividend.

PULLMAN, Ill.—The Washburn Telephone Company has declared a dividend of 10 per cent, which shows the company to be in a flourishing condition. Mr. J. O. Nay is manager of the company.

URBANA, O.—The Urbana Telephone Company has declared the usual three per cent semi-annual dividend. The company is considering the advisability of installing an automatic switchboard in the local exchange.

CRESTON, Ia.—At a meeting of the directors of the Creston Mutual Telephone Company it was decided to declare the annual dividend of six per cent and also to advance the wages of the employees of the company 10 per cent.

GREENSBURG, Ind.—At the recent annual meeting of the stockholders of the Decatur County Independent Telephone Company the financial statement for the past year showed total receipts of \$20,416.45 and expenditures of \$14,448.62.

CHICAGO, Ill.—The Automatic Electric Company recently declared its regular quarterly dividend of 2 per cent on \$5,000,000 capital stock. This is the seventeenth disbursement and makes over \$1,500,000 distributed among the stockholders.

LOUISVILLE, Ky.—At a meeting of the board of directors of the Home Telephone Company the regular quarterly dividend of one per cent was declared. The dividends will amount to \$13,100. The company was reported in excellent condition, both physically and financially.

SPOKANE, Wash.—A mortgage for \$500,000 has been given by the Interstate Telephone Company to the Spokane and Eastern Trust Company. It is to run 20 years and bear 6 per cent interest. The Spokane and Eastern is trustee under the bond issue and may take over some of the bonds.

BURR OAK, Mich.—The Southern Michigan Telephone Company has voted to increase its capital stock from \$300,000 to \$1,000,000. The increase over and above the \$300,000 is to be held as treasury stock, and the proceeds from sale of same to be used for improvements and extensions of the system.

WHEELING, W. Va.—The board of directors of the National Telephone Company at a recent meeting declared a stock dividend of 20 per cent, payable at once. The board also fixed March 15 and August 15 as the semi-annual dividend periods, and on and after that date cash dividends of 3 per cent will be paid. The company is

planning the expenditure of a large sum of money for improvements. A contract has been closed for \$75,000 feet of cable for Steubenville, O., and work will be started at once on the underground system in that city. The company will move into its new quarters in this city about the first of February.

**HAMILTON, O.**—The directors of the Hamilton Home Telephone Company recently authorized the issue and sale of \$30,000 of its 6 per cent preferred stock and the entire issue has been taken. The company has gained over 500 subscribers during the past year and is now behind with its orders for new telephones.

**GRAND RAPIDS, Mich.**—The directors of the Citizens' Telephone Company have declared the thirty-eighth consecutive quarterly dividend of 2 per cent. The company now has about 2,200 stockholders, of whom 431 were added during the past year. The number of telephones now in operation from the Grand Rapids exchange is 8,301.

**BUTTERNUT, Mich.**—The Farmers' Exchange Telephone Company, a local Independent company operating in Montcalm county, recently held its annual meeting at the home office in Vickeryville, at which time the stockholders voted to increase the capital stock from \$2,000 to \$12,000. The number of directors was increased from three to five.

**MONROE, Wis.**—At a meeting of the directors of the Monroe Telephone Company a dividend of 3 per cent to stockholders on earnings of the past six months was declared. An amount equal to the 3 per cent dividend was placed in the replacement fund and several hundred dollars is left in undivided profit. There are about 540 telephones in service in the system.

**ROCKFORD, Ill.**—John H. Camlin, secretary of the Home Telephone Company, has paid \$595.07 to the city clerk as the city's two per cent of the gross earnings of the company during the year, the total earnings sworn to by the secretary after the deduction of the interurban service report being something over \$24,000. The Home franchise is the only one yielding the city a revenue.

**WARREN, N. H.**—The Bakers' River Telephone Company has increased its capital stock and the company will extend its lines as soon as the weather permits. The manager reports five times the subscribers that the company had a year ago, and good prospects for the future. This company operates a common battery plant in Plymouth, which it claims has the best telephone equipment of any town of its size in the New England states.

**PARIS, Ill.**—The Indiana Telephone & Telegraph Company of Dana, Ind., has filed a trust deed in the office of the circuit clerk to secure a bond issue of \$50,000 given to the Mercantile Bond and Trust Company of Chicago. The Dana line connects at Chrisman with the Paris telephone lines and it is understood that the object of securing such a large loan is for the improvement of the Indiana Telephone & Telegraph Company's system, which will be of benefit to Paris people.

**FORT WAYNE, Ind.**—The Home Telephone Company is transferring the old bonds for new bonds, authorized to be issued at the annual meeting of the company. The new issue bears the same rate of interest and totals \$220,000, but the bonds are redeemable at the expiration of ten years at the option of the company at whatever premium rate may then be commanded by the market. Practically all of the bondholders have signified their willingness to accept the new securities at an even trade.

**PARIS, Ill.**—The Wabash Telephone Company, which is owned by the Kinloch interests of St. Louis, has given notice of a stockholders' meeting, to be held early in February at Marshall, Ill., at which time the question of removing the headquarters to this city will be voted upon. At the same time will be submitted a proposition to increase the capital stock from \$125,000 to \$400,000, with an issue of bonds to a corresponding amount, for the purpose of carrying out improvements and extensions now in contemplation.

**KENTON, O.**—At a recent meeting of the directors of the Kenton Telephone Company the usual quarterly dividend was declared. Steps were taken towards the installation of a new switchboard. The yearly statement showed satisfactory progress and the company to be in good financial condition. The improvements contemplated by the company, which will mean an expenditure of about \$20,000, will probably be made within a comparatively short time. The installation of the new switchboard will give the system a capacity of six thousand telephones.

**NEWARK, O.**—The directors of the Newark Telephone Company have ordered the payment of a 2 per cent quarterly dividend on common stock and 3 per cent semi-annual dividend on preferred stock. The company now has about 2,800 telephones in service and Manager C. E. Hollander has been instructed to increase the capacity of the switchboard to enable the company to install a total of 3,500 telephones. This company, made up largely of Newark people, some of the preferred stock being owned by parties in Columbus and other cities of Ohio, has had a phenomenal growth, and the demand for its service continues. It now has a telephone for every ten inhabitants of the city.

**CLEVELAND, O.**—The November statement of the Cuyahoga Telephone Company shows an increase of \$9,172.07, or over 17.1 per

cent, over November, 1905, while operating expenses only increased \$1,092.69, or 3 per cent. Since, on the face of the statement, operating expenses for the month amounted to 50 per cent of earnings, which latter item increased 17.1 per cent and operating expenses only increased 3 per cent, the company really saved 5.5 per cent for the month. With the item of \$7,180.50 set aside for the payment of the dividend on the preferred stock, the company shows \$5,766.88 set aside for the common stock, an increase in the surplus standing for the same month a year ago of 90 per cent.

#### MISCELLANEOUS

**WHEELING, W. Va.**—The National Telephone Company will install new equipment in its new offices.

**COLD SPRING, Minn.**—A new telephone exchange has recently been opened at this place with fifty subscribers.

**LONG BEACH, Cal.**—Additional switchboards will be installed by the Union Home Telephone Company in this city.

**DOWAGIAC, Mich.**—Lyman Rogers and others are considering the establishment of an Independent telephone line.

**NEW AMSTERDAM, Ind.**—The citizens of this place recently held a meeting for the purpose of organizing a telephone company.

**CRYSTAL CITY, Man.**—The Louise Telephone Company now has 200 telephones in use. U. S. Jory is secretary of the company.

**NACOGDOCHES, Tex.**—The office of the South Texas Telephone Company at this place was recently completely destroyed by fire.

**PILOT GROVE, Mo.**—The telephone exchange of the Enterprise Telephone Company at Pleasant Green was recently destroyed by fire.

**GRAND JUNCTION, Ia.**—The Mutual Telephone Company, recently organized, has proven a success and the stockholders are well pleased.

**COLUMBIA CITY, Ind.**—The Whitley County Telephone Company has extended its line to Arcola, where an exchange will probably be established.

**LITTLE ROCK, Ark.**—The Arkansas Independent Telephone Association will hold its meeting in the Hotel Marion in this city February 18.

**Mt. VERNON, Ill.**—The Coatsburg Telephone Company, with headquarters at this place, has decided to divide the line and form two companies.

**MONROE, Mich.**—W. C. Sterling & Sons have been awarded the contract to furnish the Home Telephone Company of Detroit with 5,000 telephone poles.

**WASHINGTON, Pa.**—Preliminary plans for the organization of the Farmers' Mutual Telephone Company in Western Washington county, have been formed.

**GAINESVILLE, Ga.**—The Wooley's Ford Farmers' Telephone Company, of which A. J. Julian is president and J. M. McClure secretary, will soon be ready for service.

**MANKATO, Minn.**—The Mankato Citizens' Telephone Company has about exhausted its present switchboard capacity of 1,250 and has placed an order for a new section.

**BLUE HILL, Nebr.**—The Glenwood Telephone Company recently held a meeting to consider the matter of purchasing a new switchboard as the one at present in use is too small.

**NORTHFIELD, Minn.**—Municipal ownership of telephones was defeated by a vote of 223 to 78 on a proposition to bond the city for \$25,000 in order to install a telephone system.

**SPIRITWOOD, N. D.**—A local telephone service has been installed by the Mutual Electric Construction Company. It is the intention to extend the service in all directions in the spring.

**HOUGHTON, Mich.**—A movement is on foot in Houghton looking toward the organization of an Independent telephone company, to compete in the local field with the Michigan Telephone Company.

**LINCOLN, Neb.**—The State Independent Telephone Association will soon distribute an Independent telephone directory, which it is claimed will contain the names of 42,000 Independent telephone users.

**LINCOLN, Neb.**—Reports for 1906 show a year of phenomenal growth for the Independent telephone movement. The new state directory of Independent telephone subscribers will contain 42,000 names.

**LEO, Ind.**—Kloppenstein Brothers, owners of the Leo Independent Home Telephone Company, are building rural lines in all directions and thoroughly covering their territory and adjoining villages.

**FARGO, N. D.**—The North Dakota Independent Telephone Company, which has been refused admission to Fargo for toll line service contemplates making a toll station at the city limits for service to this city.

**MASSILON, O.**—The business of the Massilon Telephone Company for the past year has been excellent and the company looks forward to another year of increased business. Many important changes are:



anticipated in the company's lines. Improvements are contemplated which will practically replace the present with new inside and outside equipment.

**VICTOR, Mont.**—A. P. Williamson and T. E. Combs, farmers in the vicinity of Victor, are interested in the promotion of a rural telephone system, with a central office at Victor and one at Stevensville.

**BENTON, Ill.**—The Stamper Union Telephone Company has leased its system in Franklin county to the Ohio and Mississippi Valley Telephone Company for a period of five years, with the privilege of buying.

**CALEDONIA, Ont.**—Steps are being taken toward the organization of an independent telephone company to operate in Caledonia and the surrounding country. It is quite probable that the same will be organized at an early date.

**ZANESVILLE, O.**—The city council has passed an ordinance requiring the Zanesville Telephone and Telegraph Company to remove its poles from Fountain square. The company is ordered either to remove its wires or place them in conduits.

**PEORIA, Ill.**—The Interstate Telephone and Telegraph Company has paid into the city treasury \$1,000 for the year 1906, the first amount of this sort the city has collected on the ordinance that gave the telephone company its existence in this city.

**MANDAN, N. D.**—The Mandan Telephone Company will be reorganized and an entire new system will be installed. It is estimated that the proposed improvements will cost about \$8,000, and will include the latest and most improved equipment.

**SHAWNEE, Okla.**—On account of a threatened raise in price by the Pioneer Telephone Company, the government has ordered all telephones at the Shawnee Indian schools and other offices here cut out and will build a private line from the schools to the city.

**SHEBOYGAN, Wis.**—At a meeting of the directors of the Citizens' Telephone Company it was decided to raise the rates from \$1.50 to \$2.75 for residence telephones and business telephones from \$2.50 to \$2.75 per month, for Sheboygan. The company will also greatly improve its system.

**VAN BUREN, Ind.**—Charles Wright and D. E. M. Beekman, managers of the local independent telephone system, have just completed extensive improvements on the same. The old return system has been discarded and a new metallic system substituted, using cables and new leads.

**HOLLAND, Mich.**—Manager W. H. Orr of the Citizens' Telephone Company announces that the automatic system will be installed in this place. The local exchange has at present 870 telephones in use, and recent orders have not been filled, the switchboards being taxed to their capacity.

**COBDEN, Minn.**—The Cobden Telephone Company is about to close another successful year's business. A crew is now engaged in putting up new lines south of this place and when completed the company will have 100 telephones in service. A good dividend is being paid the stockholders.

**BLOOMFIELD, Ind.**—The New Home Telephone Company of Bloomfield is redeeming its bonds at par value. This company has been very successful and will soon be free of debt. Arrangements are being made to enlarge the capacity of the exchange and extend the lines in the spring.

**SPOKANE, Wash.**—A farmers' telephone line has just been completed from Colville to Echo, Wash, north of Spokane, and an exchange will be installed at Echo. Stevens county in which this line is situated is developing rapidly and next summer should see an independent system in operation.

**RICHMOND, Ind.**—Superintendent Bailey of the Richmond Home Telephone Company has had so many inquiries relative to his concrete telephone poles that he has deemed it advisable to patent it and has filed his application. He predicts that in time the concrete pole will be in universal use.

**VICKSBURG, Miss.**—Mr. C. G. Mass, representing a number of citizens, is circulating a petition for subscribers to a proposed telephone company. Mr. Mass says that if he can secure three hundred persons who will subscribe for two years to the new company the proposed organization will be assured.

**PULLMAN, Wash.**—After a month's trial the Farmers' Telephone Company of Pullman has decided it will not consolidate with the Pacific States Telephone & Telegraph Company. The two central stations have been disconnected and will be operated as before the temporary connection was made.

**ROGERS, Ark.**—A number of prominent farmers residing north of this place are considering the question of installing an independent rural telephone system. It is hoped to eventually cover the entire county, but at present it is being agitated in the territory bounded by Rogers, Bentonville, Pea Ridge, Garfield, Avoca, and Brightwater.

**AUBURN, Cal.**—An enthusiastic meeting of the subscribers on the Lone Star and Wolf farmers' telephone lines was held recently. W. C. Peaslee presented the report of the committee on by-laws appointed at a recent meeting. The name of the company is to be

the Star Telephone Company, and the following officers were elected to serve until the first annual meeting, which will be held in April: President, Ed Gassaway; secretary, W. C. Peaslee; vice-president, Herman Oost; treasurer, William Cramer; assistant secretary, Ed Ridinger.

**CARBONDALE, Pa.**—The Consolidated Telephone Company has closed a lease with the Anthracite Telephone Company of Forest City, and a traffic agreement with the Rochester Telephone Company. This will enable the Keystone and other Independent lines in Philadelphia and eastern Pennsylvania to connect with Buffalo and all points in western New York state.

**FORTVILLE, Ind.**—The Fortville telephone plant is in a fine condition. There are 150 connections in this place and enough in the country to make the direct connections 1,500 telephones, and the company is not able to take care of more applicants. The service is first class. The officers of the company are: President, M. S. Walker; secretary and treasurer, J. M. Chappell.

**HAMILTON, O.**—At the beginning of the present year the Hamilton Home Telephone Company had a total of 3,018 telephones in use in this city, a net gain during the year of 471. During the month of December the net gain was 47 in the city and 11 in the country. The company is planning to make important extensions during the year, work on which will begin with the opening of spring.

**WINNIPEG, Man., Can.**—Manitoba by an overwhelming vote, has declared for government ownership of long distance telephone lines and municipal ownership of local exchanges. R. P. Roblin, premier of Manitoba, states that he has already instructed the public works department to order supplies for the construction of 1,000 miles of telephone lines which will be commenced as soon as possible.

**ARDMORE, I. T.**—The Chickasaw Telephone Company of this city has just completed one of the most complete telephone exchanges in the southwest and has moved into same. The company, which has its headquarters in this city, has just expended about a quarter million dollars in the past six months on improvements here and on long distance lines leading out of Ardmore. The central energy system has been installed.

**MACOMB, Ill.**—The question of connecting all of the farmers' lines of this county with a central in this city is being agitated. T. J. Dudman, who has a franchise for a telephone line which he secured from the farmers' line of Colchester and on which he has been working to establish a separate system on the basis of free exchange, has offered to donate the franchise to the farmers' lines if they will come to this city.

**PERTH AMBOY, N. J.**—The Perth Amboy Conduit Company has just completed the conduits in the streets of Perth Amboy for the Hudson and Middlesex Telephone and Telegraph Company. The telephone company is now in the market for a 1,000-line central energy switchboard to replace the present magneto system. During the coming year it is expected that all the overhead lines will be changed to underground cables.

**SPOKANE, Wash.**—The Home Telephone Company is to have long distance connection between Spokane and Pacific Coast points. Arrangements have been made with the Puget Sound Telephone Company by which the Spokane branch will be connected with points on the coast from Seattle to San Francisco. It is expected that long distance connection with points in Idaho and Montana will be secured through the Interstate Telephone Company.

**BELLINGHAM, Wash.**—The Farmers' Mutual Telephone Company, which began business about eighteen months ago, now has a total of about seven hundred telephones on its system. It has two trunk lines connecting with Bellingham from country towns and a third is being built from Lynden. A line from Ferndale to Laurel and Shettlers Corners will be built and it is expected that a line will be run to Maple Falls. Patrons are said to be well pleased with the service.

**LANSING, Mich.**—It is understood an effort will be made to amend the tax laws of the state by placing telephone and telegraph companies on the same basis as the railroads and express companies for taxation purposes. State officers who have the taxation matters in hand believe that the taxation system should be uniform, and the telephone and telegraph companies are now about the only ones paying specific taxes. It is proposed to have all companies taxed on their property holdings.

**PITTSBURG, Pa.**—President J. G. Splane of the Pittsburg and Allegheny Telephone Company denies a report that a majority of the stock of the company is to pass to any other interest. He also states that the report that the company has sold its franchise in Washington county to the State Mutual company is also incorrect. The two companies will build a plant at that city and have a joint arrangement, as well as the National Telephone Company of Wheeling. This arrangement will open the lower southwest portion of the state to the P. & A. system.

**SHERIDAN, Wyo.**—Among the improvements of interest to Sheridan and Sheridan county people is the probable entry of a private telephone company into this field. A proposition of this nature,

which also includes a line reaching across the Big Horn mountains and connecting with the towns of Cloverly, Shell, Coburn, Crystal, Kane, Iona, and Lovell, has been under consideration by outside parties quite recently, and the Lovell connection with the Waters Independent lines leads to the belief that Ira Waters or capitalists whom he has interested are financing the project. Mr. Waters is cashier of the State bank of Lovell and has sufficient influence with moneyed men to enable him to carry out any such plan that he may have.

**PITTSBURG, Pa.**—Details for beginning construction work on the new Pittsburgh-Philadelphia Independent telephone trunk line have about been completed and actual work will begin as soon as the weather will permit. The American Union Telephone Company, which was formed about three months ago by the consolidation of the Independent lines of Pennsylvania and adjoining states, has purchased more than \$350,000 worth of material and equipment for the new line and for the improvements of the systems at Lancaster, Harrisburg, Altoona, Erie and New Castle.

**WICHITA, Kans.**—A new device which has been invented by D. C. Wolfe of Lyons, Kans., to be used on railroads, making it possible for engineers on different trains to communicate with each other, thus preventing wrecks, by collisions, has been on exhibition in this city. No attempt has been made by Mr. Wolfe to put his invention into practical use. It was for this purpose that he exhibited the model in this city. It is stated that Eugene Moriarty of the Santa Fe; H. D. McVay, superintendent of the Independent Telephone Company, and others in this city will form a company to exploit the invention and endeavor to get it adopted on the railroad lines of the country.

**WASHINGTON, Ind.**—The Central Union Telephone Company, through E. S. Campbell, of Terre Haute, district superintendent of this territory, and Edgar S. Bond, of Indianapolis, division contracting agent, has submitted a proposition to vacate the Washington field to the Daviess County Home Telephone Company, if the Home Company will agree to permit the Central Union to connect its toll lines with the Home lines, thus making a universal telephone system for Washington. If the Home Company does not agree to this proposition a telephone war is likely to follow. The Central Union has but few telephones in this city, but its toll business is heavy, while the contrary is true regarding the Home Company.

**TOLEDO, O.**—The Bradley syndicate, which last June secured an option on \$2,500,000 of the stocks and bonds of the Federal Telephone Company, has closed its deal with the Everett-Moore syndicate, and the syndicate will be closed up and dissolved at once. During the nine or ten months of its existence it has been profitably conducted and paid the Federal Telephone Company approximately \$335,000 Cuyahoga common and over \$20,000 of Cuyahoga preferred and United States bonds. It is quite likely that a syndicate will shortly be formed by Mr. Brailey, in which the Everett-Moore people will be members for the acquiring of additional securities owned by the Federal Telephone Company and the Everett-Moore syndicate.

**LOUISVILLE, Ky.**—An offer has been made to the stockholders of the Louisville Home Telephone Company by the Kentucky Telephone Securities Company to take over the control of the local plant and guarantee the payment of a 5 per cent dividend in 2½ per cent semi-annual installments, the first payment to be made July 1, 1907. A cash guarantee of \$50,000 is to be deposited in a trust company of standing to insure the payment of each of the dividends. The Kentucky Securities Company is a \$1,000,000 corporation, of which George B. Cox of Cincinnati is president and in which Congressman Joseph R. Rinkoff of Covington and Appellate Judge John M. Lassing are also interested. The Home company has been paying dividends for two years, starting at 3 per cent, and for the past year has been paying 4 per cent.

**ROCKFORD, Ill.**—The report of R. H. Gibboney, superintendent and manager of the Rockford Home Telephone Company, shows a great increase in the business of the company for the past year, and suggests numerous improvements and changes for the coming year. The company has added nearly 200 telephones during the year and has orders for nearly as many more, but the lack of material with which to make the connections has handicapped it. It is the intention of the companies in Jo Daviess, Stephenson, Boone, Ogle, Carroll, Whiteside, and Lee counties to build a copper line connecting the county seats of the various counties and at a meeting held last month, Mr. Gibboney was appointed one of a committee of five which is to make investigations and carry on negotiations for the formation of a company to make these connections.

**SOUTH BEND, Ind.**—The South Bend Home Telephone Company has just issued its new directory, which shows a total of about 5,000 telephones in service in the county, a gain of 500 during the past year. Of the total number 3,000 are located in South Bend, 644 at Mishawaka, and in addition fully 1,000 rural subscribers connect with the exchanges and are operated either through South Bend, Mishawaka, Granger, River Park, or New Carlisle. The company also connects with an additional 1,000 telephones at North Liberty, Walkerton, Osceola, Klondike, Lapaz, Teegarden, and Wyatt. The

company expects a large increase in business during the coming season and has made ample provision for service with that end in view. It is arranging to increase the farmer business of the county by fully 1,000 telephones and the city list by 500 additional subscribers. Extensive toll line plans formulated at the time the local corporation was reorganized, are being carried out. Of the \$300,000 appropriated for toll lines, all will be spent within a radius of eighty miles of South Bend.

**OSARK, Ark.**—The Farmers' Union of Crawford county, Ark., is holding meetings to make arrangements to buy 1,000 telephones and switchboards sufficient to put one at every cross road and one in each town. What is puzzling them most is Van Buren, the county seat, which is beyond their capacity, and the only exchange in Van Buren is the Bell company. The Bell company realizes that the farmers control the situation and that if an Independent company should open up in Van Buren it would get 1,000 farmers and the town besides. It is considered a good opening for some Independent who has the capital to build and equip a plant. Independent lines covering sixty-five miles pass through Van Buren. The whole northwestern part of Arkansas is covered with exchanges that can be connected with Van Buren by building a line north on the Frisco to Fayetteville.

**Waterloo, Ia.**—During the last six months of the year 1906 1,906 new subscribers were added to the Corn Belt Telephone Company's list. The company was organized in July, 1905, since which time 3,207 new telephones have been installed. In the Waterloo and Cedar Falls exchanges in one year the number of telephones increased from 1,193 to 2,280. During the past twelve months \$130,000 has been invested in improvements. About the middle of February a new switchboard costing \$20,000 will be installed, which will be capable of handling 150 per cent more business than at present is enjoyed. During the year it is the intention to perfect improvements at Oelwein, Independence, and Cedar Falls according to the general plan of standardization already adopted; to rebuild the Waverly exchange and to perfect the toll lines. The company has the assurance of a growth from 1,500 to 2,000 new subscribers during the coming year.

**HARTFORD, Conn.**—The Farmington Valley Telephone Company has given public notice of its intention to ask the coming General Assembly for the right to extend its business into any town in the state, which means a renewal of the prolonged fight between the Southern New England and Independent concerns. In its petition the Farmington Valley company sets forth the fact that its principal office is in New Britain, Farmington, Avon, Canton, Plainville, Granby, New Hartford and Winchester under its charter and that it now asks for a special charter authorizing and empowering it to extend its lines into and through and to operate and conduct a telephone exchange business in any and all towns in the state of Connecticut. This petition if granted virtually means the repeal of the present telephone law as far as the Farmington Valley company is concerned and would place it on the same footing as the Southern New England Telephone Company.

**COLUMBIA, Pa.**—The Columbia Telephone Company, the first Independent telephone company to begin business in Lancaster county and one of the first in the state of Pennsylvania, has just completed its tenth year, having begun business December 31, 1896, with but forty-two subscribers. The company was organized with a capital stock of \$5,000, and of that amount only \$2,500 was subscribed and but \$600 was the amount of cash on hand when the business began. The system has grown wonderfully under the management of Harry C. Young, who has been the president and general manager of the company since its incorporation. The demand for telephones was so great that in a short time it was necessary to enlarge the exchange. To do this it was necessary to increase the capital stock to \$75,000, but to-day the system is worth \$100,000. The company has paid on an average of 6 per cent in yearly dividends since the beginning. The system now has over 700 subscribers, with about eighty miles of lines. The company is constantly making improvements and adding new equipment to its system.

**FT. WAYNE, Ind.**—At the regular annual meeting of the stockholders of the Home Telephone Company matters of great financial importance to the company were transacted. At the time the company was organized the bonds provided that six and one-quarter per cent should be set aside every year as a sinking fund to take up the bonds, but it was found by the company, that in order to provide for the steady increase of the business, so much of the earnings were required that the large annual tribute paid to the redemption fund was a burden. It has been decided therefore, to refund the bonds without change in the amount (\$250,000) or the six per cent rate but dating them thirty years ahead. The resolution incorporated on the minutes provides that only 2 per cent, instead of six and one-quarter shall be set aside for redemptive purposes for the first ten years and thereafter four per cent. It is also provided that after ten years the company may call in the bonds by paying a premium graded according to the well-known financial rules governing refunding of national and other bonds. It is stated that 98 per cent of the bondholders have signed written agreements to exchange their holdings for the new issue.

# ITEMS FROM THE RURAL LINE DISTRICTS



Illustrated by O. H. Brandenburg

Frank Lufkin has a telephone.—*South Atwood Correspondence Bellows Falls (Vt.) Times.*

The Taylor Telephone Company has just put out some new directors.—*Angola (Ind.) Herald.*

The Clio Red Rose telephone line is almost completed.—*Brady Correspondence, Cambridge (O.) Republican-Press.*

Miss Cora McKinsie, the local telephone operator, spent the holidays with her parents over near Fancy Prairie.—*Williamsville (Ill.) Index.*

Atwood B. Hoskins, the Rockdale pigeon fancier, is arranging to have a Delaware and Atlantic telephone installed in his home.—*Chester (Pa.) Times.*

Bert Selser has bought Geo. Bailey's interest in the Frankfort telephone line, having No. 26 on 7.—*Pleasant Lawn Correspondence, Red Oak (Ia.) Express.*

The Irving County Telephone Company has been organized at Tulsa to ring up twenty-three for the Pioneer company.—*Oklahoma City (Okla.) Oklahoman.*

Ed Thompson was around repairing the Ringville telephone line last Saturday and it is now in good order again.—*Ringville Wrinkles in Wellman (Minn.) Tribune.*

The telephone exchange at Sullivan burned to the ground Sunday morning at two o'clock. Mr. A. O. Harrison and two sons, who work there, had all their tools burned.—*Rantoul (Ill.) News.*

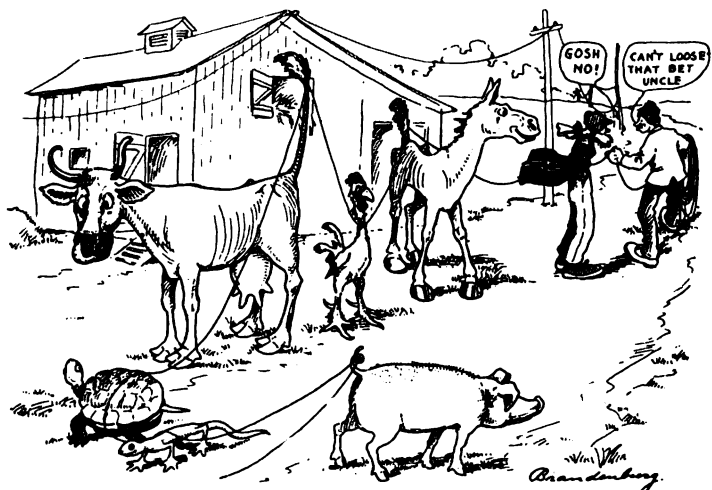
John McCreary came down from Lake Park last Tuesday and visited friends here. John now has charge of both the Lake Park and Milford telephone lines. That ought to keep him busy.—*Spirit Lake (Ill.) Herald.*

Mrs. Bruce, of Hallock, entertained the ladies of the East Elmira Telephone Co. Thursday eve. Apples, cider, peanuts and candy were in order. Gus took a load and all had a good time.—*Gaylord (Mich.) Herald.*

L. B. Pratt is contemplating putting in a telephone line from his place to intersect and hook onto what is called the Baby line; we welcome good people on that line.—*Prairie Queen Correspondence, Preston (Minn.) Times.*

Fern Snook has resigned his position in charge of the Greene County Telephone Company's central nights and Miss Inis Wood has taken up the work. Miss Wood is an experienced operator.—*Hand Junction (W. Va.) Globe.*

Telephone service has been strictly on the bum of late. It seems as though our company is badly in need of a manager who should look out for these troubles and make them right.—*North Hollow Correspondence, Cuba City (Wis.) Herald.*



That Mr. Williams, the telephone promoter, put up the torn down by ice wires on a wager and laid them over, or across, anything imaginable to be off the ground from turtle and lizard backs up to horse and cow tails and even at one place where there lives an always fact morning farmer across the swallow-tail part of his frock coat flying on the breeze?—*Hermann (N. Y.) Courier.*



A telephone lineman who occupied a room in an Oil City hotel was awakened by a fierce nightmare. He saw what appeared to be a burglar coming toward him, and without hesitation he grabbed the water pitcher and hurled it at the robber. Then he regained his senses and learned that he had smashed a fine mirror while fighting his shadow.—*Meadville (Pa.) Republican.*

The transmitters that the local telephone company will put on their phones came, but had to be shipped back to the factory as they were the wrong ones; the users of the phones will have to get along as best they can.—*Pohoico Correspondence, Fremont (Neb.) Tribune.*

Jas. B. Wright last week received a letter from a superintendent of a telephone company at Kansas City, offering him the foremanship of a gang of 85 men at a lucrative salary, but thinks he is too busy supplying meat to the people of this community to accept.—*Franklin (Ill.) Times.*

Telephone line 1599 of Sonoma was out of order two hours Saturday. The trouble department was notified; a livery rig hired; a phone man sent out eight miles through the bitter cold and all because two Xmas mouth organs had been laid on top of the telephone out of reach of noise loving little folks.—*Albion (Mich.) Leader.*

A number of men were engaged the greater part of last week straightening up and rebuilding the telephone lines between the Scotland Corner and Harmony. If we were superstitious we might believe that wire was bewitched, as they used to say in the olden times. But no, we do not believe in witchcraft.—*High Grove Correspondence, Lanesboro (Minn.) Leader.*

Miss Mame Riley, a popular operator at the Northwestern Telephone Co., daughter of Timothy Riley, and Earl Goldnetz, son of the well known eastside grocer, carried out a successful surprise on their friends, who have just discovered that this popular couple were united in marriage on the 19th inst. Belated congratulations are now being received.—*Defiance (O.) Express.*

A gong, telephone pole and telephone at the corner of State and Ryder streets, opposite the Litchfield Bank & Trust Co., constitutes the police headquarters. The big gong has been placed midway on the pole and the telephone changed. The gong is an excellent one and if your dreams are broken by the loud clanging of this gong at night don't get frightened and think the town is on fire as it is the new fangled police call and unless some very deaf officer gets on the force they can hear it for many blocks away.—*Litchfield (Ill.) Monitor.*

We are pleased to state the good news for the Three Lakes people that the Oneida-Vilas Co. Telephone Co. is about to arrange for the establishment of a day and night exchange at Eagle River and that the headquarters will be at Mart Hirzel's place. This is most certainly good news as the Three Lakes people who are without a doctor and depend on the Eagle River doctors and without the telephone and telegraph communication it is a serious problem, and the people here were about to send a remonstrance asking for day and night service and if this was refused a local company was to be formed in putting up a line, when the good news reached here. We hope prompt action will be taken.—*Three Lakes (Wis.) Advance.*

# Telephony

VOL. XIII.

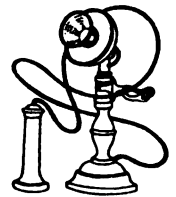
MARCH, 1907.

No. 3

## THE STORY OF OHIO

*The Third of a Series of Articles Dealing with the Telephone Development of the States*

By Frank L. Beam



IN 1885 the great state of Ohio, with a population of more than 4,000,000 people, had fewer than 45,000 telephones in service, about one-half of the eighty-eight counties were without telephone exchanges, and quite a number even were without toll stations. Every exchange and toll station at that time was controlled by the Bell monopoly. The number was small compared with the number of exchanges and toll stations that exist to-day and are now indispensable to the people of the state. The Bell company, having absolute control of the telephone situation — not only in Ohio but throughout the entire country — was charging exorbitant rates for a very limited service, and seemed perfectly satisfied so far as its income was concerned, and for that reason did not care to develop the state as it should, to give more and better service, or to make rates so that the masses could enjoy the benefit of telephone service. With high rates and unsatisfactory service the crisis had to come, for the telephone became a necessity to the business man.

Thus, in 1895 the Independent telephone development was spontaneous throughout the state. Every section of the country had suffered from the same treatment. The people were through with the Bell monopoly, and the idea of installing Independent exchanges by local men and the organization of home telephone companies spread through

the state like wildfire. The idea of the Independent telephone movement appealed to the heart of every business man. It was his privilege to become financially interested in these companies, and to have a word to say about the control of their affairs. There was a spirit of freedom about the Independent movement, something of the spirit of '76,

which had made it progress more in the first two years than the Bell had in the eighteen years of its existence in the state.

However, at that time it took men with courage to enter the field against an opponent with a complete organization, with unlimited financial backing and resources second only in strength to those of the Standard Oil Company. The Bell company had in view, as its one aim, the annihilation of the Independent companies. The monopoly attempted to block any local organization, by sending infringement

notices to subscribers, stating that they were liable to suit under the patent laws of the United States. The Bell company attempted to bribe or buy all local companies. Not meeting with success on this line, the Bell licensees immediately reduced their rates, and in many places even installed telephones without a contract, and gave absolutely free service for an indefinite time. During the first few years, while the Independents were struggling to gain a footing, the Bell companies seemed to have control of the



Building of the Cuyahoga Telephone Company, Cleveland, Ohio.



press, which was used, along with every other agency that could be thought of, to block the progress of Independent development, but they had permitted it to go too far. People of the state had suffered abuses enough at the hands of the Bell monopoly, and now they had an opportunity to remedy their grievance. The treatment received by the people from this scheming corporation is still fresh in the memory of everyone. The patents controlled by the Bell company had not fully expired when franchises were granted to local people in the following places: Lorain, Mount Vernon, Newark, Chillicothe and Norwalk. Other cities and towns followed in rapid succession, until the entire state is now developed, with the exception of Hamilton county.

At Lorain the Bell company had absolutely refused to install an exchange, figuring that the amount of business to be secured at that place would not justify the investment. To-day Lorain has the distinction of being the largest city in the state without a Bell exchange, and the Independent home company there is operating over twenty-five hundred telephones.

The city of Cleveland, before the Bell company had competition, had in service fewer than 5,000 telephones. To-day Cleveland has over 45,000 telephones, and of this number the Cuyahoga Telephone Company (Independent) is operating over 25,000. To-day there are more telephones in service in Cleveland than the Bell company had in the entire state of Ohio in 1895.

In fact if the gain for the first six months of this year is equal to that of 1906, there will be more Independent telephones in service in Ohio than the Bell company had in the United States in 1896!

Columbus, with a population of over 125,000, in 1899 had fewer than 1,800 telephones in service. As a result of competition, its citizens enjoy telephone service to-day to the

extent of over 18,000 telephones; the Columbus Citizens' Telephone Company (Independent) having over 10,000 of this number on its exchanges, with an addition of over 3,000 in Franklin county.

In the city of Wooster the Bell company installed an exchange. On account of high rates charged it could not get subscribers enough to pay expenses. Wooster has a population of about 8,000 people. The Independents are now operating an exchange there with over 1,300 subscribers.

The same satisfactory account can be given of the Independent telephone companies in Toledo and Dayton, and, in fact, of all cities and towns in the state. At this time, there are over 500 incorporated telephone companies operating in Ohio. You will notice by the last report of the Ohio Independent Association, which is included in this article, that these companies are operating 835 exchanges, 1,663 toll stations, and over 270,000 telephones. The toll business at first was taken care of by each company building its proportion of line. This system was satisfactory so far as local tolls were concerned—that is, messages originating and destined to points in the same county—but for long-distance messages this plan did not prove satisfactory. At this time, the United States Long-Distance Company was organized, and came to the rescue, constructing toll lines over the state, using nothing but the best material and all copper circuits. With the local toll lines and the United States long-distance lines, the state is covered with a network of wires. A map of Ohio showing the toll lines accompanies this article. Con-

servative estimates show the Independent companies are doing over 80 per cent of all the telephone business, both exchange and long-distance, in the state.

Early in the development it was discovered there was a flaw in the Independent system. Differences were arising



Frank L. Beam.  
President Ohio Independent Telephone Association.



Hon. James B. Hoge.



The Late James M. Thomas.



Hon. H. D. Critchfield.

between the local companies in regard to the toll rates, division of tolls, territorial rights and many questions that were difficult to settle without calling in disinterested parties.

Thomas was elected the first president of the Ohio Independent Telephone Association, and Mr. Harry D. Critchfield was elected secretary. The principal work of the association at that time was to encourage the building of exchanges, the development of territory, etc. Judge Thomas was re-elected president each succeeding year until 1902, when W. Gilbert Thompson, of Hamilton, was elected and



Columbus Citizens Telephone Company's Building, Columbus, Ohio.

There was no executive department connected with this system to control its general affairs, and with the local companies in their fight against the Bell, the old adage of "United we stand, divided we fall" was becoming more evident every day. To the far-sighted Independent telephone



Dayton Home Telephone Company's Building, Dayton, Ohio.

served for two years. The writer of this article was elected president of the association in 1904. At that time the "Ohio idea" was adopted, to divide the state into districts with a vice-president for each district. This plan has proved a great success, and has been adopted by many other states.

The wonderful growth and success of the Independent companies of Ohio have been dependent upon two facts: First, reasonable rates and good service; second, because the stockholder has deemed it his own personal interest to



Toledo Home Telephone Company's Building, Toledo, Ohio.

man, a state association of the Independent companies was the solution of the problem. In tracing the Independent Telephone Association of the state of Ohio we may justly say it had its beginning with the telephone movement itself. Everyone felt that if a fight was to be carried on successfully against the monopoly, there must necessarily be the hearty co-operation of every Independent company in the state. Accordingly, the first meeting was called in Columbus during the spring of 1896. The late Judge James M.



Building of the Akron Peoples' Telephone Company, Akron, Ohio.

look out for the development and progress of the local company in every detail. The stockholders represent every financial enterprise in the state—the banker, merchant, manufacturer, lawyer, and the farmer. In every sense of

the word it has been a home enterprise, and as a necessary result of that loyalty instilled in the heart of all American citizens, a home enterprise always receives encouragement and support of its own local people. Another important fact that should not be overlooked is that the Independent telephone companies were the first to extend their service to the rural districts so that to-day almost every farmer of consequence has direct communication with his neighbor and toll line service the same as the most important business house in the country.

A conservative estimate has been made showing that there has been an investment of over \$35,000,000 in Independent telephone construction in Ohio. This vast amount of money has been put up by over twenty-four thousand stockholders, who, by being financially interested, give the Independent telephone movement a strong backing and a guarantee of future success.

The latest statistical report of the Ohio Independent Telephone Association gives an interesting comparison showing, by counties, the number of Independent and Bell



Map Showing the Independent Telephone Exchanges and Toll Lines in the State of Ohio in 1901.



telephones now installed. The figures are truly eloquent of the phenomenal manner in which the Independents have passed the monopoly in the race for supremacy in the telephone industry of Ohio. The following brief summary tells the story:

Total number of Independent telephones in service in the state, 270,720.

Total number of Bell telephones in service in the state, 141,111.

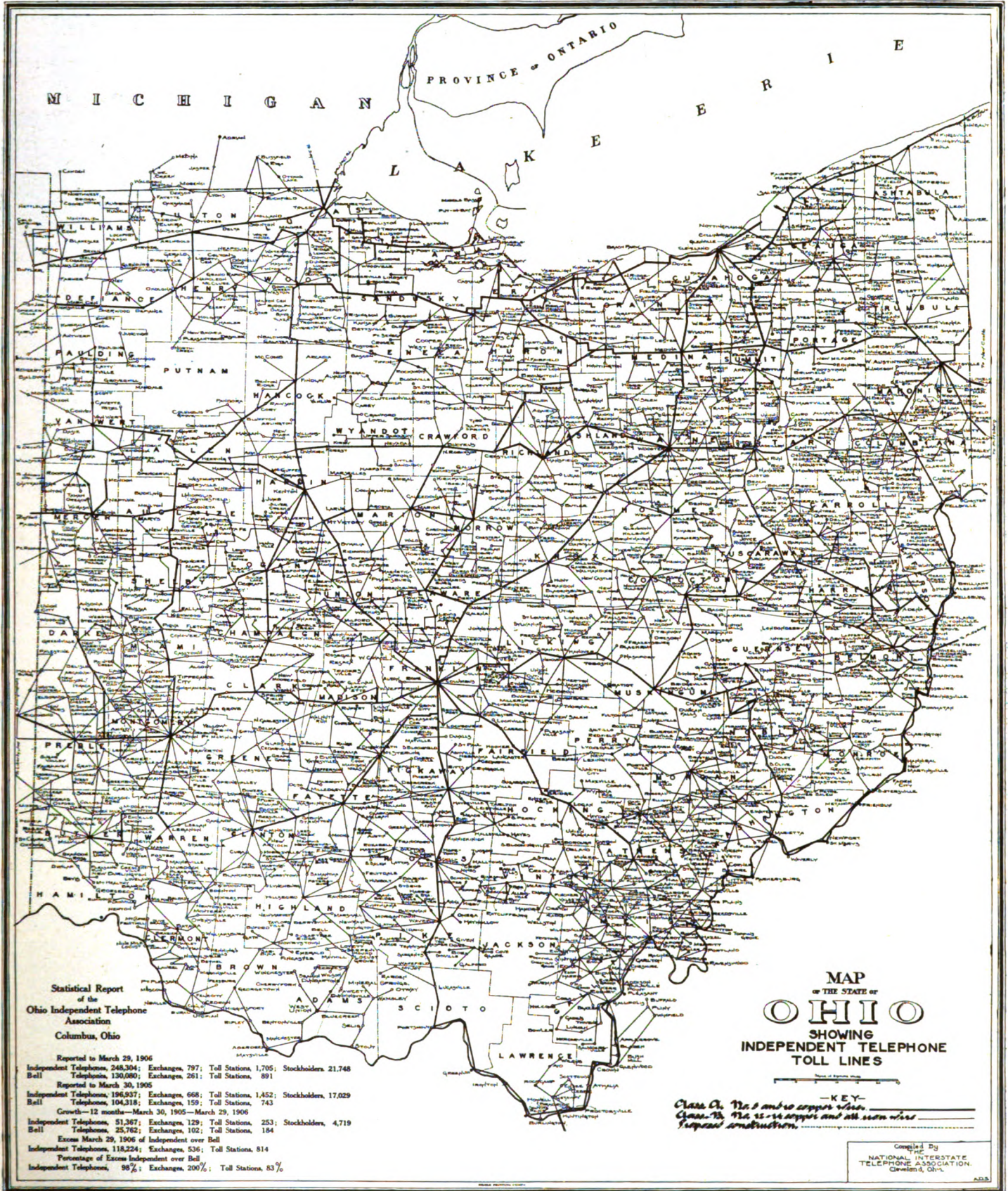
Total number of Independent exchanges, 835.

Total number of Bell exchanges, 275.

Total number of Independent toll stations, 1,663.

Total number of Bell toll stations, 839.

Between March 30, 1905, and October 1, 1906, a period



Map Showing the Independent Telephone Exchanges and Toll Lines in the State of Ohio in 1906.





Marion County Telephone Company's Building, Marion, Ohio.



Factory North Electric Company, Cleveland.

of eighteen months, the number of Independent telephones increased nearly 74,000, the number of exchanges 167, and the number of toll stations 211.

The official report by counties follows:

Counties.	Tele-phones	Ex. changes	Toll Sta-tions	Stock Holders	Tele-phones	Exch. ges	Toll Sta-tions
Adams	500	4	21	15	487	3	5
Allen	5,124	10	12	611	1,962	2	14
Ashland	2,723	15	4	710	5	1	9
Ashtabula	5,508	24	25	1,693	705	3	12
Athens	2,993	13	41	554	1,408	7	23
Auglaise	2,573	8	2	303	...	...	4
Belmont	2,959	16	10	216	926	5	7
Brown	475	4	10	240	400	5	15
Butler	4,087	10	76	360	2,349	4	...
Carroll	1,247	16	20	40	114	2	8
Champaign	2,897	9	15	136	274	2	11
Clark	3,793	7	7	99	4,500	13	34
Clermont	1,170	12	60	75	800	7	7
Clinton	2,400	6	19	25	500	5	7
Columbiana	4,178	19	40	204	2,500	9	16
Coshocton	2,150	7	...	16	900	4	8
Crawford	2,200	4	11	60	400	1	...
Cuyahoga	25,990	20	35	1,097	27,500	16	19
Darke	4,900	11	37	155	62	1	18
Defiance	2,364	9	...	492	368	1	6
Delaware	2,718	8	7	182	400	3	4
Erie	2,438	7	17	134	1,409	2	8
Fairfield	1,749	7	8	35	1,460	6	7
Fayette	1,725	5	18	10	500	2	4
Franklin	11,807	16	30	170	9,500	6	18
Fulton	2,460	9	15	150	...	...	5
Gallia	3,117	19	45	2,009	230	2	5
Geauga	2,520	13	25	412	...	...	6
Greene	2,057	6	6	56	1,205	4	32
Guernsey	2,925	11	53	107	800	1	13
Hamilton	171	2	...	171	20,000	5	10
Hancock	1,438	2	7	20	1,900	1	...
Hardin	3,014	8	5	178	365	2	10
Harrison	1,325	10	30	205	235	2	10

Henry	1,770	11	...	31	53	1	5
Highland	1,950	5	12	225	900	6	9
Hocking	702	1	3	51	225	1	3
Holmes	1,446	12	13	171	...	...	1
Huron	3,554	13	20	360	600	1	15
Jackson	30	1	3	5	525	4	15
Jefferson	2,071	21	26	443	1,188	2	11
Knox	3,212	8	27	208	970	4	8
Lake	1,882	10	20	451	398	2	13
Lawrence	1,765	10	3	150	675	2	...
Licking	4,277	11	12	277	1,000	2	10
Logan	3,500	14	32	229	300	2	16
Lorain	5,979	15	32	250	921	1	7
Lucas	11,610	7	29	181	5,971	6	5
Madison	1,847	9	37	216	200	1	8
Mahoning	3,490	8	11	65	2,340	4	3
Marion	3,165	8	3	127	1,880	9	...
Medina	2,490	11	2	428	150	1	1
Meigs	3,830	18	14	3,506	900	3	3
Mercer	3,069	18	17	1,308	...	...	13
Miami	5,172	13	25	310	150	1	4
Monroe	778	8	10	39	10	1	1
Montgomery	8,176	23	27	742	8,408	4	20
Morgan	2,200	7	12	19	...	...	1
Morrow	1,866	12	13	52	200	3	8
Muskingum	3,605	15	25	104	3,280	7	15
Noble	1,615	12	38	63	524	2	7
Ottawa	1,751	7	24	100	50	2	7
Paulding	1,176	6	13	42	185	1	6
Perry	300	1	4	26	1,531	7	10
Pickaway	1,514	4	29	38	641	2	12
Pike	500	4	10	15	17	1	...
Portage	2,315	8	18	180	400	1	14
Preble	2,513	13	3	182	100	1	12
Putnam	1,871	12	19	25	1,871	12	19
Richland	4,587	8	18	141	1,890	4	4
Ross	2,324	4	42	100	725	3	20
Sandusky	3,239	4	8	134	405	1	5
Scioto	1,717	3	...	29	550	2	...
Seneca	1,751	4	6	65	1,020	1	4
Shelby	1,597	5	20	87	160	1	16
Stark	6,732	10	36	254	4,420	8	29
Summit	4,873	8	27	126	3,200	4	16



Factory Norton Tool Company, West Park, Ohio.



Factory Dean Electric Company, Elyria, Ohio.

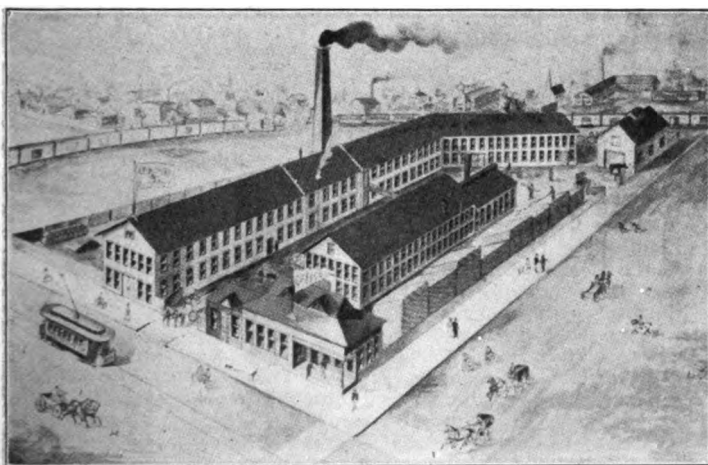
Trumbull	3,174	16	28	554	1,328	3	17
Tuscarawas	4,759	8	15	77	840	3	15
Union	1,622	10	14	35	25	1	4
Van Wert	2,789	10	18	324	....	..	7
Vinton	650	5	6	8	93	1	3
Warren	1,136	6	18	200	542	2	28
Washington	2,140	11	50	54	1,475	3	21
Wayne	3,556	18	16	344	....	..	4
Williams	2,623	11	18	139	179	1	13
Wood	2,700	10	20	340	2,280	9	6
Wyandotte	1,065	2	6	50	1,200	4	..
Totals	270,720	835	1,663	24,650	141,111	275	839

An analysis of the above table brings out some startling facts. For instance, it shows, while there is not a county in



Factory W. G. Nagel Electric Company, Toledo, Ohio.

the state with less than thirty Independent telephones, and only two with less than 200, there are eight counties that haven't a single Bell telephone within their boundaries. Auglaize has no Bell telephones but has 2,573 Independent. Fulton county has no Bell telephones but has 2,460 Independents, Geauga has no Bell telephones but has 2,520 Independents, and so on through the list of eight "Bell-less" counties. Only in Hamilton county has the Bell any ma-



Factory of F. E. Kohler & Company, Canton, Ohio.

terial claim to superiority and that is due to the fact that Hamilton county includes the city of Cincinnati. However, Cincinnati, like Boston, Chicago, Milwaukee, Denver and Omaha, is surely destined to be captured by the Independents in the near future, for the telephone public there are tired of the Bell monopoly and ready to welcome competition. The following table shows the companies which are affiliated with the Ohio State Independent Telephone Association, and the nine district organizations:

DISTRICT NO. 1.

- E. G. Miller, vice-president, Warren.
- Andover Electric Telephone Company, Andover.
- Ashtabula Telephone Company, Ashtabula.
- Bainbridge Telephone Company, Chagrin Falls.
- Bellevue Home Telephone Company, Bellevue.
- Citizens' Telephone Company, Berea.
- Burton Telephone Company, Burton.
- Brunswick Independent Telephone Company, Brunswick.
- Chagrin Falls Telephone Company, Chagrin Falls.
- Chardon Telephone Company, Chardon.
- Claridon Telephone Company, Claridon.
- Cuyahoga Telephone Company, Cleveland.
- U. S. Telephone Company, Cleveland.
- Collinwood Home Telephone Company, Collinwood.
- Conneaut Telephone Company, Conneaut.
- Elyria Southern Telephone and Telegraph Company, Elyria.
- Elyria Telephone Company, Elyria.
- Galion Telephone Company, Bellevue.
- Madison Telephone Company, Geneva.
- Huron Telephone Company, Huron.
- Jefferson & Warren Telephone Company, Orangeville.
- Black River Telephone Company, Lorain.
- Local Telephone Company, Bellevue.
- Medina Telephone Company, Medina.
- Mentor Telephone Company, Mentor.
- Newbury Telephone Company, Newbury.
- Newton Falls Telephone Company, Newton Falls.
- North Ridgeville Telephone Company, North Ridgeville.
- Oberlin Telephone Company, Oberlin.
- Painesville Telephone Company, Painesville.
- Sandusky Telephone Company, Sandusky.
- Spencer Telephone Company, Spencer.
- Vermillion Telephone Company, Vermillion.
- Star Telephone Company, Wadsworth.
- Warren & Niles Telephone Company, Warren.
- Wellington Telephone Company, Wellington.
- Willoughby Telephone Company, Willoughby.
- Amherst Home Telephone Company, North Amherst.
- Clinton Air Line Telephone Company, Fitchville.
- Clarksfield Independent Telephone Company, Clarksfield.
- Co-operative Telephone Company, North Madison.
- Trumbull Telephone Company, Trumbull.
- Covell, F. M., Rock Creek.
- Local Telephone Company of Bellevue, Berlin Heights.
- Leroy Telephone Company, Leroy.
- Perry Telephone Company, Perry.
- Chatham Telephone Company, Chatham.
- Phalanx & Leavittsburg Telephone Company, Phalanx.
- Hartsgrove Telephone Company, Hartsgrove.
- Thompson Telephone Company, Thompson.
- Dorset-Sentinel Telephone Company, Dorset.
- Cherry Valley Telephone Company, Cherry Valley.
- East New Lynn & Sentinel, Jefferson.
- Austinburg Telephone Company, Austinburg.
- Kirtland Telephone Company, Willoughby.
- Orrville Telephone Company, Orrville.
- Windsor Telephone Company, Windsor.
- Colebrook Telephone Company, Colebrook.
- Rome Telephone Company, Rome.
- Cook Telephone Company, R. F. D., Geneva.
- Wayne Telephone Company, R. F. D., West Williamsfield.
- West Richfield Telephone Company, West Richfield.
- Home Telephone Company, Fairport Harbor.
- North Bloomfield Telephone Company, North Bloomfield.
- Mesopotamia Telephone Company, Mesopotamia.
- Green Telephone Company, Green.
- Champion Telephone Company, Champion.
- Gustavus Telephone Company, Gustavus.
- Johnston Telephone Company, Johnston.
- Independent Telephone Company, Liverpool.
- Medina County Farmers' Telephone Company, Medina.
- Parkman Telephone Company, Parkman.
- Riverside Telephone Company, Birmingham.

DISTRICT NO. 2.

- W. F. Laubach, vice president, Akron.
- Crescent Telephone Company, Leesville.
- Palermo Telephone Company, Palermo.
- Petersburg Telephone Company, Petersburg.
- Columbiana County Telephone Company, Salem.
- Damascus Telephone Company, Damascus.
- Eastern Ohio Telephone Company, East Rochester.
- Fairfield Township Mutual Telephone Company, Columbiana.
- Island Mutual Telephone Company, Columbiana.
- North Georgetown Telephone Company, North Georgetown.
- Salem Township Mutual Telephone Company, Leetonia.
- Winona Central Telephone Company, Winona.
- Cadiz Junction Telephone Company, Means.

Conotton Valley Telephone Company, Jewett.  
 Farmers' Home Telephone Company, Hopedale.  
 Freeport Home Telephone Company, Freeport.  
 Harrison County Telephone Company, Cadiz.  
 Harrisville Telephone Company, Harrisville.  
 Moorefield & Caseville Telephone Company, Moorefield.  
 Adena Exchange Telephone Company, Adena.  
 Bergholz Telephone Company, Bergholz.  
 Bloomingdale Telephone Company, Bloomingdale.  
 East Springfield Telephone Company, East Springfield.  
 Farmers' Independent Telephone Company, Reeds Mills.  
 Island Creek Telephone Company, Steubenville, R. F. D. No. 1.  
 Ohio Valley Telephone and Telegraph Company, Brilliant.  
 Steubenville-Phoenix Telephone Company, Steubenville.  
 Wellsburg Home Telephone Company, Brilliant.  
 Beaver Telephone Company, North Lima.  
 North Benton & Deerfield Telephone Company, North Benton.  
 Youngstown Telephone Company, Youngstown.  
 Portage County Telephone Company, Ravenna.  
 Bunker Hill Telephone Company, Justus.  
 Farmers' & Merchants' Telephone Company, Paris.  
 Massillon Telephone Company, Massillon.  
 Mutual Telephone Company, Beach City.  
 Stark County Telephone Company, Canton.  
 Tri-County Telephone Company, Lake.  
 Valley Telephone Company, Wilmot.  
 Akron People's Telephone Company, Akron.  
 Summit Rural Telephone Company, Akron.  
 Berlin Telephone Company, Berlin.  
 Fiat Telephone Company, Fiat.  
 Tuscarawas County Telephone Company, New Philadelphia.

## DISTRICT NO. 3.

J. B. Rhodes, vice president, Zanesville.  
 Albany & Vales Mills Telephone Company, Albany.  
 Amesville Telephone Company, Amesville.  
 Athens County Telephone Company, Athens.  
 Ohio Valley Telephone Company, Bellaire.  
 Belmont Telephone Company, Bridgeport.  
 Cambridge Home Telephone Company, Cambridge.  
 Colerain Telephone Company, Colerain.  
 Home Telephone Company, Coolville.  
 Cumberland Independent Telephone Company, Cumberland.  
 Citizens' Telephone Company, Coshocton.  
 Crooksville Telephone Company, Crooksville.  
 Union Telephone Company, Fairview.  
 Flushing Home Telephone Company, Flushing.  
 Gallipolis Telephone Company, Gallipolis.  
 Sunday Creek Telephone Company, Glouster.  
 Union Telephone Company, Glouster.  
 Marshfield Telephone Company, Marshfield.  
 Riverside Telephone Company, McConnellsville.  
 New Concord Telephone Company, New Concord.  
 Zanesville Telephone Company, Zanesville.  
 Clarington Home Telephone Company, Clarington.  
 Enterprise Telephone Company, Bellaire.  
 Guysville Telephone Company, Guysville.  
 Jerseyville Telephone Company, Shade.  
 Marietta Telephone Company, Marietta.  
 Pleasant City Telephone Company, Pleasant City.  
 People's Telephone Company, Bartlett.  
 Point Rock & Wilkesville Telephone Company, Point Rock.  
 Quaker City Telephone Company, Quaker City.  
 Richland Home Telephone Company, Lamira.  
 Stockport-Marietta Telephone Company, Watertown.  
 Barlow & Watertown Telephone Company, Watertown.  
 Summerfield Telephone Company, Summerfield.  
 Adamsville Telephone Company, Adamsville.  
 Gratiot & Brownsville Telephone Company, Gratiot.  
 Citizens' Telephone Company, Rutland.  
 Bremen Telephone Company, Bremen.  
 People's Telephone Company, Chesterhill.  
 Noble County Telephone Company, Caldwell.  
 Shade Telephone Company, Shade.  
 Farmers' & Merchants' Telephone Company, Warsaw.  
 Woodsfield Telephone Company, Woodsfield.  
 Young Hickory Telephone Company, Young Hickory.

## DISTRICT NO. 4.

G. P. Thorpe, vice president, Wilmington.  
 Home Telephone Company, Chillicothe.  
 Citizens' Telephone Company, Circleville.  
 Clinton Telephone Company, Wilmington.  
 Greenfield Home Telephone Company, Greenfield.  
 Home Telephone Company, Ironton.  
 Jackson County Home Telephone Company, Jackson.  
 McArthur Telephone Company, McArthur.  
 Portsmouth Telephone Company, Portsmouth.  
 Ray & Vigo Telephone Company, Ray.  
 Washington Home Telephone Company, Washington Court House.  
 Home Telephone Company, Waverly.

Hillsboro Telephone Company, Hillsboro.  
 Lecta Citizens' Telephone Company, Lecta.  
 Manchester Telephone Company, Manchester.  
 Wellston, Mineral & Athens Telephone Company, Lone Star.  
 Yankee St. Telephone Company, Wilkesville.  
 Citizens' Telephone Company, Mowrystown.  
 Ohio Valley Telephone Company, Proctorville.  
 Careytown Home Telephone Company, Careytown.  
 Colerain Telephone Company, Hallsville.  
 Adams County Telephone Company, Waverly.  
 Rarden Mutual Joy Telephone Company, Rarden.  
 Getaway Telephone Company, Getaway.  
 Buffalo Telephone Company, Burlington.

## DISTRICT NO. 5.

W. Gilbert Thompson, vice president, Hamilton.  
 Citizens' Telephone Company, Batavia.  
 Eaton Telephone Company, Eaton.  
 Hamilton Home Telephone Company, Hamilton.  
 Valley Telephone Company, Lebanon.  
 Oxford Telephone Company, Oxford.  
 Preble County Telephone Company, West Alexandria.  
 Home of College Corners, College Corners.  
 Morning Sun Telephone Company, Morning Sun.  
 Camden Telephone Company, Camden.

## DISTRICT NO. 6.

L. H. Thedieck, vice president, Sidney.  
 United Telephone Company, Bellefontaine.  
 Bradford Telephone Company, Gettysburg.  
 Cedarville Telephone Company, Cedarville.  
 Covington Home Telephone Company, Covington.  
 Home Telephone Company, Dayton.  
 Germantown Independent Telephone Company, Germantown.  
 Jackson Center Telephone Company, Jackson Center.  
 London Home Telephone Company, London.  
 Mechanicsburg Telephone Company, Mechanicsburg.  
 Mt. Sterling Telephone Company, Mt. Sterling.  
 Piqua Home Telephone Company, Piqua.  
 Home Telephone Company, Plain City.  
 St. Paris Telephone Company, St. Paris.  
 Sidney Telephone Company, Sidney.  
 Springfield-Xenia Telephone Company, Springfield.  
 Troy Telephone Company, Troy.  
 Urbana Telephone Company, Urbana.  
 Greenville Home Telephone Company, Greenville.  
 Farmers' Telephone Company, Farmersville.  
 North Lewisburg Telephone Company, North Lewisburg.  
 West Milton Home Telephone Company, West Milton.  
 Champaign Telephone Company, Rosewood.  
 New Lebanon Telephone Company, New Lebanon.  
 Home Telephone Company, Plattsburg.  
 Yorkshire Telephone Company, Yorkshire.  
 Botkins Telephone Company, Botkins.  
 New Knoxville Telephone Company, New Knoxville.  
 Johnsville Telephone Company, Johnsville.  
 Bloomer Telephone Company, Bloomer.  
 South Charleston Telephone Company, South Charleston.  
 Hollandsburg Home Telephone Company, West Jefferson.  
 Citizens' Telephone Company, West Jefferson.

## DISTRICT NO. 7.

George H. Metheny, vice president, Lima.  
 Ada Telephone Company, Ada.  
 Antwerp Telephone Company, Antwerp.  
 Bluffton Telephone Company, Bluffton.  
 Buckland Mutual Telephone Company, Buckland.  
 Carey Electric Company, Carey.  
 Celina & Mercer County Telephone Company, Celina.  
 Convoy Home Telephone Company, Convoy.  
 Cridersville Telephone Company, Cridersville.  
 Elida Mutual Telephone Company, Elida.  
 Delphos Home Telephone Company, Delphos.  
 Findlay Home Telephone Company, Findlay.  
 Ft. Recovery Telephone Company, Ft. Recovery.  
 Kenton Telephone Company, Kenton.  
 Lima Telephone and Telegraph Company, Lima.  
 Marion County Telephone Company, Marion.  
 Marion Telephone Company, Marie Stein.  
 Middlepoint Home Telephone Company, Middlepoint.  
 Mt. Victory Telephone Company, Mt. Victory.  
 Minster Home Telephone Company, Minster.  
 New Bremen Telephone Company, New Bremen.  
 Ohio City Home Telephone Company, Ohio City.  
 Paulding Home Telephone Company, Paulding.  
 Payne Home Telephone Company, Payne.  
 Rockford Telephone Company, Rockford.  
 St. Marys Telephone Company, St. Marys.  
 Scott Home Telephone Company, Scott.  
 Spencerville Telephone Company, Spencerville.  
 Upper Sandusky Telephone Company, Upper Sandusky.

Van Wert Home Telephone Company, Van Wert.  
 Wapakoneta Telephone Company, Wapakoneta.  
 Auglaise Telephone Company, Waynesfield.  
 Willshire Telephone Company, Willshire.  
 Marion Township Telephone Company, Scotts Crossing.  
 McComb Home Telephone Company, McComb.  
 United Farmers' Telephone Company, West Minster.  
 Beaver Dam Telephone Company, Beaver Dam.  
 Cavett Telephone Company, Cavett.  
 Wren Home Telephone Company, Wren.  
 Jennings Telephone Company, Converse.  
 Rockford Toll Line Telephone Company, Rockford.  
 Mercer County Mutual Telephone Company, Celina.  
 Putnam Telephone Company.

DISTRICT NO. 8.

R. E. Hamblin, vice president, Toledo.  
 Toledo Home Telephone Company, Toledo.  
 Seneca Telephone Company, Gibsonburg.  
 Edgerton Telephone Company, Edgerton.  
 Fayette Telephone Company, Fayette.  
 New Ottawa County Telephone Company, Elmore.  
 North Hamilton Home Telephone Company, Bellevue.  
 Carbon Telephone Lines, Bloomville.  
 Edon Telephone Company, Edon.  
 Flat Rock Telephone Company, Flat Rock.  
 Gibsonburg Electric Light Company, Gibsonburg.  
 Maumee Home Telephone Company, Maumee.  
 Whitehouse Home Telephone Company, Whitehouse.  
 Sylvania Telephone Company, Richland Center.  
 Oil Belt Telephone Company, Cygnet.  
 Fremont Home Telephone Company, Fremont.  
 Nina Home Telephone Company, Nina.  
 Helena Telephone Company, Helena.  
 Citizens' Telephone Company, West Unity.  
 Wood County Telephone Company, Bowling Green.  
 Napoleon Home Telephone Company, Napoleon.  
 Bryan Telephone Company, Bryan.  
 Weston Home Telephone Company, Weston.  
 Northwestern Ohio Telephone Company, Wauseon.  
 Ney Telephone Company, Ney.  
 Clyde Telephone Company, Clyde.  
 Greenspring Telephone and Electric Company, Greenspring.  
 Delta Home Telephone Company, Delta.  
 Hicksville Telephone Company, Hicksville.  
 Tiffin Home Telephone Company, Tiffin.  
 Archibold Telephone Company, Archibold.  
 Stryker Telephone Company, Stryker.  
 Packard Telephone Company, Malinta.  
 Grand Rapids Mutual Telephone Company, Grand Rapids.  
 Montpelier Telephone Company, Montpelier.  
 Citizens' Telephone and Message Company, Fostoria.  
 Citizens' Telephone Company, McClure.  
 State Lima Telephone Company, Weston.  
 Holland Rural Telephone Company, Holland.

DISTRICT NO. 9.

Dwight E. Sapp, vice president, Mt. Vernon.  
 Bucyrus Telephone Company, Bucyrus.  
 Franklin Telephone Company, Columbus.  
 Columbus Citizens' Telephone Company, Columbus.  
 Crestline Local Telephone Company, Crestline.  
 Citizens' Telephone Company, Delaware.  
 Johnstown & Croton Telephone Company, Johnstown.  
 Lancaster Telephone Company, Lancaster.  
 Logan Home Telephone Company, Logan.  
 Monroe Telephone Company, Lucas.  
 Mansfield Telephone Company, Mansfield.  
 Marysville Telephone Company, Marysville.  
 Mifflin & Widowville Telephone Company, Mifflinville.  
 M., W. & O. Telephone Company, Wooster.  
 Mt. Vernon Telephone Company, Mt. Vernon.  
 Newark Telephone Company, Newark.  
 Farmers' Telephone Company, Perrysville.  
 Pataskala & Hebron Telephone Company, Pataskala.  
 Richwood Telephone Company, Richwood.  
 Shelby Local Telephone Company, Shelby.  
 Sunbury & Galena Telephone Company, Sunbury.  
 Star Telephone Company, Ashland.  
 Utica & Homer Telephone Company, Utica.  
 Berlin Telephone Company, Berlin.  
 Doylestown Telephone Company, Doylestown.  
 Union Telephone Company, East Applecreek.  
 Kilbuck Telephone Company, Kilbuck.  
 Rippling Mutual Telephone Company, Shreve.  
 Marshallville & Rittman Telephone Company, Marshallville.  
 Kidron Telephone Company, Kidron.  
 Weilersville Home Telephone Company, Weilersville.  
 Smithville Telephone Company, Smithville.  
 Milford Center Telephone Company, Milford Center.  
 Plain City Telephone Company, Plain City.

Galion Telephone Company, Galion.  
 Gratiot & Brownsville Telephone Company, Gratiot.

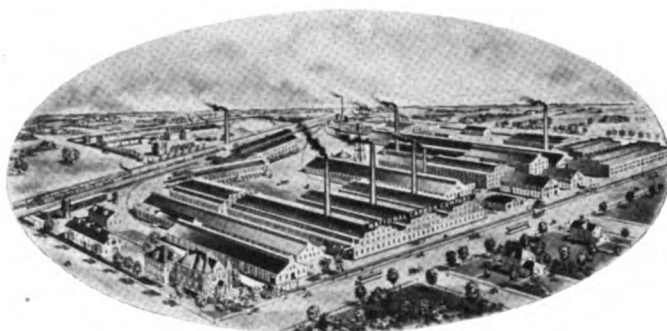
No more striking example of the wonderful growth of the Independent movement in Ohio is needed than that supplied by a comparison of the two maps incorporated in this article. One shows the telephone lines in operation in 1906. The other was printed by TELEPHONY in September, 1901. By contrasting the two a good idea can be gained of the great strides made in the last five years.



The Erner Hopkins Company, Columbus, Ohio

The telephone story of Ohio would not be complete without mention of some of the state's pioneers in Independent telephony. Men like the late James M. Thomas, E. L. Barber, J. S. Brailey, H. D. Critchfield and many others have contributed to the success of the movement in which they were so much interested. A younger generation has sprung up, but most of the older Independents, who are still young men, have vast interests to look after, and give their

best efforts to the cause of better telephone service. Some illustrations of exchange buildings owned by Independent operating companies are shown to illustrate the permanent character of this movement against Bell extortion and poor service. Some views of telephone and allied factories are shown for the same purpose. It is impossible to show them all, but the reader will get some idea of the



Factory National Carbon Company Cleveland, Ohio.

immensity of the growth of the industry in Ohio from these illustrations.

### SUBMARINE TELEPHONE EXPERIMENTS.

Experiments began recently at Lake Constance with a submarine telephone constructed under Prof. Pupin's system. The cable connects Friedrichshafen on the northern shore of the lake in Wurtemberg and Romanshorn on the opposite shore, in Switzerland (a distance of about seventy miles and reaches a maximum depth of 820 feet). It was laid by the Siemens-Halske Company for the Bavarian Wurtembergian and Swiss telegraph departments. No information regarding the results has yet been made public.



# HINTS TO TECHNICAL WRITERS

*Suggestions to those Who Discuss the Art of Telephony*

By H. P. Clausen

THE writer on technical subjects for trade journals often is at a loss to decide on the subject which he will cover in a short article. Taking, for example, the art of telephony, the different divisions of the work may be broadly subdivided into ten classes, these being constructed from four master classes, viz.: The subscriber's station equipment, the line circuit, the central office equipment, and the power equipment. From these four master classes we may then construct the six remaining combinations.

Referring to Figure 1, we have at the left the four master classes, and in triangular form, immediately to the right, we have combined, first, the subscriber's station and line circuit, making a subscriber and line class combination. In the second place, we have combined the line circuit and central office and produced a line and central office combination. Third, we have combined the central office and

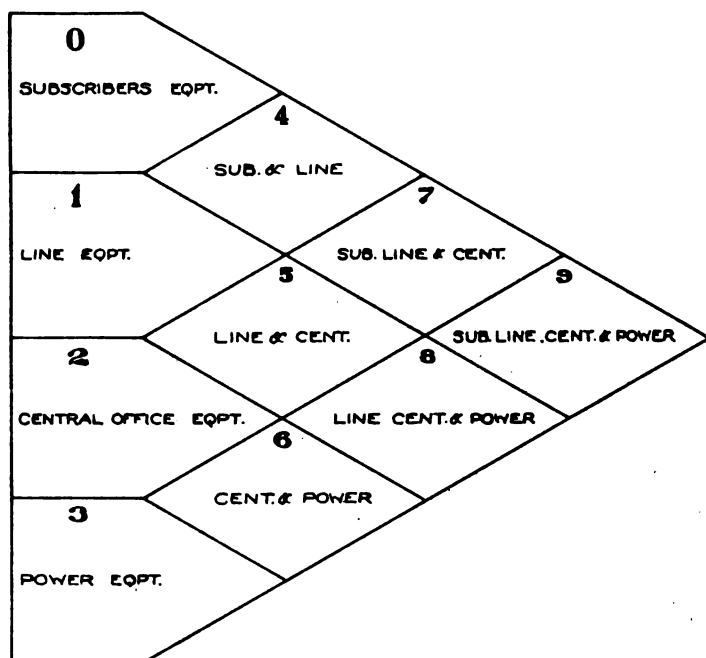


Figure 1—Division of Main Classes.

power equipment, and produced a central office and power combination class.

Obviously, it is not possible to cover all phases of telephone work by the addition of these three classes, but we may combine the line and subscriber's combination together with the line and central office combination and produce a subscriber's line and central office combination. In the same manner, the line circuit and the central office and power equipment may also be combined, producing the class line-central office and power equipment.

Finally, we may combine even the last two created combinations, which results in a subscriber's-line-central office and power division. Now, almost any phase of telephone work may be placed in any one of these divisions, which, for the sake of reference, we have marked as follows:

- 0.—Subscriber's Station Equipment.
- 1.—Line Circuit Equipment.
- 2.—Central Office Equipment.
- 3.—Power Equipment.

- 4.—Subscriber and Line Equipment.
- 5.—Line and Central Office Equipment.
- 6.—Central Office and Power Equipment.
- 7.—Subscriber, Line and Central Office Equipment.

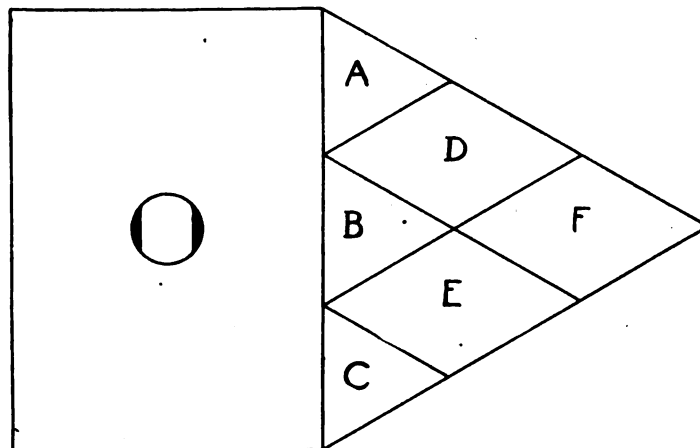


Figure 2—Analytical Division of Sub Classes.

- 8.—Line, Central Office and Power Equipment.
- 9.—Subscriber-Line-Central Office and Power Equipment.

From the above it will be observed that were we to construct a filing cabinet containing ten divisions, marked as shown above, it would be possible to place in these filing spaces various articles relating to telephony, and thus insure

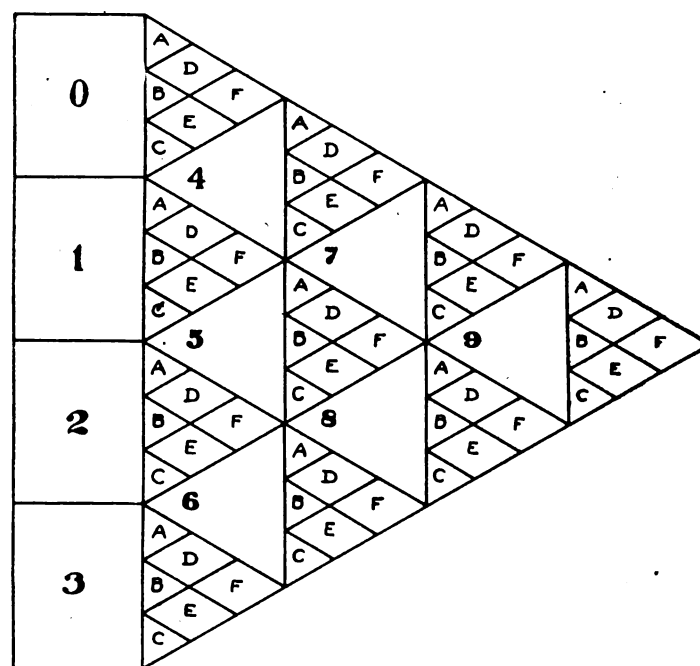


Figure 3—Combined Main and Sub Division Classes.

the immediate location of matters pertaining to a certain subdivision.

Now, then, in preparing an article for publication one could select any one of the ten classes and forge ahead. It is a fact often observed that new writers generally commence to write matter belonging in class 9, which, in pass-

ing it might be remarked, always stares one in the face when attempting to write articles after having prepared a first article which belongs in the division that practically covers the entire telephone field. Therefore, the primary point to keep in mind in writing an article, or we might even say, a book, is to avoid preparing it so that any one filing the data away for future reference would place it in filing division 9. Instead, select a subject covered, let us say, by division 0. This, at least, limits one to the description of telephone apparatus and does not naturally conflict with the line circuit class, the central office or the power equipment, nor need it conflict with divisions 5, 6 or 8.

Therefore, when one writes an article which belongs in class 0, he still may write on the subjects covered by divisions 1, 2, 3, 5, 6 and 8, without any possibility of there being any conflicting or duplicating statements between the 0 article and any of the subjects just mentioned. However, the inexperienced writer finds that he soon outwrites himself. That is to say, he comes to a point where he must repeat something he said before when he prepares an article on the subject covered by one of the divisions, 0, for example. Therefore, it becomes necessary still further to subdivide the classes so that the possibility of repetition may be precluded.

Referring to Figure 2, we have the 0 division with six divisions in triangular form to the right. These divisions are lettered respectively *A*, *B*, *C*, *D*, *E*, and *F*, and represent subdivisions of the subscriber's station equipment. *A* represents a statistical division under which all questions pertaining to statistics may be discussed, patents, and the present state of the art records belonging in that class. *B* represents an analytical class under which such questions as specifications, manufacturing, operating, testing and miscellaneous applications may be placed. In fact, the analytical class covers all subjects which apply to actual, practical work, but anything in the line of statistics must be left under the *A* subdivision. The third subdivision, *C*, covers an educational class, and under this subjects pertaining to instructions, observations, investigations, historical literature, legal questions, theory and electrical effects may be placed.

In constructing these three subdivisions, it is not difficult to assign an article to the educational class, nor is it difficult to properly assign an article in the statistical class. However, the method which has been followed with success in assigning an article to its proper class consists in determining whether the article is of an educational character. If not, it must be either of the statistical or analytical kind. Now, if one will remember that the analytical class covers nothing but subjects which are alive and being worked with for producing material results, it is not difficult to assign the statistical class to its proper division. Of course, as was also the case in the division shown by Figure 1, we must expect to find a combination of these divisions. Thus, combining *A* and *B* as shown by Figure 2, we produce the *D* class, and in this class—for the moment imagining that we have a filing cabinet arranged accordingly—is placed all matter pertaining to statistics as combined with analytical subjects. Under *E* we have a combination of the educational and analytical classes, and finally, under *F*, we have a division combining the statistical, analytical and educational subjects. In a general way, subdivision *F* is quite similar to subdivision 9 in Figure 1, and it is the class which the writer must avoid when treating the subject in detail. From the foregoing the reader will observe that subdivisions *A*, *B* and *C* may each be divided into many subjects, a few having been mentioned above.

Figure 3 shows a combination of Figures 1 and 2, and with such a diagram before him and with the *A*, *B* and *C* classes properly subdivided, the writer of technical articles has at hand a means which, when intelligently applied, will provide him with subjects for treatment for years to come.

It will be observed that not only under the 0 class have we the subdivisions *A*, *B* and *C*, but we have the same divisions under every class throughout the main subdivision. In order that the reader may gain some idea as to the minimum number of articles which may be written on the subject of telephony, let us assume that under statistical we have five divisions. The chances are there will be more. Further, that under analytical we have ten divisions, and under educational, an additional ten. This gives us twenty-five divisions, and it practically means that twenty-five absolutely separate and distinct articles can be prepared on each one of the ten master divisions. This gives us at least 250 articles for our immediate consideration, and if we add to this the number of articles which may be written under each one of the subdivisions, say *B*, by simply treating a certain type of instrument, this number of articles can easily be multiplied by ten, giving us, therefore, at least twenty-five hundred articles which a well posted writer on telephone subjects might prepare, and each one of the articles, if prepared with due consideration to the limitations of the subdivisions, will contain data of interest, and not in any way conflict with articles previously written by the same author. So much for the selection of a subject by an author when about to prepare one for publication.

Now, as respects illustrations, the tendency of an author, when submitting an article to the editor of a paper, is to use illustrations which are readily obtainable, and frequently such illustrations as are selected have already been used in some other publication. This practice of using illustrations not original in an article, which is supposed to be original, is one which should not be followed by an author. Everything in an article should be original, and it is the illustrations which have appeared in other publications, and which again appear in a supposed original article, that tend to reduce the value of such article.

In the preparation of these suggestions it is the writer's purpose to bring out as strongly as possible the great advantage of originality in writing an article, and in presenting Figure 3 he believes a method has been proposed which will be of material assistance to many in the selection of an original subject, and, when combined with a carefully selected number of illustrations, any one who thoroughly understands the subject which he attempts to treat should be able to prepare an article of an exceedingly interesting character and of value to everyone who may read it.

As to the length of an article, the subject, of course, determines the number of words one must use in clearly covering it, but there is one hard and fast rule which every new author should bear in mind, namely, the fewer words one uses in clearly describing a certain function of a piece of apparatus the better the article will be liked. And one other point: Few authors are able so to treat a subject that the article will be of any great benefit to those above them in experience and learning. Articles directed to those below us may be of too academic a character, but when an article is written in such a manner that even the author himself knows more about the subject—after studying the question—than he did before he prepared the article, that is the treatise which will be widely read and give information alike to those above, below and equal to him in technical learning.

#### WHEN YOUR PHONE IS OUT OF ORDER.

When your phone is out of order, and the only voice you know is your own, which wildly bellows in the box a fierce "Hello," you can understand the feelings of the murderer and see many mitigating things that might have happened easily. Oh, you hop around in frenzy till you're goggle-eyed and faint, when your phone is out of order, but your voice and feelings ain't.

# MANSON'S PRACTICAL SUGGESTIONS

*A Series of Short Articles Dealing with Important Phases of Telephone Work*

By Ray H. Manson

IN a previous chapter the construction and handling of switchboard cables are described and illustrated. The placing of this cable in the runways between switchboard and frames, as well as the fastening of the cables to the frames themselves also must be done carefully in order to produce a neat and satisfactory installation. It is apparently a simple matter to perform the various necessary operations, but to the uninitiated the small and unimportant details are the customary stumbling blocks.

There are many different ways to accomplish practically the same results in switchboard cabling, each with its particular exponent, but the underlying principles are about the same so that a few examples will suffice.

In the larger switchboard installation metal frame works are provided into which, or onto which the cables are fastened, these frameworks extending between the switchboards proper and the distributing boards and relay racks. This construction is now followed, even to the runways inside of

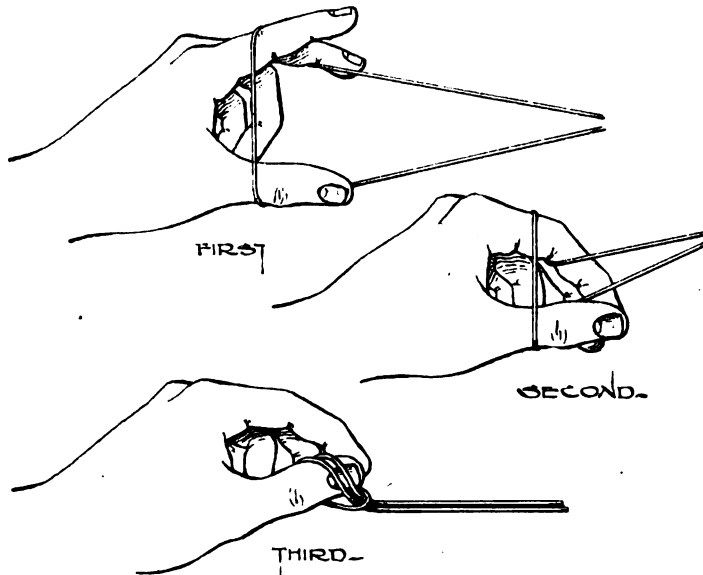


Figure 55—A quick method of forming a noose used in switchboard cabling.

the switchboard cabinets when there are a sufficient number of cables to warrant a special support.

The majority of the metal cable runways or supports are made from strap iron securely braced and provided with a sufficient number of cross pieces to support the cables without the latter sagging. These cross pieces also serve as convenient places to which the cables are securely laced so as to give a permanent installation. Metal cable supports of more elaborate design make use of channel or angle iron for the side supports and round rod for the cross pieces on which the cables rest and to which the lacing is attached.

It is obvious that the shape and design of these cable racks vary with the installation as the location of the various parts of the exchange equipment are made to fit the available space in the exchange building to best advantage.

When cables are placed on a wooden support, cross pieces of wood one or more inches square and as long as the total width of the cable runway are placed in close proximity so as to leave a clear air space beneath the cables. This is necessary to prevent dampness from entering the cables.

It is desirable in placing cable between the switchboards or exchange apparatus that the several cables of a run, either be laced together as a whole and to the runway frame work, or that the cables be laced together in layers. This latter arrangement is necessary in the case of a multiple run at the rear of the multiple jacks in the switchboard cabinet, as it often becomes necessary to get at the termi-

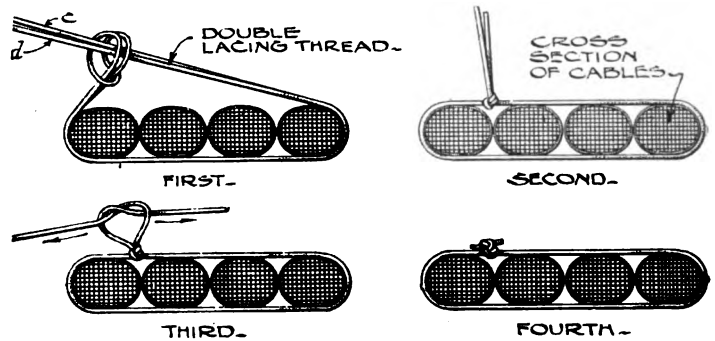


Figure 56—A cable binding loop used as a temporary or permanent fastening for a layer of switchboard cables.

nals of some of the jacks or to remove entirely a strip of jacks. The layer arrangement allows the cables to be separated and wedged apart so as to give access to the particular jacks desired.

When there are few cables in a run the lacing of these cables to the frame work of the runway and distributing boards can be accomplished without resorting to complicated methods. However, it is sometimes necessary to make use of special cable clamps or ordinary cabinet-maker clamps as shown in Figure 63 to hold the cables in place

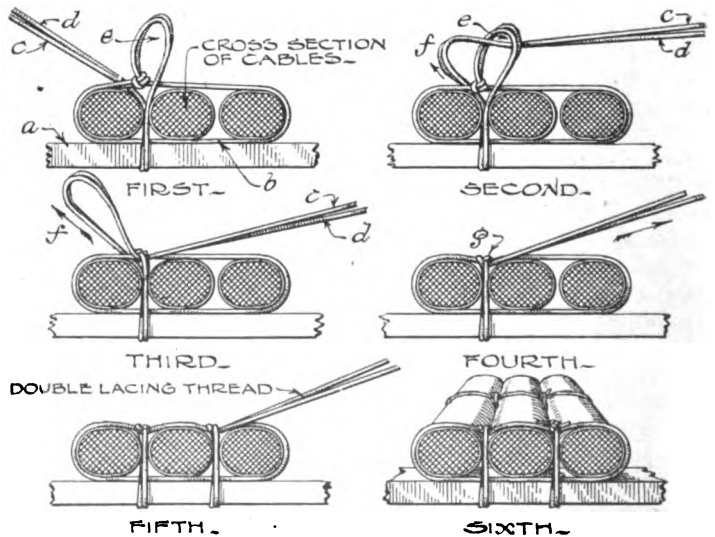


Figure 57—Operations of lacing together one layer of switchboard cables. This same method is used when the cross bar "a" is absent.

at the turning points of the cable runs until the binding and fastening of the same to the runs has been completed.

**A Cable Binding Loop:**—When there are several layers of cable in a run and each layer is to be held in shape until the entire lot of cables is in place, a loop shown in Figures 55 and 56 can be used to advantage. A piece of waxed Boston lock stitch machine thread (six cord

size) is taken of the proper length to encircle the layer of cables in a double strand. A slip noose is formed in the middle of this piece of thread by first doubling it back on itself. This noose can be quickly made by holding the thread as illustrated in the first view of Figure 55, and then allowing the loop to slip off the ends of the fingers over the thumb as shown in the second and third views of the same figure.

The free ends of the thread are now passed around the layers of the cable and inserted through the part of the noose occupied by the thumb as illustrated in the first view of Figure 56. The noose is then drawn tight so as to have the knot come between the first and second cables as shown in the second view, after which a single tie is made and the surplus ends are cut off as shown in the third and fourth views of Figure 56. This single tie is sufficient to hold the loop securely, an otherwise difficult feat due to the waxed nature of the thread.

If these layers are to remain as a permanent job, it is advisable to shellac the thread, thereby sticking the parts together and giving a neater finish to the work.

**Lacing Together One Layer of Cable:**—When a run contains a few cables only the latter can be arranged in a layer and bound together at a sufficient number of points to insure a permanent job by using the following method:

After the cables are in place and laid perfectly smooth, and held with clamps, if necessary, the bindings are put on commencing at the attached or fixed ends of the cables, by first making a loop as shown in Figure 56, but not drawing it tight, as the subsequent cross stitches between the sev-

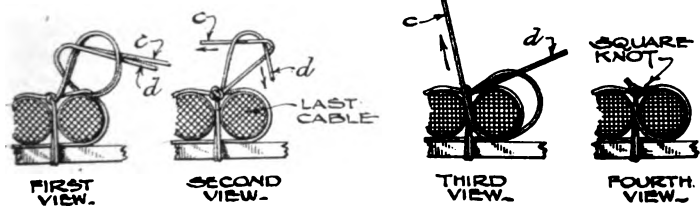


Figure 58—Final fastenings for the lacing cord used in binding switchboard cable together. The first and second views show a lock stitch and single knot method, while the third and fourth views show a fastening around the last cable with a square knot.

eral cables will accomplish this purpose. The amount of slack in the loop can be determined best by experiment. If a uniform job is desired through the entire run, a small wooden wedge of sufficient size to allow for this looseness can be made and laid alongside the cable when tying the loops. However, if a wedge is used it should be removed before any of the succeeding operations are done.

After the loop is tied loosely around the cable, the free ends *c* and *d* of the twine are passed together between the first two cables, around the cross piece *a* of the cable rack, first view of Figure 57, and back between the same two cables. If there is no cross piece located at the binding point, the twine can be passed around the strings *b* of the loop.

The ends *c* and *d* of the thread are now passed through the loop *e*, second view of Figure 57, left when performing the first operation and this loop drawn tight by pulling on the strings as indicated at *f*, the result being shown in the third view. Now by pulling on the free ends of the threads a secure knot, known as the lock stitch, will be completed, as illustrated at *g* in the fourth view of Figure 57. If made correctly, this knot will prevent the work already accomplished from slipping.

The threads now are passed over the next cable and between the second and third cables and terminated in a lock stitch, the latter operation being the same as in the case of the stitch between the first and second cables. If there are more than three cables, these stitches are repeated be-

tween each of the succeeding cables, the last stitch being shown in the fifth view of Figure 57.

The job of binding is completed by securely fastening the threads by one of the succeeding methods, after which the ends are cut off, giving the result shown in the sixth view of Figure 57.

**The Final Fastening in a Cable Binding:**—A secure fastening for the ends of the thread used in binding can be made in several ways. The first and second views of Figure 58 show a simple knot done by passing the two threads *c* and *d* together under the binding loop and then taking a lock stitch after which the threads are separated and a single knot tied.

The third and fourth views of Figure 58 illustrate a second method of making a final tie. Here the threads

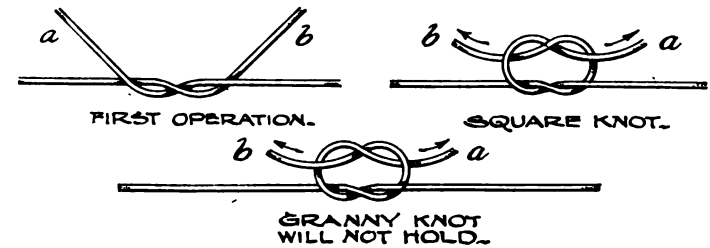


Figure 59—The correct way to make a single knot, also the so-called granny knot which is an insecure fastening.

are first separated, one of them, *c*, passed around the last cable and the two ends tied securely together by a square knot. The anchoring of the twine thus is made around a cable and very little strain is left for the knot.

As previously stated, the use of waxed twine requires extra care in the tying of knots so as to prevent slipping. Therefore, the so-called "granny" knot which is very often used in place of a square knot must be strictly avoided if the job is to remain permanent. Figure 59 shows the two operations in tying a square knot, also the "granny" knot which is made the same as the former but with the second operation reversed.

**A Simplified Method of Lacing Together One Layer of Cable:**—Figure 60 illustrated a method of binding together cables similar to that just described, omitting the lock stitch between the cables, so as to simplify the operations. The ends of the twine are fastened as shown in the third and fourth views of Figure 58. Rigidity and security are sacri-

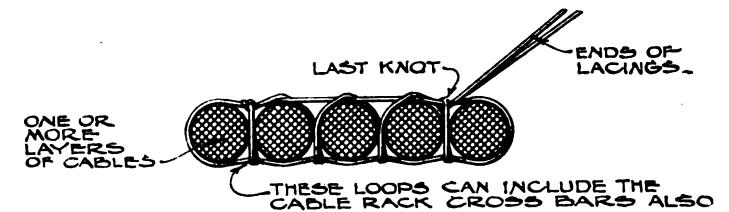


Figure 60—Simplified method of lacing cables together. This is not as secure as the method shown in Fig. 57.

ficed for a slight saving in time over that required by the lock stitch.

**Tools for Sewing Cables in Runways:**—It is necessary to make use of some form of a needle or sewing tool to draw the threads, used in binding the cables together, between the various cables and layers of cables. Figure 61 illustrates several simple tools adapted for this work.

An ordinary button hook *a*, Figure 61, filed or ground thin, if necessary, and smoothed with emery cloth so as to take off the rough edges, is used to good advantage in cable sewing. This tool is used by inserting the hooked end between the cables so as to engage the threads, after which the latter can be readily drawn through.

A convenient needle for use where flexibility is desired or when the threads are to be drawn between a large number of cables, is made in the form illustrated in Figure



61-B. These needles can be made from thin sheet fiber with a perforation, *a*, for holding the threads, or from sheet metal with a round hole at one end, or with a lip, *b*, over which the thread can be hooked. In the latter case the lip should be in the same plane as the remainder of the needle, as otherwise it will engage in the cable braiding when it is drawn through. Sheet steel, tempered after the needle is made, is the metal best suited for this construction. It is essential that all sharp corners and edges are removed carefully from the flat type of needle to prevent injuring the cable sheath.

A piece of hack saw blade with the teeth ground off and the ends finished smooth makes a handy needle for cable sewing and is easily procured.

For some kinds of cable sewing a four-inch packer's needle shown at *c* in Figure 61 is convenient. The end

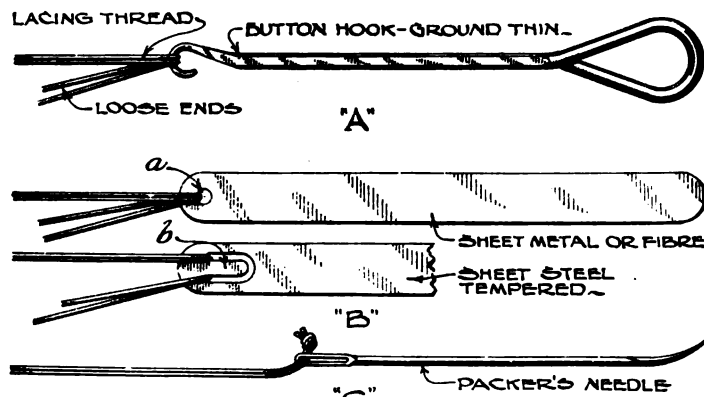


Figure 61—Tools used in sewing switchboard cables together.

of this needle is slightly bowed out of line with its shank, thereby allowing it to be readily inserted under a tight lace or between two cables. The lacing thread is inserted through the needle eye and the ends left sufficiently long to prevent their pulling out when the needle is drawn between the cables, or if the ends are short they are tied as shown in the illustration.

**Binding Together Several Layers of Switchboard Cables:** When a number of cables in a complete run are sufficient for several layers and the nature of the work demands this arrangement, it is advisable to bind and cross sew the

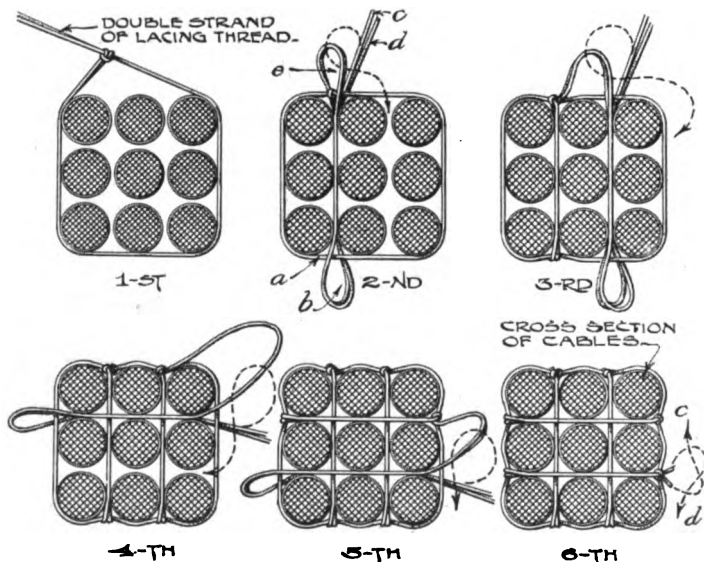


Figure 62—Binding together several layers of cables, making use of cross stitches.

whole together at frequent points in order to give permanency and neatness to the job. Figures 62 and 63 illustrate a very good method to follow in doing this work, the cross stitches being similar to those shown in Figure 57.

The binding is commenced by taking a double strand of lock stitch thread, passing it around the cable and forming a noose illustrated in the first view of Figure 56. This noose is left with some slack (first view of Figure 62) to allow for the spreading of the cables due to the cross sewing. The necessary slack, after once being determined by

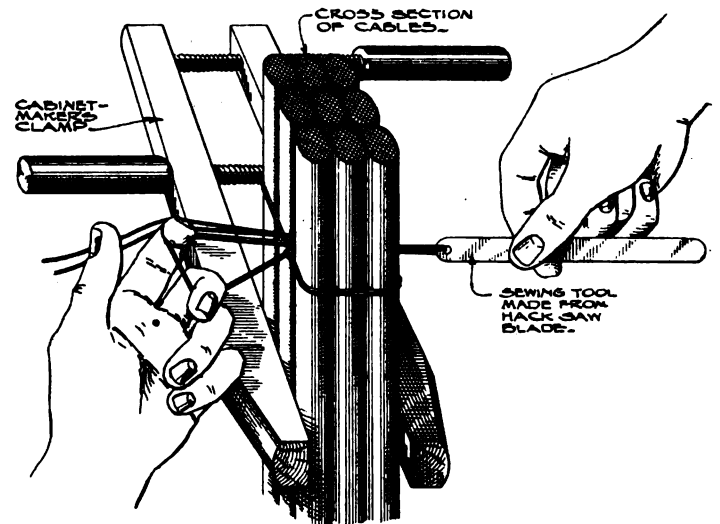


Figure 63—Operation of binding several layers of cables together.

experiment, can be made uniform for all succeeding bindings around the same group of cables by using a space block as previously described in connection with "Lacing together one layer of cable."

The second view of Figure 62 shows one cross stitch between two layers of cables, this stitch including the binding threads at *a*, or if a cross piece of a cable rack is located at the points of binding the loop *b* should also include the same so as to securely fasten the cable to the runway. The double ends of the threads *c* and *d* are

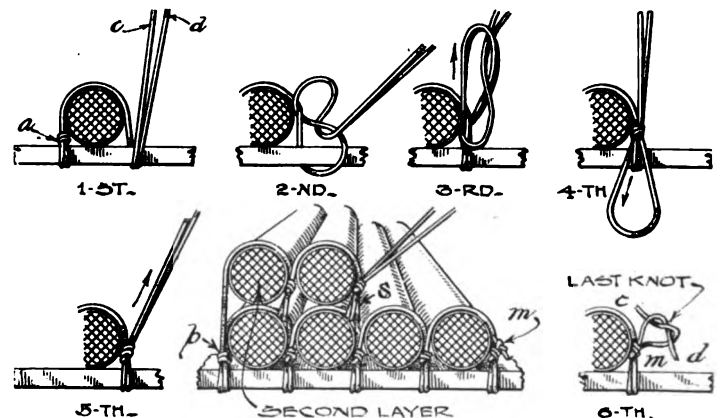


Figure 64—Method of binding cables together in which each cable is tied in place as soon as it is laid in the runway.

now passed through the loop *e* and drawn tight so as to make a lock stitch and retain the work already accomplished.

The succeeding stitches between parallel layers of cables are taken in exactly the same way as that just described and as illustrated in the third view of Figure 62.

The cross stitches between layers at right angles to the first set of stitches are commenced as shown in the fourth view of Figure 62, the operation for each stitch being the same as previously described. The last stitch is terminated in a lock stitch, fifth view of Figure 62, and held from loosening by separating the two ends *c* and *d* of the lacing thread and tying a single knot as shown in the sixth view of the same illustration.

At bends in the cable run or where the cables are ar-

ranged vertically, it is often necessary to make use of cable clamps or cabinet-makers' clamps to hold the shape of the group of cables until the bindings are completed. Figure 63 shows the use of one of the latter clamps, as well as the use of a special sewing tool made from a hack saw blade.

There are several simplified methods of accomplishing results similar to those just described but none as secure.

One deviation is the omitting of the cross stitches shown in the fourth and fifth views of Figure 62, while still another method is the omitting of the lock stitch made at the completion of each cross stitch as in Figure 62, substituting a simple crossing over of the threads shown in the case of a single layer of cable, Figure 60. This crossing over of the thread can be either at the top or bottom of the cables. If the latter method is used and the cross stitches are made around a cross bar of the cable rack, the exposed threads will show at an angle on the under side of these bars. In such a case, if the under side of the cable rack is exposed to view, it would be preferable to make the cross-overs at the tops of the cables, thereby giving a much neater effect.

**Binding Switchboard Cables in Place One at a Time:** Special methods of fastening cables, when the latter are run one at a time, such as in the case of answering jack cables of multiple switchboard, are used by some installers. In order to do such an operation, it is necessary that cross bars be provided at each point of binding, or in the absence of a sufficient number of cross bars, hard wood strips cut to the proper dimensions can be substituted.

Each cable is bound in place by using a double thread, one end of which is fastened to the cross piece by a slip noose, as illustrated at *a* in the first view of Figure 64. After passing over the cable the threads are again fastened to the cross bar as shown in the second to fifth views inclusive of Figure 64. This fastening consists of a knot similar in effect to a lock stitch, its efficiency depending entirely on the proper drawing of the threads tight as per the illustration.

Each succeeding cable of a layer is fastened in a similar

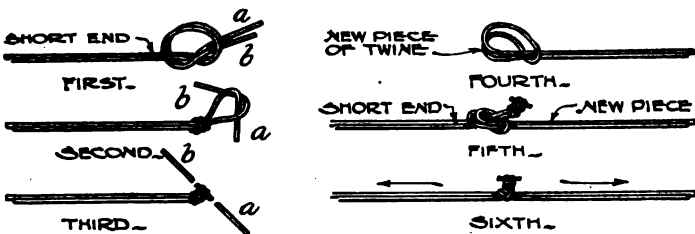


Figure 65—A most secure method of piecing waxed lacing thread.

manner, and the last knot, *m*, sixth view of Figure 64, held from any possible chance of slipping by separating the two threads *c* and *d* and tying them in a single knot. Additional layers of cable are treated in the same manner by first tying the lacing thread to the cross piece, as at *p*, Figure 64, and binding the cables to the layers immediately beneath. Each stitch or binding, however, is made to the binding thread of the cable under each new cable as at *s*. A packers' needle, Figure 61-C, can be used to advantage in making these stitches.

Unless the preceding work is done carefully the cables are liable to become loose or separated more than in the other methods of binding.

**Piecing-Out of Waxed Lacing Threads:**—Of all the many knots for tying two pieces of thread together, possibly none is better adapted to the waxed nature of Boston lock-stitch machine thread as the scheme extensively used by switchboard installers and shown in Figure 65.

When it becomes necessary to piece out the lacing threads a knot is tied in their ends, as shown in the first, second and third views of Figure 65. The new piece of thread is

doubled and a noose formed as shown in Figure 55, the latter being passed over the knotted end of the short thread and drawn up as illustrated in the fifth, and sixth views of the former figure. It is needless to say that this gives a most secure fastening.

**A Cord Tie Used in Drawing Cables Through a Runway:** When cables are to be drawn through runways a simple tie for the cord can be made as illustrated in Figure 66. A noose is taken around the cable, after which several hitches are made, the latter having the property of tightening when the cord is pulled, but being readily removed by slipping back from the end of the cable when the strain is taken from the cord. This tie is readily made, easily removed and holds securely when in service. It must be noted that

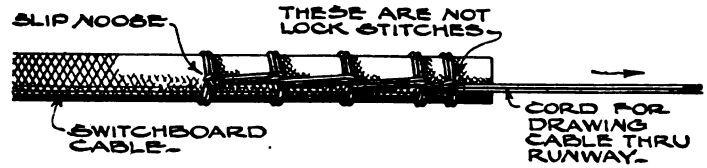


FIG. 66

Figure 66—One way to attach a cord to switchboard cable for drawing the latter through a runway.

the several hitches around the cable are not lock stitches, but are rather made opposite so as not to lock in place except when the cord is pulled.

## SEVENTH ILLINOIS DISTRICT.

The members of the Seventh District of the Illinois State Independent Telephone Association held their annual meeting at Springfield, February 7, which proved to be a most successful gathering. The companies represented furnish telephone service to more than 30,000 subscribers. The Illinois state convention will be held in May, and the Seventh District members formed plans to bring the meeting to Springfield so it will be within the boundaries of the district.

W. H. Ramsey, of Alton, was elected district president, and F. W. Kelly, of Springfield, was re-elected secretary. The executive committee comprises L. C. Schwerdtfeger of Lincoln, C. S. Haskins of Decatur, J. H. Hackett of Jacksonville, E. D. Boynton of Pleasant Plains and W. D. McBride of Taylorville.

Addresses were made by B. F. Wasson of Clinton, who spoke on "Evolution of the Telephone," and C. B. Cheadle, of Joliet, state secretary, who discussed the growth of the Independent movement.

## A LUCKY TELEPHONE GIRL.

Six years ago Mrs. Charles Payne, of Lawton, Okla., was a telephone girl of Wichita, Kan. To-day she is counted one of the wealthiest women in the new state, and all because she was lucky enough to draw a valuable claim when the Kiowa-Comanche lands were opened for settlement in 1901. At that time she was Miss Mattie Beal. When the drawing was made there was a scramble to secure claim No. 1. Thousands of applicants strove to capture the first choice, but the telephone girl won. Her claim adjoined the Lawton townsite, and most of the 160 acres is now within the most valuable part of the prosperous city of Lawton. Miss Beal paid but \$1.25 an acre for the tract. Subsequently she became Mrs. Charles Payne, and the other day she and her husband visited the claim and planned to erect a \$30,000 residence on a portion of the land she obtained so cheaply in 1901. Mrs. Payne intends, of course, to have her fine home fully equipped with telephones.

# DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

## A TELEPHONE OPERATOR ASSUMES THE ORDINARY RISKS OF HER EMPLOYMENT—WHAT ARE EXTRAORDINARY RISKS?

THE first case discussing this question that has come to the writer's notice has recently been decided by the supreme court of Massachusetts. The facts were that a woman operator employed by the New England Telephone & Telegraph Company had brought suit for damages for injuries which she alleged were due to the negligence of the company in allowing an electric current to escape into the switchboard, at which she was working, and injuring her severely in consequence. The court said on the question of what risks from electricity an operator assumes: "On entering the employment of a telephone company an operator at its exchange assumes the ordinary risks of irritation reasonably connected with the performance of her duties, but does not assume the risks of shocks from an electric current producing bodily prostration, though the degree of voltage is not sufficiently high to imperil life." There was evidence that the operator knew of peculiar clicking, buzzing noises above the switchboard and that she had notified the manager of them, and on this ground the company sought to escape liability, alleging that she must have known that there was something wrong and should not have continued to use the apparatus thereafter. The court said this was for the jury to decide considering all the circumstances of the case. The proof showed that the dangerous current had in fact injured the operator, but there was no showing by either party as to just why or how it escaped into the switchboard. The company claimed that it was the duty of the plaintiff to establish that the negligence was that of some one in authority, and not that of one of the plaintiff's fellow servants, since, if the latter, she could in no event recover damages, but the court held that, having established the fact that the current did in fact produce the injury, it was for the company to show affirmatively that the negligence of a fellow servant caused the accident.

*Cahill v. New England Telephone & Telegraph Company*, 70 N. E. 821.

## WIRE OVER LAND BUT UNSUPPORTED BY ANY STRUCTURE THEREON—WILL EJECTMENT LIE TO REMOVE THE WIRE?

The point here raised has not been discussed in TELEPHONY, and, owing to the importance of the ruling on this matter to companies generally, we quote below a considerable portion of the decision. The facts as found by the trial judge were that the Frontier Telephone Company, on or about January 1, 1903, without the consent of one Butler, stretched a certain wire over and across the latter's premises in the city of Buffalo and maintained such wire thereon until January 10, 1903, when the defendant company removed it. The complaint alleged that the wire was strung about thirty feet from the surface of the ground on the east side and slanting about twenty feet on the west side, reaching across the entire width of the premises. It was established that the plaintiff was in possession of the premises except that portion occupied by the defendant with its wire. On July 5, 1903, Butler brought suit in ejectment, for the "withholding by the defendant of that portion of the premises occupied by the wire for the purpose above specified." There was no showing that the wire was attached to any structure on Butler's lot. The parties went to trial on the issue whether the company was liable for damages in having occupied the space across the lot from the first to the fifth

of the month mentioned. It was decided in the lower court that Butler was entitled to six cents damages and costs. The appeal to the appellate division affirmed this judgment by a divided vote, and the court of appeals of New York has finally had occasion to discuss the matter.

While the monetary question is insignificant the principle involved is of considerable importance. The court of appeals said in part: "The question presented by this appeal is whether ejectment will lie when soil is not touched, but part of the space a few feet above the soil is occupied by a telephone wire unlawfully strung across the plaintiff's premises. This question has never been passed upon by the court of appeals or by the supreme court except in the decision now before us for review. Questions similar but not identical, as they relate to overhanging eaves and projecting cornices, were decided in favor of the defendant, in *Aiken v. Benedict*, 39 Barb, 400 . . . . The precise question before us does not appear to have been passed upon in other states, and upon the questions relating to the projecting cornices and the like the authorities are divided. . . . In *Wilworth v. Woodcock*, 58 Mich., 482, it was decided that equity could require the removal of a projecting cornice because no remedy at law is adequate, owing to the uncertainty of damages to afford complete compensation, but, as the court continued, no person can be permitted to reach out and appropriate the property of another and secure for himself the adverse enjoyment and use thereof, which in a few years would ripen into absolute ownership by adverse possession. . . . Is the authorized stringing of wires by one person over the land of another, an ouster from possession? Was the plaintiff in the undisturbed possession of his land when a portion of space above it was occupied by a permanent structure of defendant? Was the space occupied by the wire part of the land in the eye of law? What is real estate? So far as the case before us is concerned, the plaintiff, as the owner of soil, owned upward an indefinite extent; he owned the space occupied by the wire, and had the right to the exclusive possession of that space. Space above land is real estate the same as the land itself, . . . an owner is entitled to the absolute and undisturbed possession of every part including the space above as much as a mine beneath." The following illustration was suggested by the court as emphasizing the real point: "If the wire had been a huge cable, several inches thick and but a foot above the ground, there would have been a difference in degree, but not in principle. Expand the wire into a beam supported by posts standing upon abutting lots without touching the surface of plaintiff's land, and the difference would still be one of degree only. Enlarge the beam into a bridge, and yet the space only would be occupied. Erect a house upon the bridge, and the air above the surface of the land would alone be disturbed. Where along the line of these illustrations would dispossession begin?" The judgment was therefore affirmed against the telephone company.

*Butler v. Frontier Telephone Company*, 79 N. E. 716.

## INJUNCTION TO RESTRAIN PLACING OF POLES ON ABUTTING HIGHWAY WITHOUT AUTHORITY.

Although the Illinois supreme court has heretofore declared the rule on this question for Illinois, a recent decision has discussed the points anew and affirmed the established rule. One Ann C. Burrell owned certain property in front

of which the American Telephone & Telegraph Company in 1896 erected certain lines of telephone. There was an attempted agreement at that time with reference to compensation to her for the right to pass in front of her property, but there was no definite understanding. After a period of years the company sought to make certain improvements to the crossarms and the poles, and was met with an injunction seeking to remove the line entirely from in front of the premises and temporarily restraining the progress of the work. At the trial the company established the fact that some thousands of messages passed over this line daily, that the removal would be a serious inconvenience and a great expense, and contended that inasmuch as the owner had delayed so long in bringing her injunction proceedings she had lost any right that she might have had at the beginning. The supreme court, in deciding the case, agreed upon the following statement of the law to be applied: "A telephone line in a public highway is an additional burden upon the fee, for which the owner of the fee is entitled to compensation. (*Postal Telegraph Company v. Easton*, 170 Ill. 513.) The maintenance of the telephone line and the addition of new crossarms, . . . constitute a continuing trespass, which equity has jurisdiction to prevent by injunction. . . . Defendant did not act in ignorance of the real title, or enter upon the highway believing that it had any title whatever, and it knew just as much about the facts of the case as the complainant. . . . Defendant is in no better position than any person who enters upon the land of another knowing that he has no right, and that nothing but the statute of limitations will prevent him being ejected therefrom. . . . The fact that a large number of telephone messages are sent over the line daily, and that therefore it would be inconvenient for the public to have the defendant line removed from in front of complainant's land, is of no importance whatever. If the land is needed for a public use, the law provides a way for acquiring it, and the constitution prohibits its appropriation for such a use without compensation. . . . Defendant cannot be heard to say that the public want it to have the use of the land without the company first paying for the same." It will be noted, in conclusion, that the point of the opinion affirms the previous holding of the supreme court that the use by a telephone company of abutting property for the erection of poles and the stringing of wires constitutes an additional burden for which the property owner may demand compensation; further, that in this state a company may exercise eminent domain to acquire such rights when the property owner and the company cannot agree on the price. In any case the abutting owner can legally demand compensation before allowing the use of his abutting highways for the purposes mentioned.

*Burrell v. American Telephone & Telegraph Company*, 79 N. E. 705.

#### DESTRUCTION OF TELEPHONE LINES BY RAILWAY COMPANY.

The Batesville & Winerva Telephone Company brought suit in the circuit court of Izard county, Arkansas, for damages sustained by it by the act of the White River Railway Company in destroying some six hundred of the telephone company's poles, removed by the railway company while laying its roadbed. It was shown that the latter company had in fact surveyed for its line of railway, but had not filed a copy of its map in accordance with Kirby's Digest, Sec. 6569, which provides that before a railway company shall do any clearing, it shall file its map and profile in the office of the clerk of the circuit court. A verdict of \$550 was given to the telephone company which has been affirmed by the supreme court of the state. The damage to the telephone company was done between the date of the survey and the filing of the map. The court said: "The making of a survey gave the railway company no

rights in the land on which the telephone company's lines were located, even if the telephone was built after the survey. It was not shown when the railway company acquired its right of way and unless this was acquired prior to the construction of the telephone company's poles the railway company had no exclusive right on the ground."

*White River Railway Company v. Batesville & Winerva Telephone Company*, 98 S. W. 721.

#### CARE REQUIRED IN THE USE OF ELECTRICITY—RULE IN FLORIDA.

In a personal damage case in Florida, which arose in consequence of the death of one Sloan from an electric current from the wires of the Jacksonville Electric Company, the supreme court had occasion to discuss the question of care required by those having occasion to handle electricity, and said in part, "Electricity is an invisible, impalpable force, and is highly dangerous to life and property, and those who make, sell, distribute or handle it are bound to exercise care proportionate to the danger involved." It will be noticed that this is a modification of the rule declared in some other states, to the effect that the care required is the highest degree of care, rather than that proportionate to danger involved. This somewhat close distinction is a very important one, and the obligation is lessened accordingly as due care, that proportionate to the danger, or the highest degree of care is considered.

*Jacksonville Electric Company v. Sloan*, 42 Southern, 516.

#### DAMAGES FOR PLACING POLES ON LAND WITHOUT AUTHORITY —RULE IN GEORGIA.

The supreme court of Georgia has said in a recent case in which the Postal Telegraph-Cable Company was a party that if the company, over the objection and against the protest of plaintiff, entered upon his property and erected telegraph posts without authority of law, he would be entitled to at least nominal damages therefor, although no special damages were shown. It was also said that the right of eminent domain exists in this state for the purpose of condemning land for placing poles and wires thereon and as a mode of determining the damages. However, if without acting under the authority of condemnation proceedings a company proceeds to erect poles and wires, it is a mere trespasser.

*Postal Telegraph-Cable Company v. Kuhnen*, 55 S. E. 967.

#### RAILROADS ADOPTING TELEPHONES.

At a meeting held recently by officials of the Southern Pacific railroad it was decided to equip the system throughout with telephone service. Train orders and company business will eventually be transacted by telephone, instead of by telegraph, as heretofore.

Although the telephone system that is to be installed along the Southern Pacific lines will for awhile be supplementary to the regular telegraph system, eventually the telephone will supplant the telegraph all over the system. Other roads throughout the country have installed telephone service in conjunction with the telegraph lines, and in many instances the telephone has entirely supplanted the telegraph.

The Illinois Central railroad has a telephone system, which is gradually taking the place of the regular telegraph service of the company. The Philadelphia & Reading, in the east, now depends entirely upon the telephone, having long since abandoned the telegraph. Portions of the Pennsylvania system have been installed with telephones, and it is the understood policy of the company to eventually chain its entire system together with telephonic communication.



# MODERN TOLL SWITCHBOARD EQUIPMENT

*The Second of a Series of Articles Dealing with this Important Subject*

By J. E. Hilbish, J. B. Thiess and G. A. Joy

## ARTICLE II.

**N**on-Multiple Toll Boards.—As the toll business grows and assumes such proportions that the single position at the local board is inadequate to handle the same, it is but natural that the engineer, in order to meet the new conditions, should advance into a much broader field—namely, the design of a separate unit to be used exclusively for toll work. The circuits used in handling calls in a non-multiple toll board are, in many instances, exactly like those used in the toll position at the local board; and, therefore, it is often very convenient, in an exchange where this advance just described has been made, to retain the toll posi-

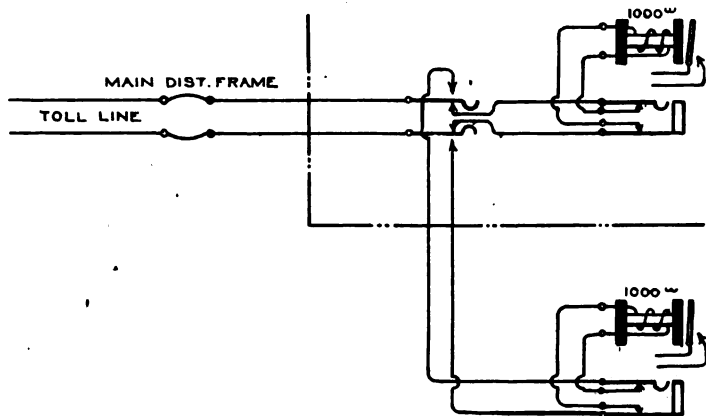


Figure 5—Toll Line Circuit Showing Switching Key for Night Service.

tion at the local board for handling the night toll service only. If this is done keys are provided at the toll board for switching the toll lines to the local board, thus permitting one night operator to handle the toll as well as the local business. There are several ways by which this switching may be accomplished. One of the best available methods is shown in Figure 5, in which the toll line proper terminates in the main springs of a key, the inner contacts of which are connected in series with the line to the toll board, while the line to the local board is connected in a similar manner to the outer springs. Thus the key is the means by which the toll line signal of any particular line can be switched at will from the toll to the local board and vice versa. Another ingenious method of performing the same operation, when the use of keys is too expensive or deemed inadvisable, is to insert a rubber dummy plug into the jack at the board where the signal is to be disconnected. If this method is used the lines terminating at both the toll and local boards are wired in multiple. The act of inserting the plug opens the series contacts in the jack which disconnects that drop from the line. While this method is not as positive or advisable as the first, it is a very cheap solution of the matter in hand.

It is quite likely that in the mind of a person not familiar with toll operation the question would arise as to whether it would not be more advisable to equip a second toll position at the local board in preference to installing a separate toll board, if, as stated above, the method of operation is approximately the same. This question can be answered with many arguments in favor of a separate toll board, chief among which is the fact that the toll board is designed for

the convenience of handling this class of business while the local board is designed for a very different purpose. Among the principal features to be observed in the design of a toll board, exclusive of the equipment, are wide key shelves, with plenty of space for the operator to do the necessary writing in making out tickets or other clerical work to which she may be assigned; book stalls for filing the necessary telephone directories that may be required in obtaining the telephone number of a party desired in a toll connection, and pigeon holes for the filing of toll tickets, etc.

In Figure 6 is shown a desirable arrangement of apparatus for a one-position toll board. It will be noted that the board embodies the heretofore mentioned features in regard to book stalls, pigeon holes and wide key shelves. It might also be advisable right here to give our reasons for distributing the electrical equipment as shown in the figure, since the relative placement of this apparatus is important, but is often thought of as hardly worthy of consideration. This problem is very readily solved for a small board similar to the one shown but as we proceed to a study of larger boards it will be observed that the question becomes a matter that demands serious attention. By referring to the figure we see that all the drops are located above the jacks,

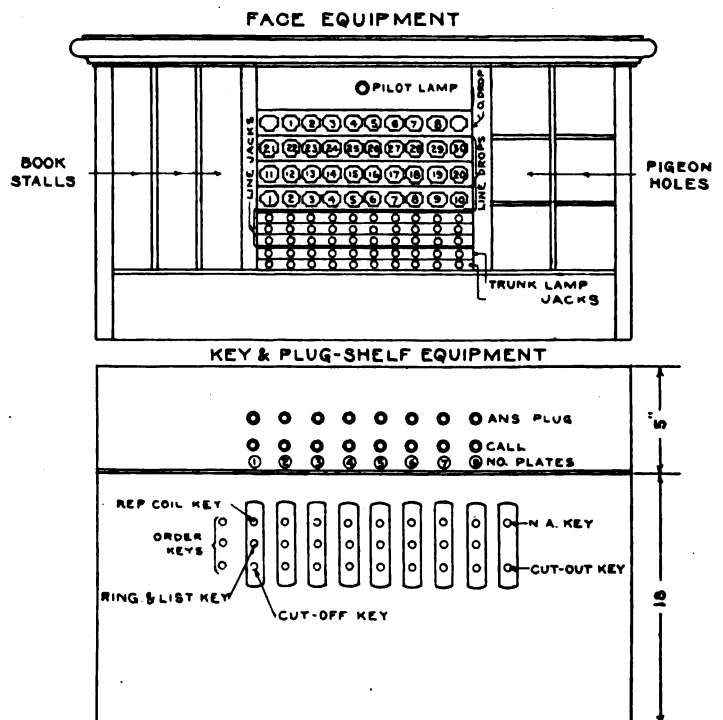


Figure 6—Arrangement of a One Position Toll Board.

in which position the operator will always have a clear and unobstructed view of the same. To show how the relative placement of the drops and jacks will affect operation, let us assume for example that some of the jacks are placed above them. Then if a number of connections have been put up, it will readily be seen that the cords used all pass directly in front of the drops, and therefore the operator may fail to see a shutter fall, or one of the cords is likely

to be crowded in toward the face of the board and thus prevent the shutter from falling altogether. It is also imperative that the line drops and jacks are numbered in a neat, clear manner, so that no time will be lost in locating corresponding drops and jacks. This is also true of the cord equipments, namely, each pair of cords and the accompanying clearing out drop should be numbered. The cords are best numbered by imbedding a number plate in the leather plug-shelf directly in front of each pair of cords, while the drops are numbered in the usual manner.

In arranging the keys to suit the convenience of the operator, we must bear in mind the fact that the key which will be most used should be placed nearest the operator and vice versa. As shown in the sketch, the repeating coil key is the one closest to the face of the board as it is operated but once, if at all, during a connection. Naturally, the one to place nearest the operator is the double cut-off key as she will be using this key almost continuously during the period

capital for a small board, but practice has shown that the instrument will more than pay for itself, because of the accuracy with which the operator can time calls without any material exertion on her part. It is now universally acknowledged by men who have been in close touch with large toll boards that the calculagraph is indispensable for their work; and if the same is a profitable investment here, logical reasoning will show that like results can be obtained with it at a small board, since a failure to charge up accurately the total length of time of a toll call affects large and small exchanges alike, and the amount of money invested to obviate this fault is identical in both cases. One of the many reasons that calls cannot be well timed by means of the ordinary clock is due to the fact that the operator cannot possibly make a positive guess at fractions of a minute, and therefore to avoid complaints she will give the subscriber the benefit of the doubt.

*Magneto Non-Multiple Switchboards.*—The equipment

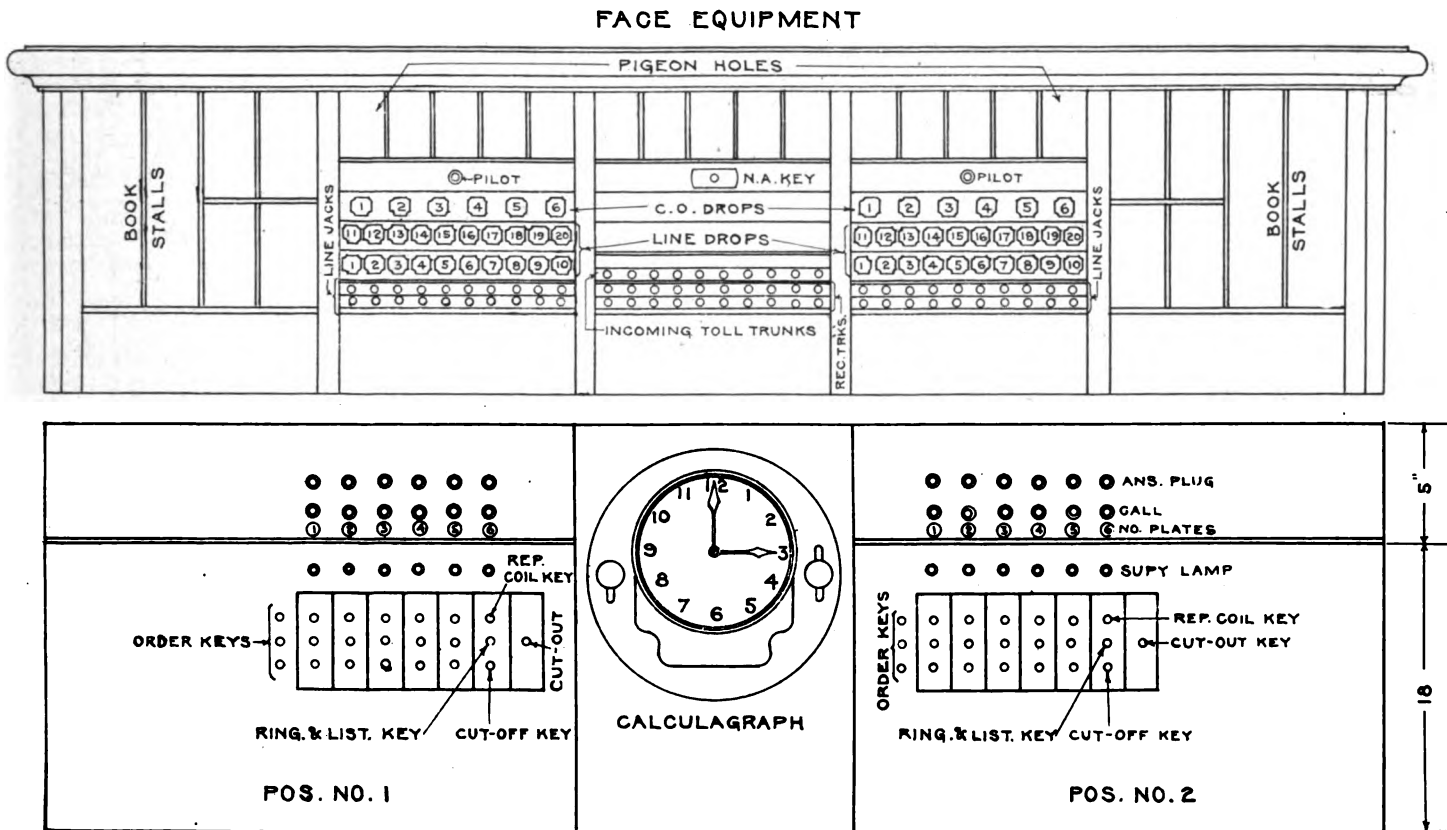


Figure 7—Arrangement of a Two Position Toll Board.

in which she is completing a connection. The listening and ringing key is located between the other two, since its functions are such as to require its use less often than the double cut-off and more frequently than the repeating coil key.

Although the equipment shown in the diagram is for a board which is to work in connection with a magneto local board, the same general arrangement of apparatus would be used for one working in connection with a common battery board with the addition of a supervisory lamp for each cord circuit, which would be located in front of each pair of cords. In Figure 7 we have shown the arrangement of equipment for a two-position toll board, designed to operate in connection with a common battery local board. The same arrangement of apparatus will be noted, save that the trunking jacks are placed in the middle panel so as to be easily accessible to either operator. A calculagraph is placed in the key shelf between the two operators so that toll connections may be accurately timed.

Many switchboard managers are of the opinion that the buying of a calculagraph is an unnecessary expenditure of

and type of circuits for non-multiple toll boards is dependent to a great extent upon the type of local switchboard with which it is to operate. In case the local switchboard be of the magneto non-multiple type then the operation is identical with that already described for a toll position at the local board, using the circuits shown in Figure 1.

*Magneto Multiple Board.*—The operation of a toll board in connection with a magneto multiple local board is very similar to that of the magneto non-multiple, the only difference being in the trunking circuit. The plug at the local board end of this circuit must be provided with a sleeve conductor which will raise the potential of the sleeve of the jack into which it may be inserted, thus causing all the jacks on said line to test "busy." The trunk circuit for this purpose will be the same as the one shown in Figure 3, with the exception that the jack at the toll board will be of the two-conductor type. Hence, in order to operate the relay a pair of springs are provided in the jack, which, upon the insertion of the toll plug, make contact, thus completing a circuit through the relay. In order to obtain a clear con-

ception of the operation of this system, we deem it advisable to trace a call through a complete cycle.

When a toll party desires a connection with a local subscriber he rings up in the usual manner and the operator, upon ascertaining the number of the subscriber desired, will insert the calling plug of the pair of cords into one of the trunk jacks, thus energizing the relay and lighting the lamp at the toll as well as the local board. At the same time she will, by means of her order circuit, instruct the local operator at whose position the trunk line terminates as to the number of the local subscriber desired; whereupon the local operator will insert the plug associated with the lighted lamp into the multiple jack of the line called for, which act completes a circuit through the second winding of the differential relay, causing the armature to fall back, thereby extinguishing the trunk lamps. The toll operator will then operate her listening key, and in case she finds the line idle she will ring the party in the usual manner. If,

ing plug of a pair of cords and thence complete the connection in the usual manner.

*Common Battery Non-Multiple Boards.*—The operation of a toll board in connection with a common battery non-multiple board is identical with that previously described for a toll position located at a non-multiple switchboard. The circuits used are those shown in Figure 3.

*Common Battery Multiple Board.*—We are now about to describe the last type of non-multiple toll board, namely, the one that is to operate in conjunction with a common battery multiple board. The circuits used in this board and those to follow are somewhat more complicated than those previously described, and we will therefore give a more complete description of their operation.

Although the toll line equipment remains the same, the necessary methods for trunking to and from the local board are more complex for the system about to be discussed, and consequently we will devote the major part of the descrip-

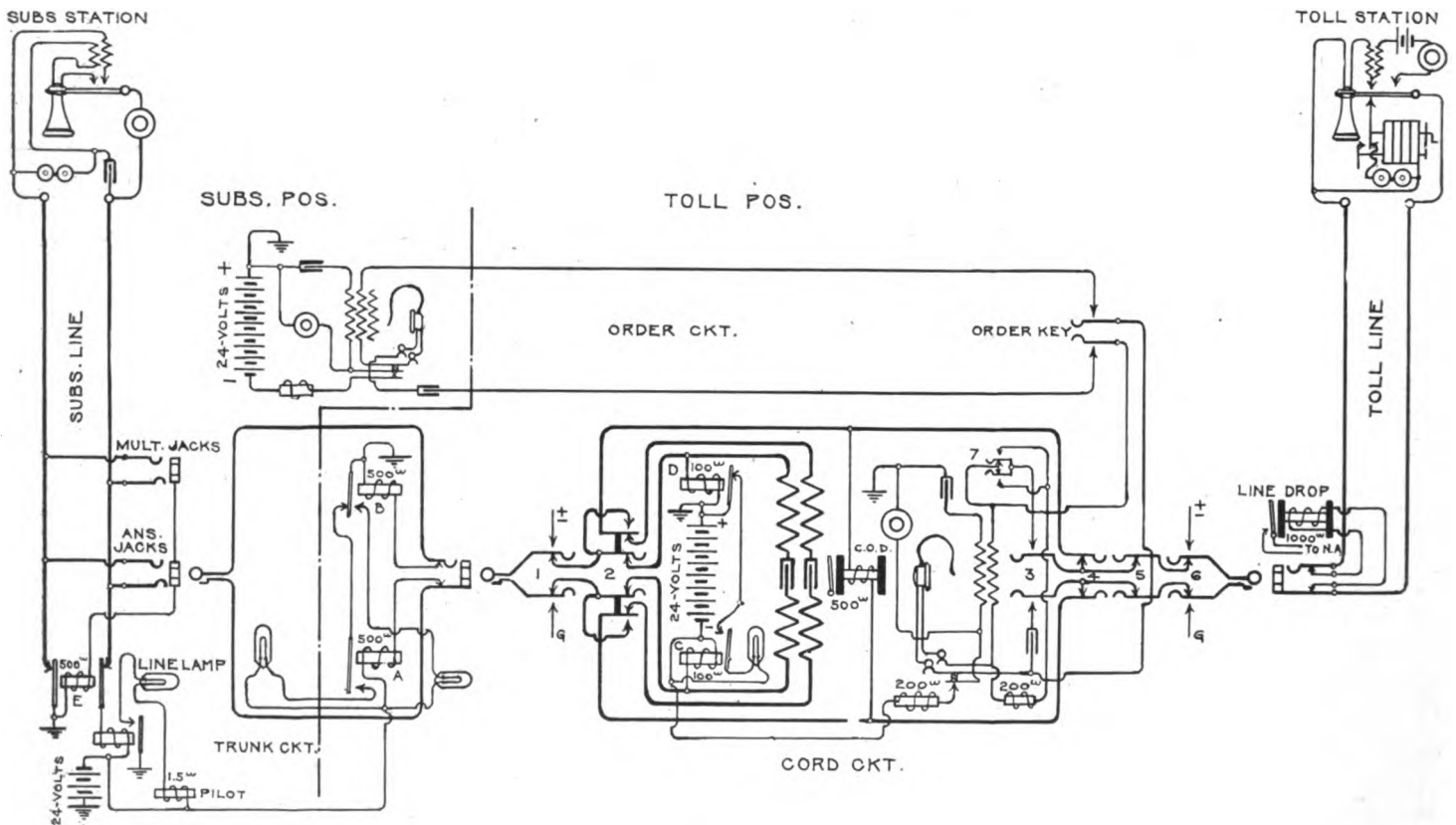


Figure 8—Toll Connection Over a Two Way Service Trunk to Common Battery Exchange Subscriber.

however, she finds that the line is busy she can either operate her cut-off key, thus preventing the toll party from listening to the conversation and wait for the local party to "ring off," or she can break in on the conversation, telling the subscriber of the toll connection waiting for him and ask that the local conversation be deferred for the time being, so that the toll connection may be completed. When the conversation is finished both the toll and local subscribers "ring off," thereby throwing the clearing out drop. The toll operator will then take down her connections, thus opening the circuit of one of the differential relay windings, which will cause the armature of said relay to be attracted. This will light the lamps associated with the trunk circuit in use, giving the local operator a disconnect signal and she will then also remove her connection which restores the apparatus to its normal condition. Should the call originate at the local board, the operator, upon ascertaining that a toll connection is desired, will withdraw the plug of her regular cord circuit and insert the plug of one of her trunk circuits. This act will light the lamp associated with said circuit in front of the toll operator, who in turn will insert the answer-

tion of this particular equipment to a detailed analysis of their operation. There are two general methods of handling connections between the toll and local boards. These are, first, by means of a two-way trunk, which may be used, as the name implies, for putting up a connection from the toll to the local board and vice versa; and, second, by means of recording and incoming toll trunks. The first mentioned trunking system is very well adapted to an exchange where there are ten or fewer equipped positions at the local board. The reasons for which will be readily appreciated by the reader after completing the following description. The circuit for such a system is shown in Figure 8 and we refer to this in tracing out the following connection.

A toll party, having reached the exchange in the usual way, will ask for the local party desired, whereupon the toll operator will place herself in communication with the local board by means of her order circuit, and instruct the operator as to the number called for. The local operator will then assign the trunk to be used and insert the plug of the trunk thus designated into the multiple jack of the sub-

scriber's line wanted. The ring contacts of the plugs used in these circuits are so designed that they short circuit the ring and sleeve springs of the jacks into which they are placed. For this reason when the operation has proceeded as far as indicated above, and the local line is idle, we can trace a circuit from ground by way of relay *E* to the sleeve of the jack over the ring strand of the trunk through the series contact in the jack and consequently relay *A* to battery. Therefore, these relays will be energized thereby attracting their armatures which will light the lamp associated with the local board end of the trunk in case the toll operator has not previously plugged into the trunk jack. The act of plugging into the jack, will open the series contacts in the same, which will de-energize relay *A* and ex-

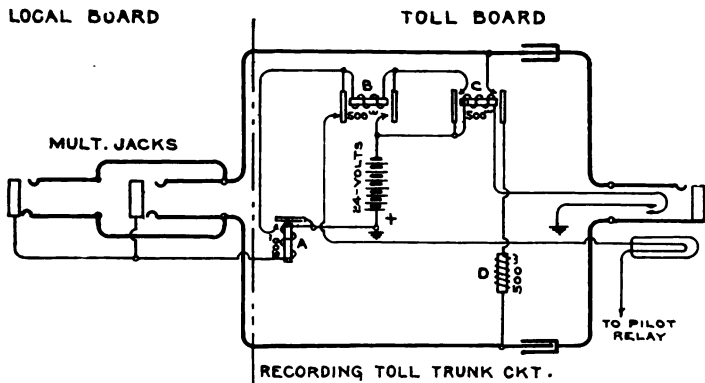


Figure 9—Toll to Local Service Trunk Circuit.

tinguish the light. At the same time a circuit will be established from the ground on the sleeve of the jack, over the ring strand of the trunk and toll board, through the contacts of keys 1 and 2, and the relay *C* to battery, thereby energizing this relay, causing the attraction of its armature which will close the local circuit thus lighting the supervisory lamp associated with this cord. When the local party removes the receiver, he bridges his telephone set across the line, which will cause the battery to feed out through the coils of relays *C* and *D*. The energizing of relay *D* will open the local lamp circuit and extinguish the supervisory light, informing the toll operator that the local subscriber has answered. In case the local line called for is busy, the supervisory lamp associated with the toll operator's cord will not light, since the line is bridged with the local party's telephone, which will energize relays *C* and *D*, thereby opening the local lamp circuit as explained above. In this case the operator may either actuate her cut-off key, thus preventing the toll operator from listening to the conversation, and wait for the subscriber to hang up, which act will light her supervisory lamp, and she will then call him in the regular manner; or, if the toll line is a busy one, she may break in on the conversation and tell the party wanted that a long distance call is waiting, and request that the local conversation be deferred until later. When the conversation has been completed, the toll party will "ring off," which act will cause the shutter of the clearing out drop to fall, and the local subscriber will "hang up" thus de-energizing relay *D* and lighting the supervisory lamp. The toll operator, upon seeing these disconnect signals, will take down her cords, which will close the series contacts in the trunk jack, thus energizing relay *A*. Consequently the lamp associated with the trunk at the local board will light, giving this operator a disconnect signal and she will remove her connections and so restore the equipment to its normal state.

In case the call originates at the local exchange, that is, a local subscriber desires a toll connection, he will call up in the regular way, and the operator upon ascertaining that a toll connection is desired, will remove the answering plug and insert in its place one of the two-way toll trunk

plugs. This will cause the lamp associated with this trunk at the toll board to light, due to the operation of relay *A*. The toll operator will then insert the local plug of a pair of cords, which act extinguishes the lamp, and she will then handle the call in the usual manner. If, however, the toll line desired is busy, or it requires some time to complete the connection, she will tell the local subscriber to "hang up" and she will, upon reaching the toll party, complete the connection as already described, for a call originating with a toll subscriber.

In the use of the above described trunking system it is apparent that each local operator must have at least one two-way trunk at her command. A very desirable distribution of this type of trunk equipment is to place a group of two or three between each two local operators, in which position either operator may utilize them. From this it will be readily realized that when a local board has more than ten equipped positions, the number of trunks that are necessary becomes so large that the cost of installation becomes excessive, and consequently this method must be abandoned. This difficulty may be obviated by placing all the trunks at one position, in which case a local operator, upon receiving a call for a toll connection, will by means of her order circuit instruct the trunk operator as to the number of the party desiring toll service. The trunk operator will then insert one of her trunk plugs into the multiple jack of the calling party, and the local operator at whose position the call originated will withdraw her answering plug. The call will now be handled in the manner just described.

This arrangement of the trunking equipment will do very nicely when the amount of toll traffic is small, but when this business has assumed some size, it becomes necessary to handle it in a more rapid and clear cut manner. Since by the method just outlined a toll call is handled by two local operators before reaching the toll board, it is readily realized that this will give rise to an unnecessary loss of time, which will be saved to a certain extent by the system employing recording and incoming toll trunks. In Figure 9 we have

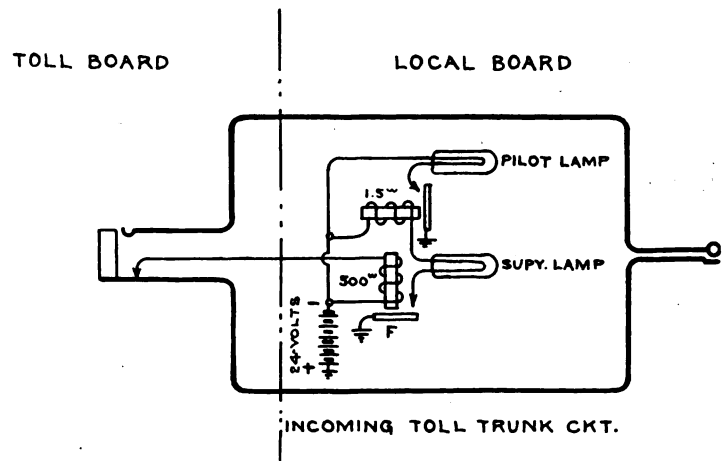


Figure 10—Recording Trunk Circuit.

depicted a desirable form of incoming toll trunk circuit. The local board end of these circuits is usually handled by the first subscriber's operator, as there would not be enough of them needed in connection with a non-multiple toll board to keep an operator busy. The operation of this circuit is as follows, it being understood, of course, that this circuit merely takes the place of the two-way trunk circuit shown in Figure 8, to which figure we refer in connection with Figure 9 in this description.

The toll operator will answer a long-distance subscriber, who has signaled the exchange in the regular manner, by inserting the toll plug of a pair of cords into the jack of the line calling and subsequently operating her listening key. Upon being informed that a local party is desired, she will



speak by means of her order circuit to the operator at the local board who handles the toll trunks, informing her as to the number desired, when the trunk operator will assign the trunk to be used. Upon receiving this assignment the toll operator will insert the plug of the local end of the pair of cords used into the jack of said trunk, which act will open the series contacts in this jack and thus disconnect all the trunk signaling apparatus from the line. Then, if upon listening in, she finds the line idle she will ring the subscriber. When the conversation has been completed the toll operator will receive the disconnect signals in a manner similar to that already described for this cord circuit. Consequently she will remove her cords, thereby closing the series contact in the trunk jack. This will light the lamp at the local end of the trunk, this circuit being traced from ground by way of relay *E* to the sleeve of the jack, over the ring strand of the trunk, and thence through the jack contact and relay *F* to battery. Thus relay *F* will be energized, attracting its armature which will close the local lamp circuit. The local operator upon receiving this disconnect signal will remove her cord, which will open the circuit and restore all equipment to its normal condition.

Should a local subscriber desire a toll connection, he calls up in the regular manner, and the operator, upon learning that a long-distance call is desired, will insert the calling plug of the pair of cords used into one of the recording toll trunk multiple jacks, which she has previously tested and found idle. This will complete a circuit from battery through the ring relay in the cord circuit and relay *A* in the sleeve strand of the recording trunk circuit, shown in Figure 10. Consequently these relays are energized and will attract their armatures, which will complete a local connection in the cord circuit, causing the lamp to light as already explained, while in the recording trunk we can trace a circuit from ground through the make contact of relay *A* to the back contact of relay *B*, and hence through the lamp to battery, thus causing this lamp to light. The toll operator upon seeing the signal will insert the plug of one of her cord circuits into the recording trunk jack associated with the lighted lamp. This act closes the contact in the jack, completing a circuit to battery through relay *C* which will energize the same. The operation of this relay completes two circuits, the first of which bridges the retardation coil *D* across the line, thus causing the tip relay in the local cord circuit to become energized, which extinguishes the supervisory light as described before; and the second completes a circuit from battery through relay *B* and the make contact of *A* to ground, thereby causing the operation of said relay. This will open the lamp circuit since the attraction of the armature will open the back-contact, and since it also closes the make-contact, it completes the battery circuit in parallel with the connection just made by relay *C*, the reason for which will become apparent directly. The toll operator is now ready to converse with the subscriber, and she will therefore proceed to obtain the number of the toll party wanted, that of the calling party, and all other information necessary to complete the toll ticket; after which she will tell the subscriber to hang up his receiver, informing him that he will be called as soon as the toll party can be reached. The toll operator will then remove the plug thus opening the jack contact, which de-energizes relay *C* causing its armature to be released, and it, in falling back, opens the circuit through the retardation coil *D*, thus allowing the armature of the tip relay in the local cord circuit at the multiple board to fall back, which will light the supervisory lamp. The relay *B* will remain energized since its battery circuit is completed through one of its own contacts and this will prevent the lamp at the toll board from relighting. The local operator upon getting the disconnect signal will take down the connections and thus release the armature of relay *A* which upon falling back opens the circuit through relay *B*, allowing its armature to

drop back, and the apparatus is then restored to its normal state. The toll operator now rings the toll party and, upon reaching the same, she will complete the connection in a manner identical to that previously described for the toll to local connection.

The two-way toll trunk as shown in Figure 8 and the incoming toll trunk shown in Figure 9, has no provision for testing the multiple jacks to ascertain if the line is busy. This feature can easily be added by placing a key in the tip conductor, which in its normal condition closes the circuit, but which upon being operated opens this conductor and connects the plug end of the same through the induction coil in the operator's set to ground. Therefore, if this key be operated and the tip of the plug is applied to the sleeve of the multiple jack of a busy line, a flow of battery will take place giving the operator the regular busy signal, and she, upon finding the line busy, will inform the toll operator to this effect. This naturally means that the operator should make her test before assigning the trunk.

As to whether the system employing the key for adapting the trunk circuit for a busy test is an advantage or not is hard to determine, since this, as well as the system illustrated in our drawings, has its merits and disadvantages. The chief advantage of the method illustrated is that the toll operator, in case she finds the line busy, is able to complete the connection as soon as the local conversation has been finished, without the assistance of the local operator, which will give more rapid service and reduce the work of the local as well as of the toll operator. The principal features of the system employing the test is that the local connection is in no way disturbed by the insertion of the toll trunk plug or by the toll operator breaking in upon the conversation, and further by means of this method the number of trunks necessary will be reduced, due to the fact that these circuits will not be tied up waiting for the release of the desired line.

#### TELEPHONE BONDS AS INVESTMENTS.

Both in St. Louis and Kansas City Independent telephone companies have won signal success, and the "show me" citizens of Missouri who insist on being convinced of returns do not have to go away from home to obtain the evidence that Independent securities are valuable assets. A St. Louis paper says: "Telephone securities are now recognized among the standard investments of the country and eagerly sought after by investors. And when the enormous growth of the telephone business within the past few years is considered, it is very proper that it should be so.

"About twelve years ago, at the time of the inauguration of the Independent telephone movement, there was comparatively little long-distance service in the country, and it was of inferior quality, with the whole number of telephones of all kinds not exceeding 300,000; whereas at the present time, according to the latest information upon the subject, they number in excess of 6,000,000. No other branch of business can show such phenomenal growth in the same length of time, and as telephones are now recognized as one of the necessities of life, the improvement in the business as well as the character of the service will undoubtedly continue and telephone securities steadily gain friends among the investing public.

"Many of our leading citizens invested heavily in the development of the telephone, both here and in Kansas City, and are now reaping the benefit in the way of large returns for their venture, and through their efforts the citizens of both cities enjoy the benefits of excellent service at very reasonable cost."

The Independent company of Seattle has just completed two new exchange buildings at Green Lake and West Seattle. The capacity of the two exchange switchboards is 10,000 lines.

# LIGHTNING—ITS PECULIARITIES AND METHODS OF PROTECTION

*Abstract of a Lecture before the Students of Purdue University, Lafayette, Indiana, on January 29, 1907.*

By A. E. Dobbs

SINCE the beginning of historical tradition, lightning has been a mystery not only to mankind, but a source of dread to many animals. Its vivid flashes, coming from none could tell where, its fury of sound, more terrible, or at least more impressive, than any other known, together with its mysterious, sudden and powerful attacks, inspired an awful fear of its dangers, more imaginary than real. The Greeks referred to the lightning as the thunderbolts of Jove, and the ancient artistic representation of lightning as advancing and drawing back in zigzag lines like a javelin thrower taking aim, has continued to be conventional to this day. But it remained to Dr. Franklin and his kite to prove that the lightning of the clouds and electricity were one and the same and the suggestion of protecting houses by means of "thunder rods" followed as a matter of course.

We speak of the freakishness of lightning, but there is no such thing as a freak in an electrical performance. Electricity follows the same laws of directing forces as all other potential differences in nature, and when these laws are understood we may anticipate the probable action of a lightning stroke for almost any conceivable condition.

It has been taught for years, for example, that lightning is an alternating current of very high frequency. The latest researches, however, indicate the possibility that lightning may be manifested in several different ways.

First—As an alternating current of high frequency having enormous capacity and self-induction.

Second—As an alternating current of rather low frequency having greater inductive than static effects.

Third—As a single discharge of very high potential.

The amount of current contained in a lightning discharge has been variously estimated at from a fraction of an ampere to 20,000 amperes, this last figure being obtained some years ago at the Siemens-Halske works in Germany. In this case lightning had struck a fence post and melted three nails in the top, fusing them together. At the works experiments were made to determine the amount of current necessary to fuse three similar nails in half a second's time, and the result was the figure above stated. During the winter time many telephone companies, especially in the west and northwest, have experienced a great deal of trouble from static charges gathering on their lines. They know the lines to be perfectly insulated and the weather dry and cold, but yet the charges sometimes come in strong enough to cause sparking at the relays or between the points of the switch-hook and sometimes the potential is high enough to administer a shock to parts of the body three or four inches away, while in the telephone there is roaring, hissing and sputtering noises that can come from no other source. The remedy for this trouble is to bridge a ringer across the line and ground the center point.

The aurora borealis, those wonderful displays of the far north, are undoubtedly caused by the friction of opposing air currents upon each other, generally at considerable heights above the earth. While these displays sometimes approach the earth very closely, yet it would seem that the most brilliant displays lie very high. In one case, at least, it was estimated that the tongue of flame must have been 500 miles from the earth's surface. It is doubtful whether this observation has been fully substantiated.

We have found three factors that influence the course of the discharge towards the earth.

First—The temperature and density of the air.

Second—The height of the clouds and in some cases the velocity of the wind.

Third—The proximity of springs or bodies of ore in the earth which focalizes the earth potential.

This now brings us to the apparent vagaries of lightning that has struck a building, and brings up the question of static and inductive effects. When a charge of lightning having become focused on a building passes through it may meet with many contending forces, and, as you already know, the direction taken by two or more opposing forces will lie at some point between them. We may suppose then that lightning has struck a rod on the building, and that the rod itself is improperly grounded. Immediately there is set up a static charge of very high potential in all the surrounding conductors of whatever nature they may be. Thus a person standing on the ground twenty or thirty feet away will receive a shock which may be severe enough to cause him to fall.

Every gas pipe, water pipe, or every conductor within the building likewise receives a charge which may be strong enough to discharge again with disastrous effects.

This accounts for the fact that lightning often apparently leaves a lightning rod and tears shingles off a roof in order to reach a gas pipe near by.

While some well known electrical men have vouchsafed the opinion that lightning rods afford little or no protection to houses, and in some cases might even increase the danger by leading the lightning to the house, where otherwise it would be diverted elsewhere, yet, if the writer was going to build a house in the country, he would make sure that it was well protected against lightning. Lightning rods in themselves are to be relied upon for protection, provided they are properly installed; improperly installed, however, they might, as has been hinted before, become a source of danger.

Nearly all text books on lightning conductors tell you that the conductor should run as straight as possible from the roof to the ground. Be this as it may, it is very desirable that the conductor should at least have as wide curves as possible.

In the protection of telephone cables I once received an idea from Frank Leonard, of Chicago, that may be valuable, or at least, it needs investigation, because it illustrates the point just mentioned. He said that he found from eleven years' experience in the installation of aerial cables that if a single loop two feet in diameter was made in the end of the cable or even a "goose neck" of three or four feet in length, that in case lightning should puncture the cable, one need never look for trouble beyond this loop; that lightning coming into the cable from an overhead line would encounter such impedance at this point that it would jump the conductors and go to the cable sheath every time.

When lightning strikes a telephone line it may follow several courses. If of sufficient intensity it will probably damage the line, but jump to the ground by way of the poles or some of the lightning rods placed on the poles. It is possible, however, that this flash may be divided and jump to the ground by way of the carbon lightning ar-

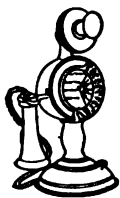
resters. Even at this, however, the discharge has upset the balance of the lines in the meantime, and even though the original flash may have gone to the ground safely enough, yet the surging of the line caused by its visitation may loosen a heat coil or in some cases even affect the di-electric of the cable conductors or burn out a coil. This is the reason that cable conductors are protected by lightning arresters at each end.

As to the size of these lightning arrester plates, the larger are the more efficient, but as against this we have the fact that the larger they are the more they raise line potential to that of the earth and thus upset the balance so essential to good service.

Of course, if we could maintain the line at the same potential as that of the earth there would be no need of protection of any kind, but it has been the experience of those who have tried it that lines grounded at any other place than at the instruments do not give good service.

The size of the ground wire intended to carry off a lightning discharge should be not less than No. 6 B. & S. at the exchange, nor less than No. 8 at other points. No. 12 wire is sometimes used for this purpose, but it is not good practice because the writer has seen samples of No. 9 wire melted.

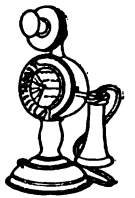
The carbon arrester has been the best so far found at a reasonable cost. I understand that some of the exchanges in the southwest are experimenting with copper instead of carbon slugs, the di-electric between them being nothing more than a thin layer of wax. There is one advantage in this kind of slug, it will not place a partial ground on the line; either, lightning will puncture the di-electric and do no further damage, or else it will ground the line so thoroughly that the troubleman must get out and clear it. Some years ago Jay Wurts made up a combination of zinc and anti-mony alloys, which is still used by the Westinghouse company, which, owing to the peculiarity of the metals employed, resists a tendency towards arcing when an alternating current passes over the line. It is probable, however, that this alloy is too expensive for general use in telephone exchanges and, besides, it is patented. The worst trouble with the carbon slug is that when punctured by lightning a deposit of carbon dust is left which, while not cutting the telephone out of service, makes contact enough with the ground plate to make a very noisy line, and as this is not always noticed by the operator it sometimes is left for several days before receiving attention. It is hardly fair, however, to blame the carbon block for loose inspecting methods.



## TEXAS INDEPENDENTS PROSPER

*Successful Record Made by the Southern Telephone Co.  
of El Paso*

By E. M. Rothelle.



**N**O section of the American continent furnishes a more fruitful field for the development and success of the Independent telephone movement than does the great southwest. Tremendous strides have been made in

of the southwest are being developed rapidly and prove that the country has a wonderful future. Texas, of course, comprises the main portion of the southwest. Its wide area, fertile soil, wonderful oil wells, and bound-

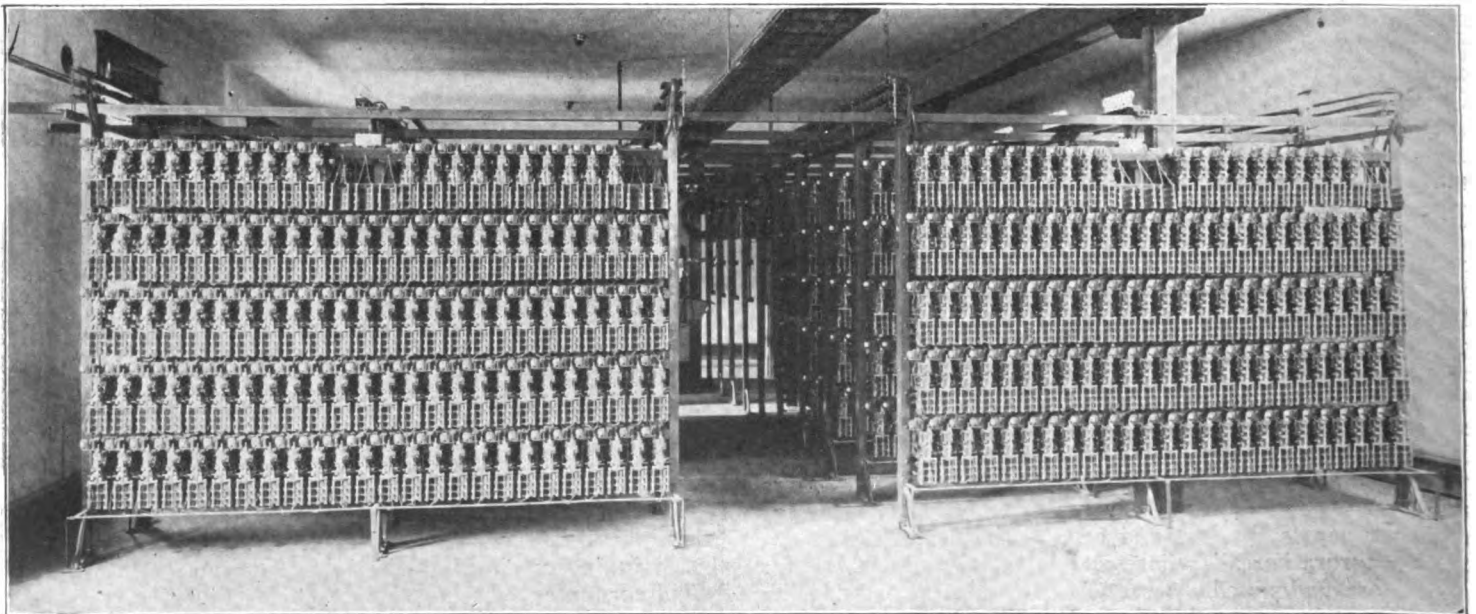


Figure 1—Automatic Switchboard (5,000 Capacity) Installed at El Paso, Texas.

that part of the country within the past few years, during which the railroads have extended their lines in every direction, the population has multiplied and industry and enterprise of all kinds have increased and flourished to a remarkable degree. The resources

less possibilities make it an empire in itself, and its wide awake, progressive people are amply capable of managing an empire, but, being freeborn American citizens, of course, they run their affairs in typical American fashion. This being true, it follows as a matter of course that the Inde-

pendent telephone movement is flourishing in Texas. The people of the state have no sympathy with monopoly and have welcomed an opportunity to show their hostility to an arrogant trust like the Bell combine which has sought to make the citizens pay tribute to its power. Establishment of Independent companies throughout the state has given the public a chance to oppose the Bell monopoly, and in all cases the result has proved most beneficial to the home concerns.

A notable instance of this is found in the Southern Independent Telephone Company of El Paso, illustrations of whose equipment and exchange building are given herewith. The Independent company met many obstacles in its organization and final establishment and operation, but all have been overcome and now the concern is on a firm and substantial foundation. The company is capitalized for \$500,000, all of the stock being common, and the bonds issued amount to \$200,000, which is half the authorized issue. The remaining bonds may be released and used for new installation on a basis of \$100 per telephone.

The accompanying illustrations give an idea of the scope of the El Paso company, which is now operating 2,000 telephones. Figure 1 shows the automatic switchboard; Figure



Figure 2—Southern Independent Telephone Company's Building.

2 shows the company's building; Figure 3 the general offices and Figure 4 the protector room, power board, charging machines, wire chief's desk, etc.

Mrs. Anna M. Brett secured the Independent franchise in El Paso five years ago, and she is also given credit for financing the company and putting it on its feet. The original company was known as the Southern Independent Telephone and Telegraph Company, and the concern now in the field succeeded it a few years later. Col. Henry Lepp is the president of the company, J. B. Badger is vice-president, and R. V. Bowden is secretary and treasurer. These three, with Lorien Miller and Mrs. Anna M. Brett, constitute the board of directors. They all take a personal pride in the success of the company and have done much to place it on a firm foundation. The prospects of the future growth of the Independent company are of the best. El Paso six years ago had a population of but 17,000 people, but the city has experienced such a steady development that to-day it contains 45,000. There is every reason to believe that this rate of growth will be maintained, and the progressive character of the people augurs well for those in the telephone business. The people of the Southwest are quick to adopt time-saving devices and appear to have a natural affinity, so to speak, for the telephone. The development of Mexico means the extension of more telephone lines across the Rio Grande river from El Paso, and

the Independents are confident of holding their own in the neighboring republic as well as in Texas.

The El Paso company has put in underground construction within the fire limits of the city, and for blocks beyond the limits the wires are below the surface. This move on the part of the Independents compelled the Bell company



Figure 3—General Offices.

to put its wires underground. That the Independent company has first-class equipment and that the system was well constructed is plainly shown by the results reported after the recent heavy storm that swept over that part of the state. Over eight inches of snow fell in El Paso, and both telephone companies naturally anticipated a vast amount of trouble, as big snowfalls are not frequent in that latitude. The Independent company's "trouble shooters" had fewer than a half-dozen serious cases, whereas the Bell company was obliged to keep a large force of repair men at



Figure 4—Protector Room.

work for several days. The comparison highly elated the Independent manager, and the patrons of the Southern Independent Telephone Company also showed their appreciation of the staunch service of the system. On the whole the El Paso Independents are confident they have a much superior plant than their Bell competitors, and feel sure that the people are rapidly reaching the same conclusion.



# DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

841,747. Telephone Trunking Circuit. Webster. In this system the trunk line has a disconnect signal associated with the incoming end which is operated through mechanism governed by the current flowing over part of the line when connection is established and the talking circuit completed. Patent assigned to Kellogg Switchboard & Supply Company.

841,769. Telephone Trunking System. Dean. In connection with the usual telephone line there is employed a trunking circuit for tying two lines for conversation. A testing system is employed in which there is a relay for normally connecting the testing system with the trunking circuit and a locking circuit around the relay for maintaining the above condition. An act on the part of the subscriber releases the locking circuit. Patent assigned to Kellogg Switchboard & Supply Company.

841,993. Telephone Switch Hook. Manson. A single sheet of metal bifurcated at one end to form prongs is of sufficient width to be folded along its length so as to make the device double thick throughout its body and prongs. Patent assigned to The Dean Electric Company.

842,178. Telephone Trunking System. Dean. In a pending application there was described a system in which a relay operated over a portion of the talking circuit when the incoming end of the trunk was connected with the called line, served to disconnect the test relay and to place the tip trunk cord in condition for conversation so as to govern the circuits through the ringing signal and locking relay and to disconnect and connect the local circuit of a calling and disconnecting signal. In the present application the relay which is actuated over the talking circuit serves to control a locking circuit of an auxiliary relay which acts as a substitute for the first named relay and which is first operated over the local circuit controlled by the ringing relay. Patent assigned to Kellogg Switchboard & Supply Company.

842,377. Signaling Apparatus. Atwood. This is a line-man's or operator's portable telephone set in which the parts such as the generator, ringer and induction coil are carried in one compartment, and in the opposite compartment is held a receptacle which acts as a switching device at certain times and is adapted to hold the telephone instruments not in use. Patent assigned to Western Electric Company.

842,409. Combined Annunciator and Jack for Telephone Switchboards. Mehren. Adjacent the drop of the annunciator and also adjacent the jack is a small bell crank lever with a loop adapted to surround the plug and so arranged that when the plug is inserted that it will restore the drop to normal. Patent assigned to Eureka Electric Company.

842,410. Telephone Switchboard. Mehren. In this board the annunciators are similar to those described in patent No. 842,409 but employing non-magnetic hangers on their rear ends which extend up and form pivoting arms for the armature and latch rod. Patent assigned to Eureka Electric Company.

842,778. Telephone Exchange System. Fox. This is an intercommunicating system and each substation is provided with a plurality of buttons so that any substation on the line may be called without the intervention of the central office. Assignor of one-half to Michael S. Sheridan of Milwaukee, Wis.

842,832. Telephone System. Turner. Each substation in this lockout system is provided with a plurality of con-

tacts normally set a certain way so that they correspond with no other substation on the line. When it is desired to call any substation from another substation the contacts at the calling station are set to correspond to those of the wanted station. Patent unassigned.

843,053. Telephone Switch. Weman. This is a combined receiver and transmitter or hand telephone set in which the switch is located intermediate the transmitter and receiver and in the handle. A single retaining screw holds the switch in position so that by loosening the screw the entire switch may be released from the instrument. Patent unassigned.

843,078. Telephone System. Eaton. In this system an automatic switch is provided at each substation and is used in conjunction with a push button which controls the circuit of the switches at all other stations so that the operators thereat will get a busy test when attempting to get upon the line being used. Patent assigned to Keystone Telephone Company of Philadelphia, Pa.

843,186. Telephone Dictating Machine or Apparatus. Turner and Germer. This is a system and device for use therewith whereby the manager of an office may dictate letters or otherwise communicate with anyone of his office force without requiring them to leave their desks, and is called by the inventor a "dictograph." The apparatus employed comprises an acousticon transmitter at the central station and an acousticon transmitter at each substation, together with two pair of line wires going from each switch at the central station to each substation so that talk from either point will not be interrupted by talk from the opposite point. Said Germer assignor to said Turner.

843,245. Telephone Trunking System. Webster. This is a trunking system for toll lines in which a trunk circuit is adapted to be connected between a cord circuit and a subscriber's line and in which a clearing out signal is bridged thereacross. A switch at the substation controls current from the main source through the trunk relay over the trunk line and through the clearing out drop whereby the drop will be actuated and the trunk relay will be de-energized to display a signal when the cord circuit is removed from its connection with the trunk. Patent unassigned to Kellogg Switchboard & Supply Company.

843,270. Circuit Catching Device and Electrical System for Use in Conjunction with the Same. Graves. In this system a magnet is used for closing the circuit at a particular substation at the will of the operator, and comprises one winding of high resistance and the other of sufficiently low resistance to be consistent with holding the armature on a shunt, the armature controlling the shunt. Patent unassigned.

843,296. Telephone Relay or Repeater. Parcelle. In this device a conductor of variable conductivity is placed in an intermediate circuit and controlled by the transmitter circuit so that the current of electricity in the receiver circuit will take the path of the magnetic lines of force whereby the variation of current activity will be in exact accordance with the variation in the strength of the magnet due to the electrical undulations in the transmitter circuit. The variable conductor is arranged in such relation to the magnet of the receiver that there is a compression or expansion of material according to the impulses transmitted. Patent unassigned.

843,329. Intercommunicating Telephone System. Dean. In this system each subscriber's station is provided with

a plurality of jacks connected to the lines in the system so that by plugging in and depressing a ringing button the bell of the wanted subscriber is operated, whereupon he answers the signal by inserting his plug in his home jack and removing his receiver from the hook. Patent assigned to Kellogg Switchboard & Supply Company.

843,362. Attachment for Mouthpieces of Telephone Transmitters. Plank. A plurality of sheets of paper perforated transversely are formed into the shape of a cone adapted to fit the mouthpiece so as to form numerous removable concentric linings of antiseptic paper. The outer layer or cone of paper is provided with tabs which are bent over the mouthpiece and secured thereto by an encircling ring. The other layers are provided with projecting ears by which they may be grasped so as to tear them out along the line of perforation. Patent unassigned.

843,871. Telephone Trunking System. Dean. In carrying out this invention the trunk circuit is provided with multiple switch connections at each end in connection with the usual plug and cord. When connection is made with one of the multiple switch sockets at each end, the other sockets located at both ends of the trunk indicate that the trunk is busy, also the signaling apparatus associated with said end of the trunk is rendered inoperative, while at the opposite end of the trunk it remains in condition to operate. A second signal is provided which operates as a calling signal when a connection has been established at one end of the trunk to attract the attention of the operator at the opposite end of the trunk. Patent assigned to Kellogg Switchboard & Supply Company.

843,891. Telephone Receiver. Haff. This receiver is adapted to be used with acousticon and other apparatus for deaf persons. The windings of the receiver are tapped off on one side to a switch contact and on the other side to a stationary contact. A plug is adapted to be inserted within the receiver so as to connect with the switch in the stationary contact and leading to the acousticon or other apparatus. Patent assigned to Kelley M. Turner of New York, N. Y.

843,940. Antiseptic Guard for Telephone Transmitters. Grimm. The mouthpiece of the transmitter has attached to it a guiding plate apertured to correspond with the aperture of the mouthpiece. This guiding plate is provided with a roll of antiseptic paper carried above the mouthpiece and passing down thereover so as to close the aperture in the plate. The paper may be torn off as desired. Patent unassigned.

843,998. Telephone Switch Hook. Cadden. This is a telephone switch hook for wall sets and comprises an insulated base upon which the receiver hook is removably pivoted and adapted to engage and operate a stub lever also pivoted on the base and which is provided with an extension for engagement with the operating spring of the set. Patent unassigned.

844,299. Attachment for Telephone Receivers. Challen. The cap for the receiver has secured over its orifice a concave convex soft rubber dome which is adapted to project into the ear as it were. Patent unassigned.

#### IOWA'S BIG CONVENTION.

The eleventh annual convention of the Iowa Independent Telephone Association will be held at Sioux Falls, Iowa, March 19, 20 and 21, and the indications are it will be by far the most successful meeting in the history of the organization. Iowa always has enthusiastic and well-attended conventions—in fact, the leaders of that state insist that in that particular it leads the Union—and the progress made during the last year by Iowa Independents insures an increased interest in the 1907 gathering. The Garretson Hotel will be the headquarters, and the programme committee, consisting of C. H. Smith, secretary of

the New State Telephone Company, of Sioux Falls; H. A. Douglas, general manager of the Cedar Rapids & Marion Telephone Company, of Cedar Rapids, and J. H. Shoemaker, general manager of the Cornbelt Telephone Company of Waterloo, has been hard at work during the last two or three months preparing a programme which will be practical, instructive and entertaining.

When the convention meets at two o'clock p. m., March 19, the first proceeding will be to name the committee on credentials, after which Charles C. Deering will deliver the president's address. The reports of the officers and committees will follow. F. McNally, of Carroll, will read a paper on "Is It Advisable to Appoint a State Toll Line Inspector?" and W. J. Stanton of Waterloo will read one on the subject, "The Necessary Standardization of Clearing House Toll Lines and Equipment." On Wednesday, at the morning session, the delegates will listen to an address of welcome by W. G. Sears, mayor of Sioux Falls, after which visitors from neighboring states will address the convention. Minnesota will be called on first, followed by South Dakota, for which Judge C. B. Kennedy, of Canton, president of the state association, will speak, and Nebraska which will be represented by R. E. Mattison, of Lincoln, secretary of the association of that state. C. A. Hollison, of Hudson, state agent for Iowa, will speak on "Ourselves." The morning session will close with an address by James B. Hoge, of Cleveland, president of the International Independent Telephone Association, who will speak of the work of the organization. The afternoon session will be devoted to consideration of farmers' and mutual companies' affairs, a question box and a discussion on "Economy in Construction, Labor, Equipment and Management," led by W. D. Dunsmore, of Oskaloosa, vice president and manager of the Oskaloosa Home Telephone Company. In the evening there will be a stereopticon lecture, consisting of slides made from illustrations which appeared in Paul Latzke's "A Fight with an Octopus," published by the TELEPHONY PUBLISHING COMPANY, which has proved one of the greatest successes known. The prospects are that the sale of this interesting history of the Independents' fight with the telephone trust will reach a million copies, and its value to Independent telephone men is becoming more apparent every day.

On Thursday, March 21, the morning session will open with a report of the clearing house for the last year, showing also the prospects for 1907, by George T. Hewes, manager of the Iowa clearing house. Roy Walker of Des Moines will read a paper on "Hints on Management of Traffic." In the afternoon the officers for the ensuing year will be elected, and the place for holding the 1908 convention determined. A. T. Averill, of Cedar Rapids, president of the Cedar Rapids and Marion Telephone Company, will read a paper on "Conservative Financing." In the evening there will be a banquet to the delegates which will be the concluding event of the convention.

The Sioux City Independent Telephone Company and the New State Company have spared neither time nor expense to advertise the convention. They have been materially assisted in this work by other Independents throughout the state. The Blackhawk Local Telephone Association, composed largely of mutual telephone companies of Blackhawk and adjoining counties, has sent out a circular, urging the mutuals to send representatives to the Sioux Falls meeting.

To prevent the Bell company erecting poles along the roads of their locality, farmers near Cincinnati gathered their children and placed one in each hole that had been dug. Over half the school children in the neighborhood were in the earth up to their chins when the telephone poles abandoned their work.

# ARKANSAS TELEPHONE CONVENTION

*An Interesting Meeting of the Independent Telephone Interests Held at Little Rock, February 18-19*

By Roy A. Warner

THE Arkansas Independent Telephone Convention, held at the Hotel Marion, Little Rock, February 18 and 19, was called to order by Eugene Hale, the president, Mack Hammett, acting as temporary secretary in the absence of John B. King. The morning session was taken up with a general discussion and the appointment of committees, which were as follows:

Nominations—P. C. Ewing, G. T. Brown, H. L. Bernard.

Constitution and By-Laws—P. C. Ewing, Mack Hammett, A. E. Boqua.

Membership—Dr. K. E. Hudson, Dr. R. M. Drummond, Mack Hammett.

Ways and Means—Chas. F. Speed, Dr. K. E. Hudson, W. L. Caldwell.

Adjournment was then taken until 1:30 o'clock to give the committees time to consider. At the afternoon session the committees on ways and means brought in two reports. The majority report was as follows:

"We, the majority of the committee on ways and means, beg to report our recommendations as follows: Exchanges doing business in the state shall pay annual dues of five cents per telephone used, and that long distance companies shall pay five cents per circuit mile. That the Independent telephone manufacturers doing business in the state and exchanges outside of the state, desiring to join the association, may be admitted to the Arkansas Independent Telephone Association on payment of \$5 per year dues. We further recommend that the constitution be changed to conform with the above."

Dr. Hudson brought in a minority report as follows: "It is recommended that we assess a \$2 fee against all members of the association."

After considerable discussion, in which it seemed to be the idea of keeping the annual dues as low as possible, it was finally moved by P. C. Ewing that the annual dues of the Arkansas Independent Telephone Association be made \$1 for each member, and that each exchange pay one cent per unit per year, and that the long distance companies pay one cent per circuit mile. This was adopted.

The following exchanges and companies made payment of the annual dues: Home Telephone Company, Ozark; Little Rock Telephone Company, Little Rock; Pan Telephone Company, Ft. Smith; Russellville Telephone Company, Russellville; Franklin County Telephone Company, Paris; Pine Bluff Telephone Company, Pine Bluff; Falker Telephone Company, Ozark; the Telegraph Company, Little Rock; Benton Telephone Company, Benton; R. E. Willard, Memphis; E. B. Kramer, Russellville; Stromberg-Carlson Telephone Manufacturing Company, Rochester; Frank B. Cook, Chicago; Atkins Telephone Company, Atkins.

The committee instructed to investigate the proposed legislation relative to physical contact, reported the following resolution:

Little Rock, Ark., Feb. 18, 1907.

To the Senate and House of Representatives of the State of Arkansas:

We, the officers and members of the Arkansas Independent Telephone Association, through its committee, do hereby recommend that Senate Bill No. 30 (Lambert) do not pass, for the following reasons:

1st. It is monopolistic in its nature, because, as we all know, competition helps the general public on all propositions.

2d. It is our opinion that the passage of a general law compelling two telephone companies to interchange business would result in forcing them to consolidate for their mutual protection. The consequence would be, we believe, a return to conditions practically the same as those prior to the time the patents expired in 1895. There is no line of business in which competition has not been found desirable for the protection of the public, the development of the field and improvement of the service. The results secured in the telephone field since the beginning of competition have amply demonstrated its advantages. Comparatively few people in the United States appreciate the rapid change in the telephone development during the past ten years. To-day there are twenty times as many telephones in use in both systems as there were at the time of the inception of competition.

3. Should this bill pass, the telephone development would stop, and as in proportion to the stoppage of it, the efficiency would also stop, to the disadvantage of the general public.

4th. Section 1, lines 10, 11, 12 and 13, provides that the long distance lines may refuse connections with the local company on the ground that the physical condition of such a company is not sufficient to guarantee good service. It also stipulates that the local company shall comply with regulations of the long distance company, but no provision is made whereby the long distance company shall comply with the regulations of the local company, and it leaves it optional as to whether the long distance company shall make connections or not.

5th. We also further object to the amendment to section 2, which provides for the payment of ten per cent to the local companies by the long distance companies for originating business. This, we believe, is unfair and unjust, as it is not sufficient compensation for the amount of service rendered. The originating of telephone business necessitates a certain amount of clerical work, making out accounts, etc., and in the event of poor collections, no collecting agency would take these necessarily small accounts and collect them for the ten per cent, as this amendment provides that the originating company shall pay to the long distance company ninety per cent of such business at the end of each month, thereby holding the local company responsible for all outgoing messages.

We respectfully ask your honorable body not to pass this bill. It is a matter of vital importance to every citizen of the state of Arkansas, and the passage of the same would work a hardship on the general public by forcing upon them a monopoly in the telephone business.

(Signed.)

R. M. DRUMMOND, Chairman.  
W. H. FELKER.  
K. E. HUDSON, Committee.

The committee on constitution recommended as follows: "That section 3 be changed so as to read, 'All members of this association shall be entitled to a seat in the convention, but voting power shall be governed by the number of units represented by his company; each multiple of five hundred or a fraction thereof, shall be entitled to one vote. Independent telephone manufacturers and supply dealers can become members of this association by payment of \$1 annual dues, but they shall not be entitled to a vote.'

"Also, that in each case where the word 'directors' appears in the constitution, the word 'trustees' shall be substituted."

These changes were adopted. It was then moved by A. E. Boqua that the secretary have made copies of the proposed Senate Bill No. 30, and the resolution relating to the same, and that a copy be forwarded to each Independent telephone company in the state not represented at the meeting and also that the secretary mail a letter to each requesting that the officers thereof correspond with their senators and representatives.

On Tuesday morning the meeting came to order at 10 a. m. The Memphis Telephone Company paid yearly dues as did the Central Telephone & Electric Company of St. Louis. The president appointed the following committee

on legislation: P. C. Ewing, Mack Hammett, Chas. F. Speed. The election of officers resulted as follows:

- President—P. C. Ewing, of Little Rock.
- Vice President—A. E. Boqua, of Ft. Smith.
- Secretary—Chas. F. Speed, of Texarkana.
- Treasurer—Mack Hammett, of Pine Bluff.
- Trustee—C. L. Humbert, of Jonesboro.

The above officers were elected unanimously and constitute the board of trustees. It was moved by Mr. Boqua that the Arkansas Independent Telephone Association extend its thanks and appreciation to the International Independent Telephone Association for sending its traveling secretary, W. J. Stadelman, to the meeting, and voice its appreciation to Mr. Stadelman in person, for the interest shown and information he had kindly furnished. It was adopted.

It was moved by Dr. Hudson that the next meeting be held in Ft. Smith. This was carried. A motion made by Mr. Boqua extending thanks to Mr. Aaron Smith for the advertising and assistance rendered, was carried. A vote of thanks was extended the New Hotel Marion for the courtesies shown the association. It was then moved by Eugene Hall that the association adjourn to meet in Ft. Smith on May 20th, 1907, and the motion was adopted.

### AN INTERESTING RELIC.

TELEPHONY is indebted to B. F. Wasson, president of the National Telephone & Electric Company, of Clinton, Ill., for a glance at a rare old relic of the early days of tele-

movement is of so late an origin that to most men now in the field it seems a far cry to 18 years ago. The initial number of "Telephone" consisted of eight small pages containing reading matter which now sounds like a veritable voice from the far away. What seemed then to be scientific marvels are now ordinary, every-day affairs, and it requires only the most casual glance at the two conditions to comprehend the wonderful strides made by the telephone movement within the life of a high school boy. Even in 1889 "Telephone" was fighting the Bell monopoly, accusing it of charging exorbitant rates and criticizing its arrogant policy toward the telephone policy. An article in the first number of the journal states that the Bell in 1889 operated 6,400 telephones in Chicago and charged \$125 a year for each instrument. There was a Telephone Users' League of Chicago then, which was trying to pass a bill in the legislature for the state regulation of rates. The "Telephone" was impressed with the claims of Dr. S. D. Cushman, who asserted that he, and not Bell or Gray, was the real inventor of the telephone. Dr. Cushman was engaged in the manufacture of telephones, and was sued by the Bell company for infringement of patents, the United States courts finding for the plaintiff. The court decision didn't settle the question to the satisfaction of "Telephone," however, as the pioneer paper continued to insist that Cushman was the original discoverer of what came to be known as the Bell telephone. A curious feature of the first number of the old telephone periodical is an article on the art of conversing over the wire, which says, "One can usually tell a person who has rarely used a telephone by a certain relaxation in the common courtesies of speech. There is an impersonality connected with the act of speaking by the aid of mechanism which has been lowering in its tendencies, for it is only by the personal presence of others that many men's speech is kept in restraint. On the other hand, a man of true refinement can usually be told by the courteous and graceful language he uses when at the transmitter." Nowadays the telephone is recognized as an influence for becoming language, for few care to "cuss" in the hearing of the "Hello" girl.

Mr. Wasson possesses an interesting collection of relics of early telephone days, and has exhibited it at several exhibitions. The collection is an eloquent reminder of the marvelous progress made in the industry within the last two decades.

### EXATIONS OF THE TELEPHONE.

"Hello!" exclaimed the man at the telephone. "Is that four-double one, Chester?" says an exchange.

"Yes," answered the man at the other end of the wire.

"Is Mr. Carson there?"

"Who?"

"Carson! Carson!"

"I don't catch the name."

The voice, already loud, became strenuous now.

"I said Carson!"

"Parker?"

"No! What's the matter with this telephone, anyhow? Carson!"

"Harper?"

"Now! Carson! C-a-r-s-o-n! Get it now?"

"Oh, Carson. Yes, I believe there's a man of that name in the next room. Shall I call him to the telephone?"

"If you please."

Then he added, in a much lower tone, and speaking to himself, "A man that can't hear it thunder oughtn't to try to talk through a telephone."

Whereupon he distinctly heard the response, also in a low tone:

"A man with a fog-horn voice doesn't need a telephone. Let him get up on the roof and shout."

The moral is, it is not always the fault of the telephone.

# THE TELEPHONE

Devoted to Telephony and Kindred Arts.

Vol. 1 Chicago, Ill., May 1, 1889. No. 1

#### THE BARNEY TELEPHONE.

OPINION OF THOMAS M. LARAHAN AS TO THE VALIDITY OF BARNEY'S PATENT

This is a "make and break" telephone, patented Feb. 8, 1887, and Aug. 21, 1888.

These instruments are very simple but, nevertheless, an important invention. It is a simple instrument, and is the invention of the late Thomas M. Larahan, who died in 1888.

The invention consists in a movable disc which, by the aid of a spring, is caused to vibrate in such a manner as to produce a series of electrical impulses, which are received by the receiver, and are there converted into sound.

The inventor claims that his invention is a new and original discovery, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

The inventor also claims that his invention is a valuable improvement upon the telephone, and that it is a valuable improvement upon the telephone.

#### THE DRAWING-SUIT.

A POINT IN THE DECISION WHICH PROVIDED AN EYE-OPENER FOR PATENT ATTORNEYS.

There are several points in the decision of the Supreme Court in the famous Drawing-Suit case, decided last March, which deserve a passing notice. It has generally been understood by patent attorneys that a discovery could not be said to have been made and become the subject of a patent until the alleged discoverer had actually accomplished the thing sought for, and thereby made it in fact a discovery.

But it seems that the court, in that case, held that a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery. In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

In the "Telephone" case, it appeared that the inventor had not at the time of his application for and the issuance of his patent, held in his mind a conception of how a thing may be done outside a party to a patent upon that conception, as upon a discovery.

#### DEATH BY ELECTRICITY.

NAMES SUGGESTED FOR THE NEW DEATH-DEALING INSTRUMENT.

The telephone added a new invention to the list of electrical appliances, and now electricity has added a new one to the list of death-dealing instruments. The new instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

The instrument is a small, portable, and easily operated, and is called the "Death-Dealing Instrument." It is a small, portable, and easily operated, and is called the "Death-Dealing Instrument."

#### THE TELEPHONE IN CONVERSATION.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

One of the most interesting points in the history of the telephone is the fact that it is a valuable improvement upon the telephone.

Fac-Simile of the Title Page of The Telephone.

phone development. It is a copy of No. 1, Volume 1, of "Telephone," a journal "devoted to telephony and kindred arts," printed in Chicago May 1, 1889. This date is so recent that in any other industry it would scarcely be considered pioneer times, but the real growth of the telephone



# TELEPHONY IN RAILWAY SERVICE

*Abstract of a Paper Read Before the New England Street Railway Club*

By C. J. H. Woodbury

ELECTRICITY was considered for railway signaling long before the devices for its application were invented. In 1828 Edward Davy, of England, made a proposition for the application of electrical signals for indicating the direction of trains, whether stationary or in motion, which appears to be the first available record on the application of electricity to train movements. It does not appear that this form of signaling was proposed to extend beyond giving information to the general superintendent, and did not fully include any suggestion for telegraphing orders which pertained to later applications of the telegraph.

The Wheatstone telegraph was applied for signaling on a cable railway at Blackwall, England, in 1835. On the whole, the application of electricity for the communication of intelligence in both directions appears to have originated with the use of the Morse telegraph in 1850 on the Erie railroad by Charles Minott, general superintendent, although it is claimed that previous to that date railroad men had availed themselves of the telegraph to direct the movement of trains, but his work on the Erie railroad included the systematic dispatching of trains. This with steam railroads, has been developed into a most systematic and thoroughly organized department which was an essential portion of the operation of every steam railroad.

Of late years the telephone has taken the place of the telegraph to a very material extent, and its use is rapidly increasing.

The facility which it furnishes for the instantaneous reply, and the conference over matters requiring a presentation of facts at one end and the exercise of executive action at the other without the interposition of skilled telegraph operators, is of great value, especially on occasions of emergencies.

The telephone is admirably suited for application to existing telegraph plants in railway service, for its attachment to such lines does not interfere with the use of the telegraph, nor does the simultaneous use of the telegraph affect the transmission of speech by telephone.

This dual use of the same wires for composite systems is accomplished in a simple manner by the insertion of choke coils at the terminals, and also bridging condensers around the telegraph relays.

These condensers will transmit the alternating currents used by the telephone bell and the undulatory currents of the telephone, but they do not conduct the direct currents used in telegraphy.

That is, the condensers serve in the place of conductors for telephone service, and as insulators for telegraph usage.

These composite sets were first commercially used in New England by the Central Vermont Railroad, and their application extended to a number of steam railways throughout the country.

The term "labor-saving" invention is generally a misnomer for production-increasing devices, but the telephone is in the former class, as Mr. Frank Thompson, president of the Pennsylvania Railroad, said that the telephone was the only invention introduced during his business career which had been a time-saving device, for while all of the others had added to his work, the telephone had enabled him to transact his duties with so much greater rapidity that it gave him more time to devote to matters of the policy of that great corporation.

The manifold applications of the telephone is indicated

by some of the railroads which also have connection with the mining of coal, and their private branch exchanges not only connect with the offices at the headquarters of various divisions of the railroad, the operation of trains, but also extend down into the coal mines and out to the docks where the coal is shipped, and are even connected to telephones in the cabins of the vessels transporting coal, or the tugs which tow the coal barges. On the Mexican Central Railroad all of the cabooses are equipped with telephones so that all freight trains may be at any time in communication with the superintendent's office, in the same manner that the wrecking cars of steam railroads are equipped with telephones which can be attached temporarily to wires of telephone lines near the road by means of rods carrying wires ending in hooks and in that manner coming in communication with the supervising officers.

One of the many instances of the service of the telephone in cases of grave emergency occurred on May 11, 1905, when a passenger train near Harrisburg struck a car loaded with dynamite, whose explosion killed twenty-one and wounded 150, who were taken to the Harrisburg hospital.

The Pennsylvania Telephone Company set up a private branch exchange in that hospital which was operated by L. H. Kinnard, general manager, while J. A. Crossman, Jr., secretary and auditor of the telephone company, established a card index system on which the names of the wounded and dead were placed as far as known, with the nature of the injuries and the probable outcome of the case as judged by the surgeons in charge. This card index also contained the exact location of the patients in the hospital wards and was continued with additional information from the examining surgeons and ward physicians. Free service was established not merely by the Pennsylvania Telephone Company, but also by the American Telephone and Telegraph Company, with its long-distance plant, so that inquiries from various parts of the country, even to distances of a thousand miles, could be answered at once in a prompt and intelligent manner.

Some of the leading express trains are equipped with telephones which are attached to the central office system at terminals, and also at intermediate points where the stay is longer than for the change of passengers and baggage.

In the early days of electric railroads when the motor was merely a substitute for the horses on the same cars and even at similar speed, there was not the requirement of any signaling system more than the unfilled need which had already existed in the case of horse cars, but with the expansion of the carrying capacity of a road both as to size of cars and speed of propulsion, and above all the long distances of the interurban roads, conditions became radically changed and were comparable to those of the steam roads. This development of the transportation facilities became so much more rapid than that of the signaling that the early electric roads were afflicted with a number of mishaps which gave rise to many serious apprehensions as to the advisability of this change of power.

In electric railways the conditions of speed are comparable to those of steam railway trains and the weight of the cars sufficient to cause destructive results in case of collision, while the requirements of good service at these speeds demanded that there should be constant information of the positions of the various cars en route.

The street railways had the advantage of precedent, and

in New England the Worcester street railway began to use the telephone in 1899, and since its consolidation with other companies these ramifications extend over a large range of territory throughout the heart of the commonwealth.

The application of the telephone for train dispatching has resulted in a marked economy of both plant and operation in that the ability of the superintendent to be informed as to the position of the various cars and to communicate with their operators gives a greater service efficiency to the road. Single track railways in sparsely settled districts can be operated at an efficiency which should otherwise require a double-track road, merely by the use of the telephone for dispatching, because in case of cars failing to join at meeting points when they are due, they may under this direction avoid delaying the prompt car by directing it to proceed to another turnout. In case of failure to meet at scheduled turnouts there is not the risk of collision by one car running wild to the next switch.

On double-track roads knowledge of occurrences to the rolling stock or of the condition of the road has a similar value, which increases with the congestion of travel.

The telephone is of great service in severe snow storms by the facility which it affords for information to be given to the train dispatcher as to the condition of the road. It is said that in the old days, before the use of the telephone, snow-plows became snow-bound and lost, because whenever a snow-plow or a car disappeared from the sight of the terminal it was never heard from again until it arrived at the other end or perhaps not until it returned to the starting place.

In cases of mishap the telephone affords means for the quick clearance of the track by the facilities of obtaining wrecking cars or repair hands.

In cases of accident not only can medical help be summoned for the injured, but means can be taken to procure information relative to details of the occurrence which may be of great importance in ascertaining the liabilities of the company.

The efficiency of the telephone in times of emergency was illustrated last June by an incident on an interurban electric railroad west of Frankfort, N. Y., where the cars were limited to the single track during repairs, and to protect the car in the block watchmen were placed at each end. One evening a car went upon this single track at full speed when a car was approaching the other end of the block, and the watchman knew that a collision would be inevitable unless the cars were stopped. There was no time for long stories; he went to his telephone and told the power station to shut off the current, which was promptly done, and a collision averted.

There are three types of application of the telephone to railway dispatching:

(1.) Fixed telephone substations in booths placed at suitable points along the line.

(2.) Jack boxes at poles to which portable telephones carried in the cars may be hung and connected for temporary use.

(3.) Portable telephone sets hung upon the front of the cars, whose vestibule platform serves as a booth, and attachment made by flexible wires to jacks at numerous poles along the line.

On some railway lines the method of connecting a telephone on the car with the line is not by means of a jack at the side of one of the poles but by a long slender rod carrying the wires which may be hooked upon the main lines at any place.

The first method does not differ from arrangements of telephone booths with which all are familiar, except in minor details, and does not require explanation.

Portable sets are generally preferred to fixed sets for long mileage and few cars. There are several forms of these portable sets, one with its magneto telephone, coil and dry

battery weighing only thirteen and one-half pounds, although more substantial forms are considered preferable.

Jack boxes on the pole must conform to numerous conditions, not merely to be shot-proof or fool-proof against meddlesome people, but also they must not afford shelter for hornets or other insects of perhaps less virulent disposition, but who impede any such apparatus by the nests which they make; they must also be proof against damage by rain or snow. The telephone wires should be strung below lighting or power wires and well insulated at its points of support. The lines of such telephones must be transposed at least once in every eight poles, in order to prevent noises on its circuit induced from the wires in its vicinity carrying disturbing currents.

When two telephone circuits are on the same line the transposition must be not only alternating the relative positions of the wires of one circuit to the other, but also of the two circuits. When the spring jacks in an iron box attached to a pole are connected to a common battery signaling system, the two plugs on one handle are of different size, so that they cannot be inserted with wrong poles.

Although still called jack boxes, the plug in the later forms is attached to the under side of an iron canopy, resembling a large petticoat insulator, and the spring jacks are in the handle at the end of the flexible wires leading from the telephone set. On account of the exposure of these telephone lines to foreign currents extraordinary care should be taken for their defense at every jack or other point of connection, by the use of protectors and repeating coils.

The telephones used on electric railroad systems must give transmission which is clear and loud, and be of types not liable to be placed out of service by the jar of continuous transportation on a car. Fixed telephone sets are found preferable on electric railways having a large number of cars and congested traffic, as they may be used more rapidly by merely attaching the flexible wires to a pole than when it is necessary to take a telephone set from the car and hang it upon a pole.

Especially in stormy weather it is a distinct advantage for the motorman to use the telephone in a vestibuled platform which serves as a booth.

#### TELEPHONES IN ALASKA.

The land of the Klondike has telephones as well as rich gold mines, but few people, perhaps, realize that Alaska contains more than 1,000 miles of lines. Most of the important and older mining camps and fur trading stations are connected by telephone. The line from Nome to Tin City is the longest, being 157 miles long. It is the only line in Alaska in which a submarine cable carries the messages for a part of the distance. This cable is under Grantley Harbor, near Teller. To guard against accident, an aerial wire is also strung, the poles on either side being 120 feet high. The second longest line is to Candle Creek, a distance of 138 miles, from Council, the course carrying it through the Council district. There are two lines to Kougarok, one of 122 miles and the other of 130 miles. A wide expanse of barren, uninhabited country is covered by the Candle line, which was the cause of much hardship and heavy cost at the time of construction.

At Craft's Roadhouse, near White Mountain and the junction of the Niukluk and Fish Rivers, there is a telephone which is kept busy from morning till night by freighters and merchants between Chinik and Council. All the camps along Solomon River are provided with telephones, as are most of those on Nome River, Dahl and Taylor Creeks. The main exchange is at Nome, where there are two local switchboards and one long-distance board. There are 130 camps and roadhouses provided with telephones, in addition to numerous instruments situated within the "city limits" business houses and cabins of larger camps.

# A MODEL TELEPHONE EXCHANGE

*The Albia (Iowa) Independent Company Makes an Excellent Record*

By E. M. McMeal

THE state of Iowa contains many first-class, prosperous independent telephone companies, and none is more worthy of favorable comment than the Albia Telephone Company, with headquarters at Albia, which owns and operates the exchanges and toll lines in Monroe county. It is managed and controlled by Iowa men and has made a record for efficient service that has popularized it with all its patrons. There are 825 telephones in the system and 300 miles of toll lines covering all of the county. Albia is the county seat and has a population of about 5,000, so that there is a telephone in use for every six persons in the city. The Albia Telephone Company is capitalized at \$50,000, and

facturing enterprises. E. J. Renz is the secretary of the company. These three gentlemen, with J. C. Johnson and J. C. Robeson, are the directors in the Albia Telephone Company.

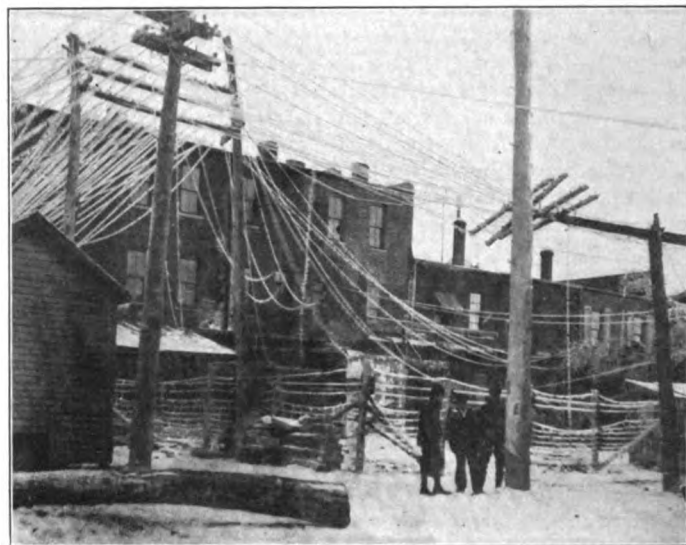
In January, 1904, a terrific storm of sleet and snow swept over the locality and played havoc with the telephone lines.



Building of the Albia Telephone Company, Albia, Iowa.

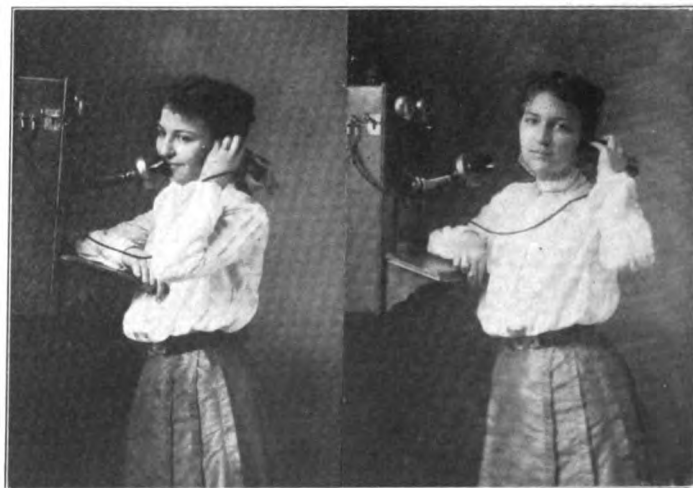
succeeded the Western Telephone Company, which was established in October, 1897. The Albia company took over the system October 1, 1900, paying \$12,500 for the plant, which then had but 200 telephones and no farm or toll lines.

Grant M. Heiserman is the president and general manager of the company. He is a prominent figure in the business circles of that part of the state, being president of the Acme Telephone and Manufacturing Company, owner of the Albia building and identified with other important interests. J. S. Moon, the treasurer of the Albia Telephone Company, is connected with Moon and Company, dry goods merchants, and is also interested in banking and telephone manu-



Showing Effect of Sleet Storm, Albia, Iowa.

The illustrations accompanying this article give an excellent idea of the damage done the wires and poles by the heavy sleet which encased the lines and put the service entirely out of commission. One of the scenes shows that new poles were set in place of the broken ones. The storm broke down the lead at about 6 o'clock in the morning, and by 3 o'clock



Miss Blanche Heiserman Showing the Right and Wrong Way to Use a Telephone.

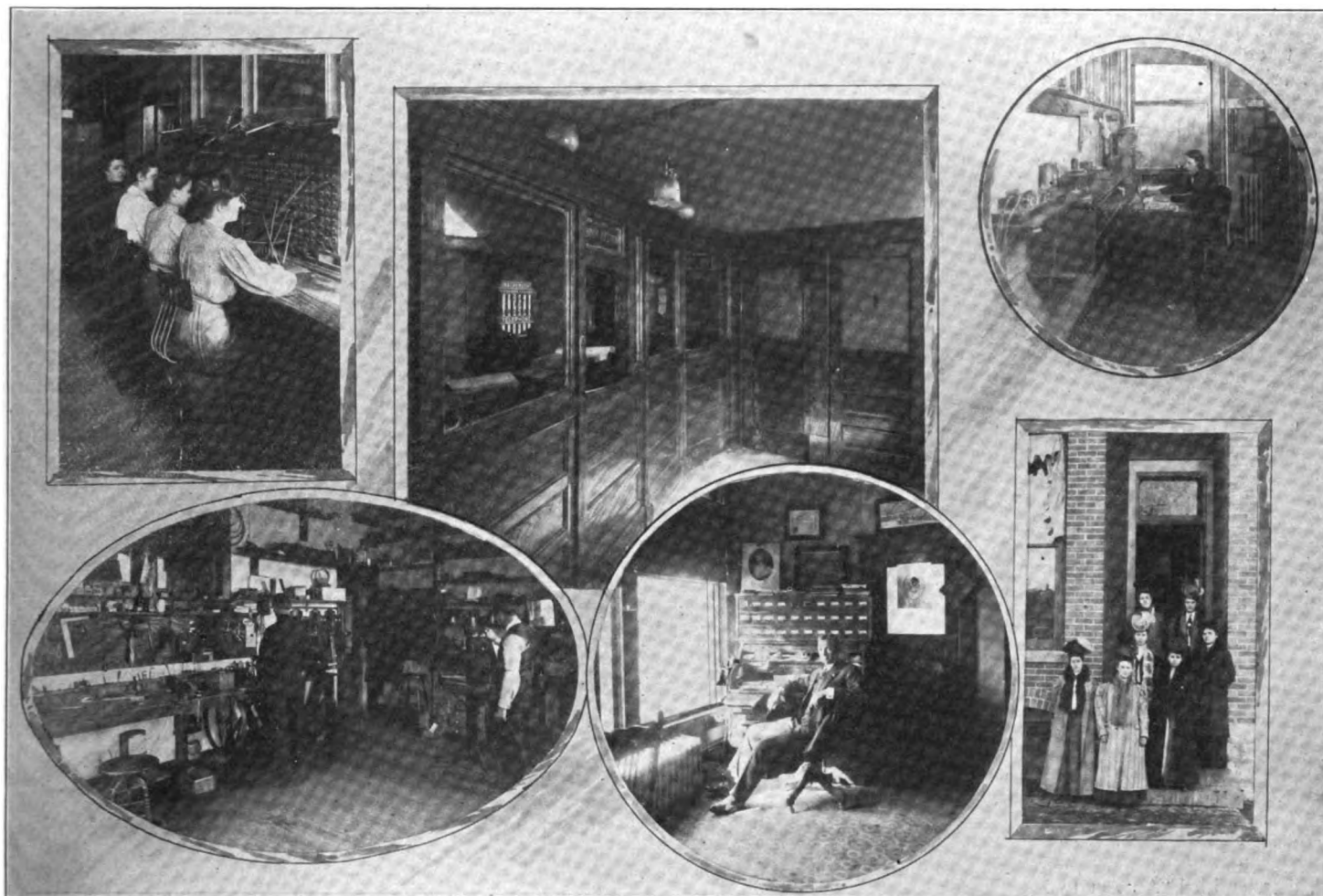
in the afternoon the new poles were set for several blocks. So severe was the weather that the sleet remained on the wires for nearly three weeks. After completing repairs the management of the company decided to rebuild the entire plant, and President Heiserman erected the present three-

story building for his company, which is fireproof and modern in every respect. The system as rebuilt is metallic, and practically an all-cable plant. All of the equipment put in was turned out by the Acme Telephone and Manufacturing Company, and it gave such excellent service that the moving spirits in the Albia operating company decided to secure a controlling interest in the Acme concern. This they did, and moved the Acme factory to Albia, where it has become one of the important industrial institutions of the city.

The staunch support given by citizens of Albia and Monroe county proves that they appreciate the excellent service rendered by the Albia Telephone Company. This support has enabled the company to equip and maintain the system in first-class shape, and the Albia exchange is known as one

with drawing up the petition, laid stress on the important part played by the telephone in modern life. He says: "In America it is regarded as one safeguard of public security," and then declares that the telephone service in the United States is admirably organized and may be considered perfection to that in vogue in France. Mr. Gerald recently paid a visit to America and reported to his countrymen that in the states communication is established invariably in a few seconds and the cost of subscription is so reasonable that no home is complete without one.

In France the most irritating feature is that as telephone employes are government servants they treat subscribers with open contempt. For example, the Marquis d'Albufera rang thirty minutes recently without receiving any reply.



Interior Views Albia Telephone Company, Albia, Iowa.

of the best in the state. The Bell company had an exchange at Albia but has abandoned it and now retains only a toll station there. The people of that section of Iowa are enlisted on the side of the Independent telephone movement as represented by the Albia Telephone Company.

### TELEPHONE TROUBLES IN FRANCE.

Citizens of Paris are thoroughly disgusted with the telephone service which is managed by the government. So wretched has the service become until it is said that in nine cases out of ten it is impossible to get communication at all, whereas formerly it was merely difficult. Finally the subscribers arose and petitioned the chamber of deputies to effect a radical reform in telephone service and bring it up to the standard of perfection which obtains "in all the great nations of Europe and in America especially." The petition was signed by 25,000 subscribers, including 7,200 members of an association organized to secure an improvement of the telephone service in France. M. Gerald, who was charged

The marquis at once demanded to be put into communication with the superintendent. He was dumbfounded when the man answered:

"He's not here. Besides, this affair doesn't concern any one except me. If you want to lodge a complaint against me, go ahead."

Mlle. Sylviac was prosecuted by the state about three years ago because in a fit of exasperation she compared a telephone girl to some animal or other. Mlle. Sylviac was acquitted, but the telephone administrator had the nerve to fine her by cutting off telephonic communication with her house for seventeen days.

M. Simyan, undersecretary of state for this department, promises to effect great improvement in two years. Similar promises have been made by his predecessors so often that subscribers are reminded of the old sign in a barber's shop, "We shall shave gratis to-morrow." Where the French telephone service is concerned improvements are always to be made to-morrow—next year.



# BELL TRUST BEATEN IN TENNESSEE

*Both the Legislature and Chancery Court of Appeals Go on Record for Competition—The Independents Successful After a Six-Year Fight.*

By H. S. Cranfield

[This story should appeal to those who have good, red American blood in their veins. It is the story of a magnificent fight that was won against overwhelming odds. It is the story of a smug coterie of "Boston gentlemen" of the immaculate type, put to flight by a few sturdy men out of the West. It is the story of a low, scheming campaign of greed, that was turned into a rout by a fine, sentimental, American citizenship. It is a story full of dramatic interest, not because of the manner of telling, which is simple and common-place enough, but because of the facts it relates.—From Foreword of Paul Latzke's "A Fight With an Octopus."]

**I**N the passage by the Tennessee legislature of the Talbert bill, providing for the incorporation of telegraph and telephone companies and their regulation, a chapter in the telephone war between the Independents and the Bell combine is closed that is in no way less important in its bearing upon the entire telephone industry, less valuable as a curb upon monopoly, or that has been secured with less effort than the most striking instances related in Mr. Latzke's absorbing book. In this case a "few sturdy men out of the South" refused to let up until the trust was brought to its knees. This fight in Tennessee has been more than a contest for telephone regulation, either city or state. It has been primarily a fight for general industrial freedom, and the throwing off of the bonds of monopoly in all public utilities. As a matter of fact, it is the first real blow dealt at such monopoly in Tennessee, and the Talbert bill is regarded by eminent authorities to be the most far-reaching legislation enacted in the state in a quarter of a century.

To telephone people in general the struggle for this piece of legislation is particularly interesting because the issue was fought out on the question of telephone competition in the home of one of the Bell trust's most strongly entrenched and, in many ways, one of its best paying subsidiary companies—the Cumberland Telegraph and Telephone Company, with headquarters at Nashville, Tennessee. From a practical monopoly of the telephone business of the state—in fact, 80 per cent—the Cumberland is now faced by a law which permits rival telephone companies to enter any town or city in Tennessee, and which further gives powers to cities and towns to regulate rates and exact rentals for the use of their streets, which is almost a complete reversal of things as they have been under a purely monopolistic regime. The Talbert bill is well worth setting down here in full. It follows:

Section 1. Be it enacted by the General Assembly of Tennessee, that Section 8 of Chapter 142 of the Acts of 1875, approved March 23, 1875, entitled "An Act to Provide for the Organization of Corporations" be amended so that said Section shall read as follows:

Section 8. Be it further enacted that the charter for a telegraph or telephone company shall be as follows:

State of Tennessee, \_\_\_\_\_, Charter of Incorporation.

Be it known that (here insert the names of five or more persons not under 21 years of age) are hereby constituted a body politic and corporate, by the name and style of (here insert name of the corporation), for the purpose of constructing a telegraph or telephone line from \_\_\_\_\_, in the county of \_\_\_\_\_, to \_\_\_\_\_, in the county of \_\_\_\_\_. Both termini may be in the same county.

The general powers, etc., of the corporation are (here insert the powers, etc., as set forth in Section 5 of Chapter 142 of said Acts of 1875).

Said corporation may construct a telegraph or telephone line and erect the necessary fixtures along or over or under the line of any public highway, the streets of any village, town or city, across or over or under rivers or any lands belonging to the state, or along, across or under county roads, and also over the lands of private individuals, in pursuance of the general law, authorizing the condemnation of the easement of right of way, for works of internal improvement, as set forth in Sections 1325 to 1348 in the code of 1858, both inclusive; *Provided*, that the ordinary use of such public highway, streets or county road be not thereby obstructed, or the navigation of said waters impeded.

While any village or city within which said line may be constructed shall have all reasonable police powers to regulate the

construction, maintenance or operation of said line within its limits, including the right to exact rentals for the use of its streets, and to limit the rates to be charged, provided that such rentals and limitations as to the rates are reasonable and imposed upon all telegraph and telegraph companies without discrimination; no village, town or city shall have the right to prevent said company from constructing, maintaining and operating said line within said village, town or city so long as said line is being constructed, maintained or operated within said village, town or city in accordance with said reasonable police regulations.

The said corporation shall, in all cases of war, insurrection, civil commotion or for the arrest of criminals, give immediate dispatch, at the usual rates, to any message sent by an officer of the state, or of the United States.

All messages, including those received from other telegraph or telephone companies, shall be transmitted in the order of their delivery correctly, without unusual delay, and at the usual rates; and shall be kept strictly subject, however, to disclosure in any legal proceedings.

Section 2. Be it further enacted, that said act take effect from and after its passage, the public welfare requiring it.

Up to this time telephone companies doing business in Tennessee have operated under Chapter 8, Section 2830 of Shannon's Code of Tennessee, which provides as follows:

*"Right of Way to Telegraph or Telephone Companies.*—Any person or corporation organized by virtue of the laws of this state, or of any other state of the United States, or by virtue of the laws of the United States, for the purpose of transmitting intelligence by magnetic telegraph or telephone, or other system of transmitting intelligence the equivalent thereof, which may be hereafter invented or discovered, may construct, operate, and maintain such telegraph, telephones, or other lines necessary for the speedy transmission of intelligence along and over the public highways and streets of the cities and towns of this state, or across and under the waters, and over any lands or public works belonging to this state, and on and over the lands of private individuals, and upon, along, and parallel to any of the railroads or turnpikes of this state, and on and over the bridges, trestles, or structures of said railroads."

After this act had been in force for a number of years its constitutionality on technical grounds was questioned, and the Independents were thereby prevented from utilizing a law under which the trust had constructed and maintained its plants in Tennessee.

In his dramatic recital of the fight between the Independents and the telephone trust, Mr. Latzke relates no more heroic narrative than the fight just waged here. All he has written of the manipulation of courts, the juggling with town and city councils, and the subsidizing of the press, has been duplicated in the Tennessee fight. Corruption, lying, and deception have been practiced as openly and ably here as elsewhere, for their inspiration has been that same brand of "Boston gentlemen," represented by a local organization of more power and cunning than the trust has been able to muster in many other fights.

To appreciate thoroughly the successful storming of this citadel of industrial arrogance, it is necessary to go back a few years—for it has been a six-year fight, growing fiercer as time went by. In telling of this fight it is necessary to dwell mainly on the attempts of the Independents to get

into Nashville, for Nashville has long been the key to the state situation, and the long distance route south as far as the Gulf of Mexico. Nashville is likewise the home of the Cumberland Telegraph and Telephone Company, which not only holds a monopoly of the telephone business of Tennessee, but that of Mississippi, Louisiana, and, until recently, Kentucky, and portions of Indiana and Illinois. This licensee of the Bell has had the usual long tenure of life, with the usual training in "Boston methods" absorbed to a high degree, and added to this a native cunning of a high order. As a result, its intrenchment has to date seemed impregnable.

The Cumberland has steadily grown more paternal in its attitude toward the people, until by "benevolent assimilation" it has usurped and performed many functions that ordinarily do not belong to the telephone business. Its watchfulness over the legislature has been especially marked by success. City and town councils have received no less attention, and, as such things usually go, the Cumberland's success turned the heads of its promoters and they overreached themselves, with the result that the Talbert bill became a law. With its hands in everything, this giant corporation came to be feared and detested, so when intelligent, honest, and fearless leadership appeared, the indignation of the people extended to the legislature, and to a governor who had independence and backbone. The result is the loosening of the trust's hand from the public throat. It has been in many ways a regime quite like the Bell methods elsewhere, carried out with even more adroitness than in most other cases, for the officers of the Cumberland are men of great ability.

The Nashville fight began in October, 1901, when Harvey Myers and his associates operating an Independent plant at Memphis, made an application for a franchise in Nashville. This move was met by the organization of a dummy company, created by the Bell, which applied for a franchise in November, 1901, and offered lower rates—so low in fact that no company could live. This drove out Myers and his people and the dummy company soon suspended action. In June, 1903, Myers' application was renewed. The dummy (the Tennessee Telegraph and Telephone Company) did not have time to revive its application, owing to a ninety-day clause in the city charter, but it succeeded in inducing the committee in charge to leave the matter to the council coming into office in October, 1903. During November, 1903, the Tennessee Telephone Company ordinance was renewed and, no competition coming up, it slumbered until February, 1905, when the Home Telephone Company ordinance was introduced. Then it was revived and pushed in order to defeat the proposed competition, later dying, but not until it had inflicted a death blow on the Home application. Another dummy (the Thatcher-Mitchell bill) was introduced in June, 1905, and lasted until August of the same year, when it was withdrawn.

Meanwhile the question of telephone competition had become a leading issue in the city campaign. The people had become thoroughly disgusted with the vacillation of the city council, and candidates for mayor and the council were pledged to submit properly to the people the question of voting on the telephone question. The ticket so pledged was elected. The position of a majority of the newly elected council and the mayor is illustrated by the following quotation from an open letter of Mayor-elect Morris just before the close of the municipal campaign: "If elected mayor I will not close the door of progress by repelling capital seeking investment in Nashville and the city council shall not deny the people the right to vote on a legitimate enterprise like that of the Home Telephone Company without a vigorous message from me telling them that their conduct is without precedent, a disgrace and a public scandal."

In October, 1905, the Nashville Home Telephone Company's application was introduced before the supposedly

friendly council. The committee appointed to consider the application ignored it, and without authority entered into secret negotiations giving exclusive privileges to the Cumberland, for \$10,000 a year, so long as the city council refrained from granting a franchise to any competitive organization. After this was consummated in secret session the application of the Home Company was refused. And the same mayor who delivered this patriotic effusion upon competition, attended the clandestine meeting and later signed the contract with the trust.

Few more striking examples of double dealing have been met in all the fights with the trust. Only men of exceptional courage could have been expected to go ahead after such reverses, but the moving spirits in the Nashville Home Company have been E. L. Barber, president of the Central Home Telephone Company of Louisville, and R. E. Cooper, president of the Hopkinsville (Kentucky) Home Telephone Company. Both had lined up against the trust before and been knocked down, but getting up and brushing the dust from their clothes had gone ahead undismayed, and with substantial success, as the telephone world well knows.

Despairing of receiving fair play at the hands of the Nashville city council, it was determined to carry the fight to the people of the state. The campaign directed by Luke Lea, the attorney for the Independents, was wisely put on the broad ground of general competition in public utilities. While this necessarily brought other corporation opposition to bear against the telephone problem, it was an assurance of sincerity on the part of the advocates of the Talbert bill.

The election of Governor Patterson was a direct blow at the trust. In addition, the new legislature contained many members desirous of lifting the corporate heel from the public's neck. With its convening in January, the battle was on. The Cumberland people scented trouble and made their usual elaborate preparations to "control" legislation. All sorts of measures tending to confuse and divide the house and senate were introduced. Suddenly there were introduced the Talbert and the Ewing bills, the former providing competition, regulation of rates, and police powers in the telephone business, and the latter for all other public utilities. The consternation of the Cumberland people and the high priests of other public service corporations was almost pathetic. For several days they were busy telling each other that such radical measures could never pass. But before there was time to plan a defense the Talbert bill had passed the senate. Then the milords of finance settled down to practical work. A "radical legislature was rushing away with things," was the word passed along, and preparations for the siege were begun. The Cumberland Telephone Company, always alert and victorious in many legislative battles, had never before faced anything quite so dangerous to its sway in Tennessee. So the wheels within its wheels were set in motion. The Nashville daily papers were promptly pressed into service to warn the people of the "outrage" about to be perpetrated on them. "The rights of local self government" were swept away by this bill, and general pestilence seemed about to fall upon the unsuspecting people if this "iniquitous" measure should become a law. The papers called for a public mass meeting to express the indignation of Nashville's citizens. As a result of their inspired screeching a lonely company of less than 300 sat in the huge auditorium, listened to much spread-eagle oratory, and even though a majority of the crowd were employes and stockholders of the Cumberland, the chairman refused to count a division on a resolution offered. This was the first boomerang. The situation was rapidly becoming desperate. The house must not be allowed to pass the Talbert bill, or in one stroke the telephone monopoly of Tennessee would be at an end. And there was "no telling what this legislature would do." Straightway the trust crowd began to lead committees of "outraged" citizens to the capitol to protest. Mayors and city councils of

Tennessee towns and cities were implored to protest against the passage of a bill that "usurped their powers." But at length the house committee on corporations recommended the bill for passage, and it was promptly brought up in the house. There ensued three hours of as strenuous procedure as that chamber has seen in many a year. Damaging amendments were offered in great number only to be voted down. At this point the Bell agents saw defeat staring them in the face, and filibustering was resorted to with the hope of bringing adjournment, thus delaying final action until after a recess of three weeks of the legislature, which would give them time to rally their forces. However, the reform forces stood shoulder to shoulder, and a vote was forced which resulted, 52 yeas to 37 nays, and the Cumberland Telephone Company left the capitol for the first time in defeat.

Through all the preliminary skirmishing in senate, house, committee rooms, and in public meetings, never a word in favor of the Cumberland was spoken. Its most ardent supporters dared not say a word in its defense, so obnoxious had the corporation's methods become; so, with all its power the Cumberland was forced to adopt a defense in which its

own name had to be tabooed, and finally brought its own defeat. The favorable vote in the house, however, did not silence the trust magnates. A particularly hard fight was then made to secure a veto of the measure. Every influence possible to be secured was used upon Governor Patterson, but to no purpose. His election having been opposed by the corporations, and free from political promises, he signed the bill that goes a long way toward bringing competition into the operation of public utilities in Tennessee.

And yet the Talbert bill is not the only blow given the Cumberland. Within two days after the signing of this act, a suit brought against the city of Nashville by the Home Company to restrain the city from interfering with it in its construction and operation of a system under a general law similar to the Talbert bill, under which the Cumberland had built into nearly every city in the state, was decided upon every point in favor of the Home.

Altogether the fight between the Cumberland Telephone Company and the Independents in Tennessee will go down as one of the most noteworthy in the history of the telephone industry, and ranking as a striking epoch in the legislation of the state.

## BELL PRESS BUREAU REBUKED

*Finance's Biassed Review of the Nichols Report Punctured in a Letter Written by*

J. B. Hoge.

TELEPHONY has received many letters from Independent telephone men calling attention to the reports sent out broadcast from the Bell press bureau. One of these reports was printed in Finance, of Cleveland, and the following letter from Mr. James B. Hoge, president of the International Independent Telephone Association, to the editor of Finance, under date of January 24, shows the reported up so baldly that it is reproduced in full. Mr. Hoge's letter follows:

"In your December 15th issue, at the top of page 762, the following appears:

SPECIAL TELEPHONE REPORT.—In his report to the New York board of estimates on the telephone situation, Engineer Nichols says that in nearly every city where an Independent telephone system has been introduced, the effect has been attended with inconvenience to all subscribers and by additional expenses. He also points out that many of the Independent companies secured their franchise by offering low rates and that afterwards it was discovered that it was impossible to make a profit at these rates.

"The general statements made are not entirely in keeping with the facts, as a perusal of the report in question will prove to you.

"On page 765 of your same issue there is a more extended review of this report, which is entirely one-sided. The whole aim of the article, apparently, is to influence your readers, who are not fully informed on the subject, against telephone competition, leading them to infer that it has been in every respect a failure, and that the result of Mr. Nichols' investigations, as set forth in his report, leaves no other conclusion possible.

"Knowing your desire for fair play and believing the readers of Finance are entitled to an impartial review of this report, we call your attention to certain important features which your reviewer seems to have overlooked.

"On page 22, under 'conclusion,' the report says:

Although the conditions which should determine this matter are alike in no two cities, and the conditions in no city are even similar to those in New York, yet to my mind these Independent companies which are now in operation throughout the country have accomplished certain desirable results.

First—They have, by a vigorous campaign, been the means of

creating a new interest in the telephone business, resulting in a great increase in the number of subscribers of both Independent and Bell companies, which has been of great benefit to all users of the telephone.

Second—They have, by competition, compelled the Bell companies to give better service.

Third—They have been the direct or indirect cause of reduction in rates of the Bell companies.

The effect of the reduction of rates of the Bell companies, and the increased development caused by the Independent companies, upon the present cost of telephone service compared with that before competition, may be stated as follows:

Users of the Bell telephones only get better service and increased number of possible connections at less actual cost.

Users of both systems (number of telephones in the hands of such subscribers being, generally speaking, about fifteen per cent of the whole) get better service and increased number of possible connections, with the present actual cost, in a few cases about the same or less, and in other cases more than previous to competition.

To many subscribers of the latter class the increased number of possible connections gained by the increased number to the Bell company added to the number of subscribers to the Independent company is such value that the subscriber is thereby compensated for his additional outlay. Those of this class who are not so remunerated must, of course, carry the burden of increased cost, though I believe there are none who do not receive some benefit from the development, which, at least, partially compensates them for the increased charge. There is no doubt that all subscribers receive the benefit of the increased efficiency of service.

I am under the impression that the benefits which have been acquired as a result of the dual system of telephony were at the cost to a limited number of subscribers, who are not benefited to the extent of such increased charge.

"Do you consider Mr. Nichols' views, as set forth in the foregoing, as being altogether correctly and fairly expressed in your reviewer's statement that Engineer Nichols says that in nearly every city where an Independent telephone system has been introduced, the effect has been attended with inconvenience to all subscribers and by additional expenses?

"On page 6, treating of Trenton, New Jersey; Philadelphia, Pennsylvania; Wilmington, Delaware, and Baltimore, Maryland, Mr. Nichols says: 'There is some difference of opinion among telephone subscribers in these cities as to just what benefits, if any, have been derived through

the institution of competition, some claiming that the growth of the Bell companies, the decrease of their rates and the improvement of their service are due largely to natural development, rather than wholly to the presence of a competitor, but the majority of telephone subscribers visited believed that all or the greater part of these results were brought about through competition.'

"It occurs to us that the subscribers themselves should be pretty good authority on this subject.

"On page 7, under the heading 'Middle West,' the report says:

Throughout the states of Indiana, Ohio and a portion of Kentucky, the Independent companies seem to be fairly established. Competition has increased the efficiency of the service of the original company and the number of telephone users. In a number of the cities, Independent companies were enabled to gain a foothold they have now because of the poor service furnished by the Bell companies, and in small places by reason of the latter's refusal to establish a plant. The only city of importance within this area which the Independents have not entered is Cincinnati, where a franchise has once been refused.

In addition to the large number of local plants controlled by them the Independents have formed long distance companies and are building through lines designed to reach all important places in these and the surrounding states.

In the state of Michigan, the Michigan Telephone Company (Bell) was, prior to 1896, the only telephone company operating. This company has not developed the territory, except in the large cities, and at that time furnished poor service. It was owing to this that the Citizen's Telephone Company (Independent) was organized by the citizens of Grand Rapids, and since that time the Independent companies have made rapid growth. Since competition has entered the field, the Bell companies have greatly developed the territory; the rates have been reduced and both companies have endeavored to furnish their subscribers with first-class service.

In St. Louis, the unsatisfactory service rendered by the Bell company prior to 1899 led to the organization of the Independent company. Since competition began a reorganization of the business management of the Bell company has taken place, and the service is now much better, and an effort is being made to develop the business. The situation in Kansas City is similar to that of St. Louis. In these cities, the plants of the Independent company are of the best equipment; the service rendered is of the highest order, and the number of subscribers has steadily increased.

"All of which would indicate that the Independent movement has more than justified its existence.

"Coming back to the subject of convenience to subscribers, and the value of an extended telephone service, on page 13, the reviewer says:

I believe 15 is a fair percentage to take as an average of duplication. It is seen therefore that the extent of the reduction in rates caused by such competition, while the smaller number, those requiring telephones, are obliged to pay two rates, which usually amount to more than that of the original company only, previous to competition.

There are subscribers, however, whose business is such that more than two lines are required in one system. He may install one line of each system, so that the business may be divided, the expense of the same being no more than the two lines of one system. Subscribers of this class though are only a small percentage of the whole.

From inquiry made it would seem that there are certain classes of business men who in a way do not consider the cost of a telephone service; to them the main feature is the number of people who may be reached or who may reach them by means of the telephone; in other words, the development of the use of the telephone. To all men in business this matter of development is desirable. To the merchant, however, it is most desirable, as it enables him to do business by means of the telephone which he would otherwise lose. To the large merchant the increased cost of the two systems over the one system is insignificant compared with the increased business gained if competition has caused large development. Increase in the number of subscribers, is, no doubt, of great value to the man in business, and if this increase is brought about by an Independent telephone system, he is hereby, to some extent, at least, compensated for his additional expense. It will be necessary to discuss under separate headings the effect of competition on rates and growth of the telephone. In these discussions I shall show that competition has caused the rates of the Bell companies to be reduced, and also has caused an enormous growth in the number of telephones.

The following appears on page 14, under the heading "Growth and Development of the Use of the Telephone":

Previous to installation and operation of competing telephone sys-

tems the Bell companies, may, at least, appear to be extremely indifferent to the matter of development. They confined their operations to cities, and put forth little effort to develop smaller places, unless it was foreseen that good return upon the money invested was to be earned. By reason of this method of procedure the telephone was scarcely known to those outside of cities and large towns. The operation of the Independent companies has changed the attitude of the Bell companies to a great extent. The Independent companies began operations in small towns and spread to larger cities, until at present in the states of Indiana, Illinois and Michigan, and other localities, there is scarcely a town which has not an Independent local and long distance telephone. All the principal cities in New York state, with the exception of New York City, have Independent telephone systems, and there are in operation hundreds of farmer lines in the state.

The effect of competition upon the Bell companies has been to create a new ambition on their part to enlarge and develop their system. The result is that at present both the Bell and Independent companies are rapidly increasing their number of subscribers.

This all means that the Independent companies, by their energy to get new business have inspired the Bell companies to make effort to also increase the number of their subscribers, that they may successfully compete with the Independent companies, resulting in an enormous growth, which has been of benefit to all users of the telephone.

"Taking up the effective competition on Bell rates on page 15, Mr. Nichols enumerates some of the ways in which Bell rates could be reduced without making the fact public, stating that cases similar to those were found at various places. After considering the denials of the Bell officers that rates have not been reduced through competition, he says:

Notwithstanding the statement which is generally made by the Bell companies representatives, that competition had no effect, about the time when competition appeared, or was feared, as in New York City, or when the Independent companies gained sufficient strength to become dangerous competitors, a few representatives of the Bell companies have reluctantly admitted that the Independent companies have had the effect of causing such reduction in rates. My own opinion upon this matter is that the Bell companies have made reductions from time to time because of competition or the fear of it. Even if some of the reduction were made because the earnings of the company were large, I believe the subscribers were more sure of getting this advantage because of competition with the Independents.

If the increased earnings of the Bell companies which has enabled them to make the reductions has been caused by a large increase in the number of subscribers, even then the Independent companies have been indirectly the cause of the rate reductions and I have previously shown that the Independent companies have been, in a measure, responsible for the rapid growth in the number of subscribers of the Bell companies.

Mr. Nichols has the following to say on page 16 regarding "Effect of Competition on Efficiency of Service":

Many subscribers state they are in favor of the Independent companies for the reason that competition has caused the Bell companies to give better local service. Previous to the coming of the Independent companies, little attention was paid to the complaints of subscribers, little development of the system was attempted and the service rendered was in many places unbearable. Since competition, money has been spent freely by the Bell companies to install better apparatus, and better discipline of employes has been maintained, with the result that the standard of efficiency of the service has been raised.

To the unprejudiced it must appear that Mr. Nichols found a great deal to be commended in telephone competition and we submit the foregoing extracts from his report for the consideration of yourself and readers."

#### BERKELEY GRANT'S INDEPENDENT FRANCHISE.

After a spirited bidding contest the Home Telephone Company secured a franchise giving it the right to operate at Berkeley, California, for which the sum of \$47,000 was paid as public compensation. The city will devote the money to equip its fire department. The Bell forces tried to prevent the Home company from obtaining the franchise and the bidding between the conflicting interests was lively. The bids started at \$25,000, were raised to \$27,000, then \$35,000 and so on by jumps of ten per cent until the representatives of the Home offered \$47,000, when the opposition retired from the contest.



**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done. TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

Copyrighted, 1907, by The Telephony Publishing Company. All rights reserved.

# Telephony

With which is incorporated The Telephone Magazine.  
Published on the first of every month by  
THE TELEPHONY PUBLISHING COMPANY  
301-306 Manhattan Bldg., Chicago, Ill.

H. B. McMeal	President
E. M. McMeal	Vice-President
H. D. Fargo	Secretary and Treasurer
W. H. Graffis	Advertising Manager
H. A. Downey	Subscription Manager

Edited by H. B. McMeal and H. D. Fargo

VOL. XIII.	TELEPHONY	No. 3.
VOL. XXIX.	THE TELEPHONE MAGAZINE	No. 3.

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each. In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

Entered at the Chicago Post Office as second class mail matter.

## EDITORIAL DEPARTMENT

*INDEPENDENT PROSPECTS BRIGHT.*

**G**REAT as was the success and development of the Independent telephone movement throughout the United States in 1906, the indications are that the current year will eclipse even that wonderful record. More capital is being invested in the telephone business than ever before, and the field is being developed at a rapid rate. The Independents now have plants or are building plants in every important city in the west with the exception of Cincinnati. In the east they either have systems or have obtained franchise rights preliminary to building plants in every large city excepting New York, Providence and Washington. In Providence and New York the question of giving the Independents a franchise is being agitated vigorously, the people showing unmistakable signs of being heartily tired of the Bell monopoly, and the prospects are bright that competition will come sooner or later. The Independent victory in Boston has had a wonderfully stimulating effect on the anti-monopolists in the telephone field in all the eastern cities. Throughout New England, especially, the sentiment in favor of the Independents is growing, and they are outstripping the Bell companies in many localities. Defeat of the monopoly in its stronghold, Boston, has given a strong impetus to the opposition in Maine, New Hampshire, Vermont and Connecticut. A similar feeling is spreading all over the country, confirming and strengthening the belief that the Independent telephone movement is entering upon the most prosperous era of its history.

*A BELL CALAMITY HOWL.*

**I**N its desperate efforts to discredit the Independent telephone movement the Bell publicity bureau overreaches itself every once in a while. A glaring example of this excessive zeal to block the growth of a competitor is found in a recent issue of the Louisville Courier-Journal, which printed three columns of Bell argument which was chiefly

characterized by prejudice and unfairness—as is usually the case with the monopoly's propaganda. The article, which, of course, was prepared by Bell hands, began with a fulsome compliment to the Bell financial policy, continued with a savage attack on the Independent methods, and concluded with a list of failures, receiverships and sales attributed to non-Bell telephone companies. In compiling this list the Bell's "calamity howler" has raked and scraped over the last four years and seized upon every possible instance that could be twisted and distorted into the semblance of a black eye for the Independent movement. All told there are something like ninety of such cases cited, and the Bell publicity bureau dilates on them, attempting to prove that the complete downfall of the Independent structure is but a question of a few hours.

Of course this is the veriest nonsense—and vicious nonsense at that. There are upwards of 12,000 Independent telephone companies in the United States, and the list of alleged failures gleefully paraded by the Bell—even granting all are correct—shows up ridiculously small compared to the total number, an overwhelming percentage of which are not only prospering but giving the Bell a spirited contest in their respective localities. As a matter of fact, the proportion of failures among Independent companies is much smaller than the failures among concerns in other lines of business. The statement has been made that statistics show a smaller percentage of failures among Independent telephone companies than among national banks, and that statement has never been disproved, and national banks, it should be remembered, are under the supervision of federal examiners who are supposed to prevent failures and make suspensions unnecessary. Mistakes are made in every line of business, and it is inevitable that in all branches of commercial enterprise depending on human agency there will be errors of judgment more or less serious, but the contention is made with good authority that the Independent telephone field contains fewer failures

### TABLE OF CONTENTS

Telephone Story of Ohio.....	Frank L. Beam	145-153	Telephony in Railway Service.....	C. J. H. Woodbury	174-176
Hints to Technical Writers.....	H. P. Clausen	154-155	Model Telephone Exchange.....	E. M. McMeal	176-177
Practical Suggestions.....	R. H. Manson	156-159	Bell Trust Beaten in Tennessee.....	H. D. Cranfield	178-180
Decisions Affecting Telephony.....	G. W. Hand	160-161	Bell Press Bureau Rebuked.....	J. B. Hoge	180-181
Modern Toll Switchboard Equipment.....			Editorial Mention.....	H. B. McMeal and H. D. Fargo	182-187
.....J. E. Hillbish, J. B. Thies and G. A. Joy		162-166	Polechanger Connections.....	W. A. Woods	187
Lightning—Its Peculiarities.....	A. E. Dobbs	167-168	Time and the Telephone.....	E. E. Flora	188-190
Texas Independents Prosper.....	E. M. Rotherle	168-169	Description of Blake Signals.....	E. J. Burke	190-191
Digest of Telephone Patents.....	E. E. Clement	170-171	Manufacturers' Department.....	W. H. Graffis	192-209
Arkansas Telephone Convention.....	R. A. Warner	172-173	Rural Line Districts.....	O. H. Brandenburg	210

than most other lines of industry. Financial men not owned body and soul by Bell interests admit this, and are manifesting their confidence in Independent securities more and more every day. They have learned not to be frightened by the clamor of the Bell "knockers," whose statements, such as that noted in the Louisville paper, should be received with an exceptionally large amount of salt.

Independent telephone men usually are too busy attending to their growing industry to take much notice of the frenzied efforts of the Bell to discredit their enterprises, but, as has been said, every so often the Bell press bureau produces so rank and flagrant an assault that a retort is required. The Louisville outburst is a case in point, and it is branded—as it deserves to be—a misleading and grossly unfair attack. The same logic would convict every other business of insolvency, for it is possible to tabulate failures in all branches. Citation of isolated cases is a threadbare trick of individuals who for the best of reasons do not care to refer to the large bulk of cases that prove the contrary to their contention.

#### THE TELEPHONE AND FARM VALUES.

IN anticipating the benefits to be derived from the growth of Independent telephony in the Dominion, our Canadian friends expect that the movement will increase the price of their farm lands. While there are several reasons why farm lands in the United States bring more money than similar holdings in Canada, the Dominion press is preaching that, when the Independents have established more rural lines there, farms will become more valuable and that conditions in the States will be duplicated across the border. Farmers in this country know that the rural telephone lines have made life more comfortable, lightened their burdens and facilitated their business of growing, harvesting and selling crops. As a natural result the value of their farms has increased. The Canadian tillers of the soil have a right to expect the same benefits, and for that reason are working diligently to develop Independent growth in the provinces.

No stronger proof of the great advantage the rural telephone is to the farmer has been presented than the recent instance in the cotton-growing states. Cotton experienced a sharp advance in price and the planters who had telephones in their homes received the information in time to act on the rise and secure a neat profit. Those who had no telephone were unable to get in on the ground floor and lost enough money to pay several years' telephone rental.

#### THE SHOE ON THE OTHER FOOT.

IT HAS always been a favorite line of attack for the Bell monopoly to scoff at the securities of Independent telephone companies. First, the agents of the octopus—in the press and in Wall street—have spread broadcast the report that Independent stocks and bonds were a drug on the market. Then, when they were sold, the Bell agents argued that the investors in Independent securities were dupes and victims who would soon regret their action. In the light of these facts, it is interesting to note that the Bell is getting a dose of its own medicine. Its latest bond issue of \$40,000,000 is moving so slowly—even with the backing of the big financiers, led by J. Pierpont Morgan—that if a similar delay marked the sale of Independent securities the Bell spokesmen would consider themselves justified in predicting the immediate downfall of the entire Independent structure. To be plain about it, the bond issue of the American Telephone and Telegraph Company seems to be a "frost."

In order to throw dust in the eyes of the investing public, the Bell people are industriously pointing the finger of scorn at Independent securities, hoping thereby to distract attention from their own troubles. Also, by prophesying the downfall of the Independent movement, the Bell agents

hope to induce financial men to look with more favor on the Bell securities, especially the \$40,000,000 bond issue that seems to be lagging behind. Particularly in Boston, where the Independents dealt the monopoly a body blow, has the Bell been trying to discredit the Independent movement. These tactics, however, instead of driving anybody to cover, have led to sharp reprisals, and there have been retorts calculated to convince the Bell that, living in a glass apartment, it was poor policy to throw stones or raise an issue about telephone securities.

Mr. Vinton A. Sears, of Boston, has made a statement that constitutes a severe indictment of the Bell. At least, it certainly shows that the monopoly has no business criticising the salability and productiveness of other companies' securities.

"The Bell Telephone Company is very solicitous about the strength and development of its companies and the failures of the Independent companies," said Mr. Sears, "but if you look up the past record and past history of the Bell companies and the Independent companies, you will not find any medals either at No. 121 Milk street or at No. 119 Milk street, because the records will show you, if you go back to the period when competition begun, that the stock and bonds of over ninety per cent of the Bell companies have depreciated in value from year to year until during the past five years they have depreciated in value to the extent of not less than fifty millions of dollars.

"It is no wonder that Mr. Fish called the Boston investors provincial because he could not sell them further stocks and bonds in order to carry on the warfare against the Independent companies and against the public needs. The New England investors may consider themselves wise in being provincial because when stocks depreciate in value to the extent they have in the American Telephone & Telegraph Company and its sub-license companies, it would make any investor sit up and take notice.

"After discounting and rediscounting their bonds and notes they were able to underwrite them outside of provincial New England at a rate whereby their last notes cost them over eleven per cent. This was something new for the Bell Telephone Company, because it was used to putting out securities on the basis of four and five per cent and have them over-subscribed, and when it gets to the point where its money costs over eleven per cent, which was publicly printed by the New York Sun, on the morning of January 12, it has certainly come to a pretty pass.

"Bell companies are spending thousands and millions of dollars of New England money and any other money they can get hold of, to try and convince the public, especially the investing public, that they are the only companies in existence that can give modern telephone service, and also that the Independent securities are not a good investment, and that anyone who goes into them will lose his money.

"The Bell Telephone Company, through its paid press agents, will go on to state as to the failure of this and that Independent company, but forgets to say anything about the failures of the sub-licensees of the Bell Telephone Company or the depreciation of the securities of the parent company. If all the failures of the Independent telephone companies were put together they would not amount to one-twentieth part of the depreciation of the value of the securities of the parent Bell Telephone Company and its sub-licensees. As a matter of fact, all the Independent failures put together would not amount to as much as the failure of any one of the Bell sub-licensees, and several of them have failed.

"The Hudson River Bell Telephone Company is another example going in the same direction. If any stockholder in Boston owns any Hudson River stock he knows that the stock has not got anywhere near the value it had prior to competition.

"The Bell company at this time needs all the support it can possibly get, both paid and otherwise, in order to help the underwriters get rid of their unmarketable and unsalable bonds, and the underwriters' methods of handling this matter is very wise, because they are putting them out in such a way that the general public will never know whether one-third, one-fourth, one-fifth or what amount was sold. I suppose they will simply close the books and come out and say they were oversubscribed, because that would be the only safe way to handle the matter in order to unload them on the public later.

"The Bell Telephone Company and its officials say that there is nothing to Independent telephony, and that it does not amount to anything. That being the fact, it seems very strange that they should spend thousands and millions of dollars each year in trying to prevent competition in different localities and it also seems strange that they have not been able to stem the tide of competition in spite of all the money they have expended in that way.

"During the past year Independent franchises have been granted in such cities as San Francisco and Oakland, California; Portland, Oregon; Tacoma and Bellingham, Washington; Omaha, Nebraska; Denver, Colorado; Boston, and hundreds of other cities and towns of less importance, and it is a fact that there is scarcely a single large city in the United States to-day that has not granted an Independent franchise, with the exception of New York City, and plans are well under way there to secure competition, so that the entire United States will be covered within a very short time. The Bell company in its present financial condition is not able to stem the tide, because the public is against it and it is bound to go down to defeat."

Boston and the entire eastern country are just awakening to the fact that the stories circulated by the Bell derogatory to Independent companies in other parts of the United States are shamefully misleading. For instance, reports criticising Ohio Independent companies are spread in Maine, California and other distant states. At home the Independent companies stand high. It is the policy of the Bell, however, to attack them viciously in other sections of the country where competition is threatenend. Speaking of this sort of warfare recently, Frederick S. Dickinson, of Cleveland, said:

"The Cuyahoga Telephone Company has never been attacked in Cleveland (the field of its operations), but in Bangor, Maine, pamphlets criticizing it unfavorably have been distributed in the doorways by the hundreds.

"Only the other day a telegram from Boston was solemnly read before a committee of counsel in San Francisco, whose duty it was to pass upon a proposed opposition telephone franchise, and the telegram asserted that the Cuyahoga Telephone Company was about to pass into the hands of a receiver.

"How strange, to go to Boston for information about Cleveland! Cleveland's answer to Boston news must have convinced the city fathers of San Francisco that all the people in both the towns could not be truthful."

This scheme of the Bell, to quote the alleged disastrous experiences of Independent companies before legislative bodies far remote from the concerns criticized, is being worked daily, but its effect is dying out and justly so. The public is becoming wise.

#### AN IMPORTANT BULLETIN.

THERE have been so many inquiries regarding the proposed transfer of the United States Independent Telephone Company of Rochester, that the International Association has issued a special bulletin dealing with the matter in detail. As usual, the Bell agents have endeavored to make capital out of the agitation and seized upon the opportunity to disseminate all sorts of rumors calculated to injure

the Independent movement. The association bulletin therefore is of special interest. It follows:

"To the Independent Telephone Interests of the United States and Canada:—

"The press of the country has paid more than usual attention to the proposed sale of the United States Independent Telephone Company of Rochester, New York, and its subsidiary companies, comprising the Stromberg-Carlson Telephone Manufacturing Company, the Independent telephone companies operating exchanges at Rochester, Syracuse, Utica, Jamestown, Rome, and some smaller places in New York state, and the control of the Utah Independent Telephone System.

"A meeting of representatives of most of the larger Independent telephone interests of the country was held at Cleveland on February 18, under the auspices of the International Independent Telephone Association, for the purpose of formulating a proposition having in view the acquisition of the securities and property of the United States Independent Telephone Company, of Rochester, New York.

"The president of the International association was delegated to request Mr. H. P. Brewster, chairman of the advisory committee in charge of the affairs of the United States Independent Telephone Company, to furnish statements showing the financial condition of the company's properties, and to afford facilities for verifying same, in order that a definite proposition could be submitted. Such statements had been previously refused representatives of the Independent interests, although freely furnished to the Bell. In reply to his request the president was informed that Mr. Brewster was absent from Rochester, and that no proposition of any kind could be entertained until March first, on which date the option of the present negotiators (the Bell company) will expire.

"It is well understood that certain individuals connected with the United States Independent Telephone Company, actuated by motives of personal interest, are favoring the transfer of the said company's securities and properties to the Bell company, in spite of the fact that among the rank and file of the bond and stockholders there are many who are anxious to save the properties from the clutches of the Bell monopoly.

"The latter class of investors, whose property rights are jeopardized by the proposed deal with the Bell company, have long viewed the mismanagement of the United States Independent Telephone Company with serious alarm, and would at any stage of the proceedings have been glad to support a plan having in view the preservation of the company as an Independent organization, had they been given an opportunity to record their sentiments.

"It is also an indisputable fact that the people of the various towns in which the United States Independent Telephone Company operates exchanges were almost unanimous in imploring the help of the Independents to save the situation and relieve them of the danger of being again subjected to the cupidity and arrogance of the Bell monopoly.

"That the present executive management of the United States Independent Telephone Company has been the subject of merited censure is a fact known to all telephone men, and the shrinkage in the value of the company's securities has been a matter of general comment and a hardship to honest investors. In view of these facts, it is not strange that these men do not care to entertain any legitimate proposition coming from an Independent source, which would mean that the affairs of the company as administered by them would be given a thorough investigation.

"Considered from a purely business point of view, it seems incomprehensible that the Bell company should seek to secure control of the United States Independent exchanges in the face of its bitter experiences in the state of Michigan: in Toledo, Ohio; South Bend, Indiana; Portland,

Oregon, and in many other places where Independent companies are flourishing in spite of the millions spent by the monopoly in vain efforts to throttle competition. It should be borne in mind that the people have steadfastly refused to submit to the proposition of the monopoly owning and operating the only telephone system from which they could obtain service and Independent competition is being recognized more and more by the public as the only practical method of securing anything like adequate telephone facilities with equitable rates and proper treatment of patrons.

"The principal properties in New York state which would be affected by the proposed transfer of the United States Independent Telephone securities, are operating under franchises which prohibit them from being sold to the Bell telephone company, and in the event of the sale this is likely to lead to lengthy legal proceedings. Already the local people in the various places that may be effected by the proposed sale of the United States Independent properties are preparing to take advantage, if this sale is made, of the strong Independent sentiment to secure new franchises and build modern exchanges to be operated in conjunction with the Independent system, which would finally result in the Bell telephone company receiving only the wreck value of these properties.

"It should be understood that the United States Independent Telephone Company of Rochester has no connection whatever with the United States Telephone Company of Ohio, the United States Long Distance T. & T. Company of California, the United T. & T. Company of Pennsylvania, or other companies of similar names. None of these companies will be effected by the proposed 'absorption' of the United States Independent Telephone Company of Rochester, New York, and there is no foundation whatever for the claim made that this 'absorption' would carry with it the control of the Kinlock Telephone Company of St. Louis, Missouri; the Consolidated, Frontier or Interocean Companies of Buffalo, New York; the Independent system with headquarters at Albany, New York, or the Indianapolis Telephone Company and the New Long Distance Company of Indianapolis, Indiana.

"The United States Independent Telephone Company of Rochester holds only 25 per cent of the securities of the Indianapolis company, and arrangements have already been completed to keep the control of this organization strictly Independent. The United States Independent Telephone Company has no holdings of any sort in any other operating or manufacturing company beyond those specifically mentioned in the opening paragraph, and none of the companies just enumerated are considering or will consider any sale of their properties to the Bell.

"Should the Bell company, with the assistance of the advisory committee of the United States Independent Telephone Company, succeed in securing control of the operating companies connected with that organization, it would mean a temporary loss of only 25,000 telephones, which is just about two-thirds of one per cent of the Independent telephones in the United States.

"A transfer to the Bell monopoly would undoubtedly work a hardship on the patrons of the exchanges involved in the transaction, but only until competing systems could be installed, and it is safe to assume by that time the Bell's investment in those exchanges would have become a total loss as it has at other places.

"It must not be lost sight of that during the past year the Independent telephone interests have been successful in gaining a foothold in more than sixty per cent of the cities and villages that had not previously enjoyed Independent telephone service, the most important of these towns being Boston, Massachusetts; Chicago, Illinois; Denver, Colorado; Omaha, Nebraska, and Milwaukee, Wisconsin. During the same period a new Independent manufacturing plant has been completed, and a number of other Independent

manufacturers have increased their facilities for taking care of the growth of the Independent companies, so that the proposed sale of the Stromberg-Carlson manufacturing plant if consummated will not embarrass any of the Independent operating companies in securing their apparatus, since no difficulty will be experienced by other manufacturers in making necessary extensions to existing plants and furnishing additional equipment as required.

"The gentlemen who attended the Cleveland conference represented Independent telephone investments amounting to over \$78,000,000, and are prepared to make any reasonable offer to keep the United States Independent properties from passing to the Bell monopoly, although they feel that this sale would not materially injure the Independent companies. They realize that the Independent movement is strong because every Independent exchange is a public protest against monopolistic aggression, and every dollar paid in interest on Independent securities goes back to the people. So long as this state of affairs prevails, there is no danger that the Independent movement will be injured by the defection of any one company or organization."

#### TELEPHONE COMPETITION.

THE subject of telephone competition is one which arouses considerable interest. It is something of which the general public is inclined to take a very superficial view, especially in the localities where the long established Bell interests are so far unmolested, and have had the voice of the press to mold public opinion against telephone competition by means of the old and specious arguments in favor of "natural monopolies," says the El Paso (Texas) Herald. Attacking the most susceptible side of the average business man, they advance the proposition that "two telephone systems in a town are a nuisance."

Now a busy man has no time for nuisances, and he accepts this argument and believes it. Next they attack his pocketbook and say, "Two telephone systems cost twice as much as one." He believes that, too. And that is about all they have in the way of argument, but by ringing the various changes upon it they can convince the superficial thinker, or the man who hasn't time to go deeply into the question, that they are right. But reason and fairness dictate that we should go more deeply into the question. It is an economic axiom that the effect of legitimate competition in any line of business is a better product at lower prices. This rule obtains in the telephone business as well as in any other. There is no reason why the telephone business more than any other should be considered a natural monopoly.

It stands to reason that two telephone companies in any town would have to stand or fall on two things—the quality of service that they render and the rates they charge for it.

When a Bell company has a monopoly of the telephone service in any town it invariably gives no better service than it is actually obliged to give, and it charges the subscriber all that it can possibly get. The moment that a competing company enters the field, with first-class service, and charges reasonable rates, the Bell company is obliged by the force of competition to better its service and to reduce its rates.

Just as long as the competing company continues to give good service at reasonable rates, just so long are the subscribers of both companies assured that such conditions will continue to prevail, for the Independent or competing company usually sets the pace in the matter of quality of service and the amount of the rates.

In nearly every case where an Independent company has invaded Bell territory, the Bell people have been obliged to reduce their rates materially and improve their service.

The advent of the Independent company and the keen



competition that usually ensues, always results in a very great increase in the number of telephones used, and this, in connection with the reduced rates, makes it possible for a person to have both telephones for about the same or very little more than he formerly paid for one, with a very greatly increased list of telephone connections at his command.

When public service corporations give decent service at a reasonable price, without the use of the prod of competition, competition will die for lack of sustenance, and the company giving the most satisfactory service will be retained by the public.

But, until then, competition should be encouraged as the best and most natural and forceful stimulus to good public service of any sort. It is a natural conclusion that the fittest will survive.

Far from being in any way an evil, or even a disadvantage, two telephone systems in any municipality are a source of good. They make for cheaper rates, better service and continued effort toward improvement just as surely as does monopoly make for high rates, bad service and stagnation.

One writer upon this subject of telephone competition says: "Let us suppose that two telephone systems are installed. It simply means that you pay practically as much for two telephones as you would for one if the Bell controlled the field. We are sure that because of the fact that one railroad entered a town, we would not drive another away if it sought the privilege of passing through.

"We would not hinder a second express company from coming into our midst, nor would we hold out the Postal Telegraph Company in competition with the Western Union. One grocery store might satisfy us; but we really prefer the annoyance of two, because of better goods at lower prices.

"Competition in all lines reduces cost to the consumer, and if it makes talk cheaper, the inconvenience of two telephones is more imaginary than real."

Two telephone systems in a town are a guarantee of low rates, of good service, and a continuation of these blessings, and an insurance against the opposite. So much for the advantages to all the subscribers. The advantages to all are the advantages to each one. Every subscriber having two telephones is assured of telephone service in the event of either getting out of order. And he may be sure that the repair man will find him more quickly than if he were depending upon a single company. The business man who thinks a dual system a nuisance surely has looked upon but one side of the question. To him two systems, far from being a nuisance, really mean a wider range of telephonic influence and assurance of the best service at reasonable rates.

The beneficent effects of telephone competition may be seen in more than 5,000 cities and towns in the United States, where Independent telephone companies have exchanges operating in competition with the local Bell companies. In every one of these cities where the Independent exchange has modern equipment and good business management, it is a success. It gives a quality of service surpassing that of the earlier occupant of the field, and at a lower rate, and in addition shows an interest in pleasing its patrons and giving them courteous treatment that is novel to them.

#### MICHIGAN TELEPHONE CONVENTION.

The annual convention of the Michigan Independent Telephone Association will be held at Coldwater, Michigan, March 7 and 8. An unusually interesting programme for the two days' meeting has been prepared by the committee in charge. When the delegates convene at the Armory Hall, Thursday afternoon, G. E. Kleindinst, mayor of Coldwater, will give the address of welcome, and E. B.

Fisher, of Grand Rapids, president of the State Association, will respond and deliver his annual report. Reports will follow from William Robinson, of Muskegon, the treasurer, and J. B. Ware, of Grand Rapids, the secretary. The appointment of the standing committees will be made, after which several convention papers will be read. H. T. Clough, manager of the Owosso Exchange, will discuss "Improving Toll Line Service." W. S. Vivian, of the Grand Rapids exchange, will speak on "State Traffic Association;" C. O. Trask, of Saginaw, on "Changed Conditions," and Fred C. Hughes, manager of the Lansing exchange, on "Telephone Patrons." C. H. Hood, of the contract department of the Home Telephone Company, of Detroit, will read a paper on "Getting Business;" N. F. Wing, president of the Farmers' Telephone Company, of Jackson, will discuss "Manitoba Experiences," and F. V. Newman, of Grand Rapids, will speak of the State Managers' Association. H. A. Price, general manager of the Saginaw Valley Telephone Company, of Bay City, will speak on the topic, "Michigan's Thumb."

At the afternoon session the State Traffic Association will hold its annual meeting, and the executive committee of the Michigan State Telephone Managers' Association will meet. Thursday evening the convention will listen to reports from the following leading Independent companies:

Ann Arbor Home Telephone Company, C. R. King, general manager.

Adrian Telephone Company, W. O. Hunt, vice-president. Benzie County Telephone Company, W. A. Young, president and general manager.

Detroit Home Telephone Company, W. B. Woodbury, general manager.

Livingston Home Telephone Company, R. B. McPherson, president.

Southern Michigan Telephone Company, A. C. Himebaugh, president.

Saginaw Valley Telephone Company, F. M. Howard, auditor.

Union Telephone Company, W. J. Melchers, general manager.

Swaverly Telephone Company, C. W. Swaverly, general manager.

Muskegon Citizens' Telephone Company, William Robinson, manager.

Grand Rapids Citizens' Telephone Company, C. E. Tarte, general manager.

On Friday, the morning session will open with an address by James B. Hoge, of Cleveland, president of the International Independent Telephone Association, on the work of the organization. Frank L. Beam, president of the Ohio Association, is down for a talk on "Neighborly Greetings," and other visitors will be called upon for remarks on their respective states. C. E. Tarte, of Grand Rapids, general manager of the Citizens' Telephone Company, will speak on "Our Duty to the International Association;" A. B. Fishback, of Howell, manager of the Livingston Home Telephone Company, will discuss "Our Rural Friends." Thomas Bromley, Jr., of Hart, general manager of the Lake Shore Telephone Company, will read a paper on "Important Lessons in Rural Service." Theodore Thorward, president of the South Bend (Indiana) Home Telephone Company, on "Chicago Connections," and J. B. Ware on "Conditions in the Northwest." At the afternoon session reports of committees, unfinished business and election of officers will be the order of proceedings.

The officers of the Michigan Association are:

President—E. B. Fisher, Grand Rapids.

Secretary—J. B. Ware, Grand Rapids.

Treasurer—William Robinson, Muskegon.

Executive Committee—E. B. Fisher, J. B. Ware, W. B. Woodbury, C. E. Tarte and N. F. Wing.

Vice-presidents—First district, R. B. McPherson, How-

ell; second, R. C. Smith, Homer; third, A. C. Himebaugh, Burr Oak; fourth, J. H. Fildew, St. Johns; fifth, C. W. Swaverly, Kalkaska; sixth, H. A. Price, Saginaw.

### WISCONSIN ADJOURNED MEETING.

Secretary W. F. Goodrich has issued a call stating that the adjourned annual meeting of the Independent Telephone Association of Wisconsin will be held at Madison, March 7 and 8, 1907, at which time will be perfected the organization of district associations, as auxiliaries to the state association, as in Ohio, Indiana, Michigan and other states. At the previous meeting held January 17 and 18, committees on district organization, clearing house, nomination and membership were elected by the delegates, and representatives from each congressional district have organized in each of their respective districts, so that a complete organization as perfected will assemble March 7 and 8 for the completion of important details relative to the building of long-distance trunk lines by the Independent Long-Distance Telephone Company of Wisconsin, the compilation of statistics and the election of officers for the coming year.

Each district is instructed and requested to bring a map or sketch of the district, showing all Independent lines and the number of telephone users, so that a comprehensive system of toll lines may be established at once. With the prospects of an early spring, this meeting will mark the beginning of important developments in the Independent field in Wisconsin.

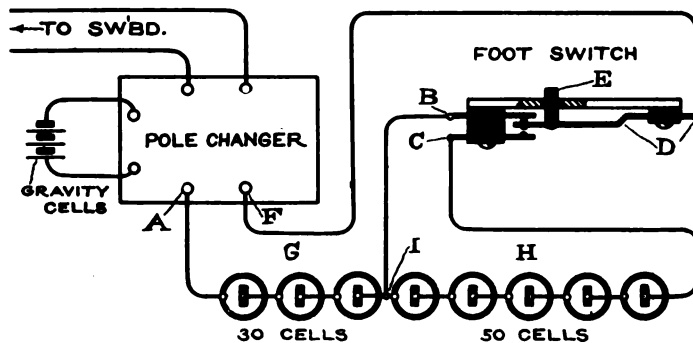
### POLE CHANGER CONNECTIONS.

W. A. WOODS.

In exchanges where interconnecting service must be given to local exchange telephones, as well as toll and farmers' lines, the matter of providing a suitable ringing power is one of considerable importance. Whenever pole changers are used, the current required for operating the

bells of the local telephones need not be as powerful as that required for signaling telephones connected to long lines having many telephones connected to the circuits. In most cases it is found that thirty dry batteries when connected to a pole changer give sufficiently satisfactory current for signaling the local exchange telephone, while when signaling out over longer lines additional batteries must be connected in the circuit. This may be accomplished as shown by diagram.

The pole changer vibrator, it will be observed, is operated



from a set of gravity batteries, and the primary source of power is obtained from a set of dry batteries. Normally the thirty cells of dry batteries shown by G are left connected onto the pole changer through the foot switch, or any other switching device. Thus, under normal conditions, the local telephones may be signaled at a minimum expense for current.

Now when it is necessary to signal out over a long line, a suitable manipulation of the switching device connects the additional fifty cells shown by H, so that a large quantity of current immediately becomes available for signaling over long lines. This arrangement has been shown to give very satisfactory results.



Banquet of the Northwestern Cedarmen's Association at Duluth, Minnesota, January 8, 1907.

# TIME AND THE TELEPHONE

*A Technical Description of the Synchronizing of Clocks over Telephone Wires*

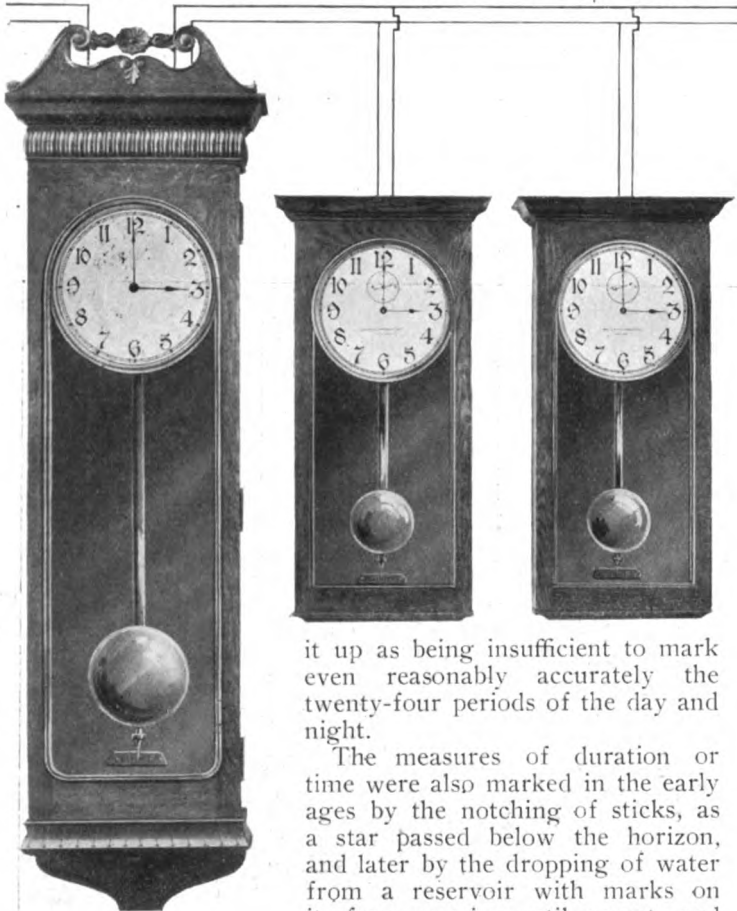
By E. E. Flora

**W**HAT is time or rather what is meant by the word "time"? The simple definition of time is "duration set out by measures." Time is personified as an old man, bald headed, but having a forelock, and carrying a scythe and an hour glass. The scythe evidently is intended to represent an implement with which to reap his harvest of death, but to our modern, and one might say, more savage methods of warfare, the harvest is certainly greater and takes less time. Old Father Time's hour glass seems to be the only thing necessary to make the man with the scythe the symbol of "duration set out by measures," but why? Surely the "man with the hoe" would be more indicative of the lapse of time, for does he not begin his labors and end them with a certain period of time? The hour glass undoubtedly was used by the ancients to mark progress of the day, but even in the early histories of time measures the hour glass was not infallible, for the ancients gave

odd years ago. The real inventor's name seems to have been lost to electrical history, but it is safe to conclude that many inventions were made in this line, as in the '60's electricity was beginning to find its place in the mechanical arts, outgrowing its laboratory garb and, as clock makers were naturally skilled in delicate mechanism, it was only natural that they would early attempt its application to clock movements. It was thought at one time, that the permanent magnet could be used, if only an insulator to magnetism could be found, and in that day it was considered only a question of time until such an insulator could be invented, but to this day no such insulator has been discovered. If it could be, then perpetual motion would become a reality.

In an old journal printed in 1869 mention was made of an electrical clock used in the rotunda of the Merchants' Exchange of Philadelphia. This was simply a pan of solenoids, attracting a bar magnet, said coils being alternately cut in and out by a small slide operated by the pendulum. This clock ran for some years, but was finally abandoned as it was almost impossible to regulate it for correct time, and the advance was slow; but recently the American Clock Company has developed an excellent electric time-piece which is extremely simple and requires a minimum amount of current to operate. Unlike the early electric clocks, the current is used to elevate weights at certain periods, and these weights by action of gravity cause the train of wheels to move with perfect regularity. The next step was to secure a perfect secondary dial or clock that could be operated synchronously by the master clock. This was finally accomplished, and the company now has numbers of these clocks in operation which by an ingenious invention are not only operated from a central station, but are also set or synchronized once in a stated period of time as may be desired.

In connection with these clocks an electric time stamp has been perfected and is now in use throughout the country. It is a handsome device and is adapted to be placed on the various desks or tables of an office, and actuated from a master clock, whereby the exact minute, hour, day of month and year can be stamped by simply pressing a lever or arm carrying the various dating wheels, in contact with the surface of the paper to be dated. These stamps work synchronously with the master clock and work so perfectly, and so simply that over five thousand impressions a day have been made for many days and weeks without the slightest indication of derangement of any of the parts. This is a simple means to secure accuracy in stamping bills, checks, letters and the various papers which require the exact minute, hour and date of receipt or to be delivered. It will soon become an invaluable adjunct to all well-regulated offices and factories, as useful and necessary as the telephone is in these strenuous business days, where time saved is so many dollars and cents added to the income of the successful business man. In addition to the use above mentioned, the company has just completed an attachment to this valuable little machine which will greatly broaden its usefulness to the manufacturer. The attachment is for the purpose of keeping a record, of the time of each workman for the entire day, and consists of a flat plate, about eight inches square with a sliding stop, to be changed each day for one week, and then set back to the starting point.



it up as being insufficient to mark even reasonably accurately the twenty-four periods of the day and night.

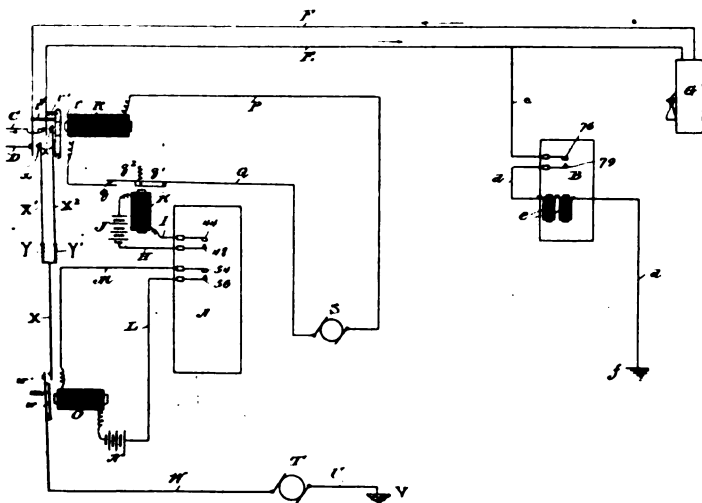
The measures of duration or time were also marked in the early ages by the notching of sticks, as a star passed below the horizon, and later by the dropping of water from a reservoir with marks on it, from sunrise until sunset, and

dividing the day into a number of parts. Candles were also used to measure the length of day and night, and finally a real clock run by water dropping on paddles, fastened to a wheel, was devised, but this, too, became obsolete.

Clocks are legion, but, above all, the one Old Sol would prefer for his followers is the electric clock, made by the American Clock Company of Chicago. The master clock beats the perfect time, year in and out, and the little secondary is always obedient to its master, and for masterly action and workmanship these clocks are said to have no equal. The invention of the electric clock dates back some forty

The operation of the device is as follows: A blank card is given each employe, on which his name and address are written, and spaces for the time impression for an entire week, when he comes in the morning, goes out at noon, comes on again, and leaves at night. The workman selects his card out of the box which contains the cards, alphabetically arranged, slips the card into place against the above mentioned slide and by pressing down the lever as above mentioned secures an impression of the exact minute and hour of that day when he arrives and departed from his work. To secure the time of each employe at the close of the week is a simple matter of addition.

Having spoken of some of the valuable devices this company has perfected it is well to give a description of the synchronizing of clocks by using the telephone wires. The synchronizing of clocks by wire is not new, as the Western Union Telegraph Company and other companies have used their wires for this purpose, but the use of the telephone wires for this particular purpose has never successfully been accomplished until the system invented by Mr. H. W. Pidgeon, and now being manufactured by the American Clock Company, was introduced. The Western Union, necessarily, is compelled to run a wire to every house to synchronize its clocks, and at present comparatively few clocks are installed outside of where it has local telegraph stations; but the telephone, being a necessity, is in almost every home. The telephone company is accommodating enough to request their operators to give the subscribers the time of day, without charge, whenever a subscriber asks for the same, but this is not automatic and necessarily depends upon the operator giving the time as she looks at the clock used by that particular station. The American Clock Company has devised a method whereby it installs one of its electric clocks in the subscriber's home, and connects it to the telephone wires. At midnight, the telephone circuit is automatically cut out for from one to two minutes from the telephone lines, and the master clock which is located at the telephone station, has its circuit switched in automatically with all the clocks controlled from that station. The clocks are then synchronized at midnight, or at any hour of the night at which the telephone calls are the least frequent. The duration of time in which the telephones are cut out is so short that there can be no inconvenience to the subscriber, for frequently it requires more than two minutes to get the operator at the central station. Herewith is shown a diagram illustrating the master clock, the telephone circuit and the secondary clocks and their circuits.



In the diagram *A* represents the master clock, which will preferably be located in the central telephone station, and *B* represents an outlying secondary clock. *C* and *D* designate, respectively, the outgoing and return lines of the telephone circuit. The meeting ends of the wires *C* and *E* and

*D* and *F* are normally in contact, as shown, thus establishing a complete circuit through the telephone, indicated at *G*. *H* and *I* are the two lines of the primary master clock circuit, said lines having separated contact points 44 and 48 within the clock mechanism and including in the circuit a battery *J* and relay *K*. *L* and *M* are the two lines of the secondary master clock circuit, said lines have separated contact points 56 and 54 within the clock mechanism and including in the circuit a battery *N* and relay *O*. *P* and *Q* represent two lines connecting opposite ends of a relay *R* with opposite sides of a dynamo *S*, the line *Q* being normally broken at *q* and having an armature *q* co-operating with the relay *K* to close the circuit at *q*, but normally retracted by a spring *q*. Opposite the core of the relay *R* is a pivoted armature *r*, normally retracted by a spring *r* and carrying an insulated bridge *r*, holding the main telephone line wires *E* and *F* normally in contact with the central station wires *C* and *D*, respectively. *T* designates a source of electrical energy, such as a dynamo, which is connected on one side by a line *U* with the ground, indicated at *V*, and on the other side has a line wire *W* leading to a point opposite the core of the relay *O* and provided at such point with an armature *w*, normally retracted by a spring *w*. *X* designates a line leading from a point adjacent to the end of the line *W* by branches *X* and *X*<sub>2</sub>, having interposed fuses *Y* and *Y*<sub>2</sub> to contact points *x* and *x*, opposite the terminal contacts of the main telephone lines *F* and *E*, respectively, and located on the opposite sides of said terminals from the contact points of the lines *C* and *D* from the switchboard station.

Referring to the connections of the secondary clocks with the main telephone circuit, *c* designates a line tapping either of the wires *E*, *F* of the main telephone circuit (the wire *E* as herein shown) and leading to a contact point 76 in the secondary clock. *d* represents another line leading from a co-operating contact point 79 in the secondary clock, through an electro-magnet *e*, to the ground, indicated at *f*. The electro-magnet *e* when energized actuates through its armature the mechanical devices which effect the setting of the minute hand of the secondary clock to the position simultaneously indicated by the minute-hand of the master clock.

Once in each twenty-four hours, preferably at a time when the telephone circuit line is practically idle—say, for instance, 3 a. m.—as the minute hand of the master clock approaches the hour the mechanism of the clock brings together the contacts which close the primary master clock circuit, represented by the lines *H* and *I*. This energizes the relay magnet *K*, which closes at *q* the heavier circuit energized by the dynamo *S*, thus energizing the relay magnet or magnets *R* and through the connections described disengaging the switchboard connections with the telephone line circuit *E* *F*. Thereafter, and when the minute hand of the secondary clock *B* nearly reaches the hour, as indicated by the secondary clock, the mechanism of said clock closes the contacts within the clock mechanism between the wires *C* and *D*, whereupon the complete clock circuit through the telephone circuit, represented *E* *F*, is established with the exception of the break opposite the relay *O*. Therefore, and at the instant the minute hand of the master clock points to the hour the mechanism of the master clock closes the secondary master clock circuit represented by the lines *L* *M*. This, through the relay magnet *O*, connects the wires *W* and *X*, thus establishing the complete clock circuit, and passing a current through the electric magnet *E* of the secondary clock, thereby actuating the synchronizing mechanism of the latter and setting the secondary clock to the exact time indicated by the master clock. This having been done, the mechanism of the secondary clock again breaks the circuit therethrough, at or about which time the mechanism of the master clock operates to break the primary master clock circuit, thereby the switch operating circuit *P* *Q* is auto-



matically broken, allowing the spring *R* to restore the continuity of the telephone circuit.

There is no question of the value of the system in any community and undoubtedly the time will come when every home will have its telephone and a synchronized clock.

This would be an excellent system for the various telephone companies to offer their subscribers as an inducement to install a telephone. In fact, it would work both ways, for the installation of a perfect time system would be an inducement to install a telephone.

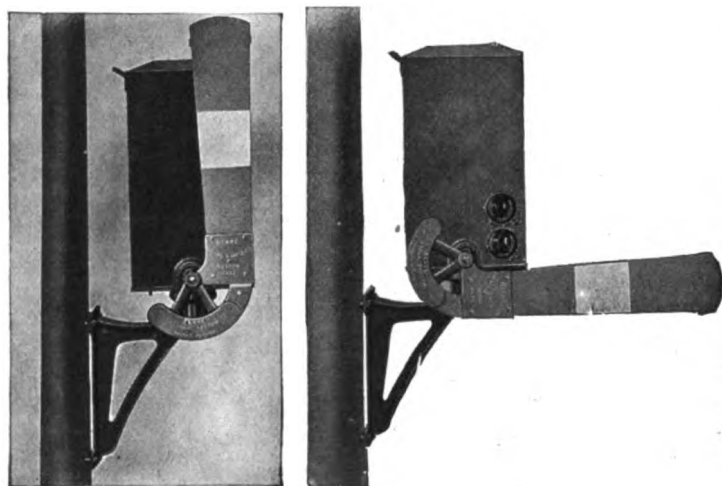
## DESCRIPTION OF BLAKE SIGNALS

*Abstract of a Paper Read Before the Central Electric Railway Association at Indianapolis.*

By E. J. Burke

**B**LAKE signals are practically visual telephone signals, and their use removes the one-sided feature of railway line telephone systems as at present installed. These signals complete the calling system so that the telephones can be used to their full advantage by both dispatcher and car crews.

The rapid increase in the use of electric railways for inter-urban service and their invasion of the field of steam roads for inter-urban work, has accentuated the necessity for essentially the same methods of operation for electric as



The Blake Signal, in Clear Position and with Arm in Horizontal Position.

have proved best in steam road practice, including the use of regular train or car dispatchers. Simultaneously, there has arisen the question of communication between the dispatcher and the car crew, a question long ago solved by steam roads, by the use of telegraph lines with more or less frequent stations and operators. By this means in the event of any unforeseen derangement of traffic, or advisable change in schedule, the dispatcher can communicate with his various train crews and change their orders to meet the new conditions.

The relative necessity for thus communicating with crews can not be measured by the track mileage, for the reason that for a given number of miles of track, the electric road will operate at least three or four times as many train units as the steam roads under ordinary conditions, while on special days and holidays the electric road traffic will increase in a much greater proportion.

In winter, when the snow plows must be sent over the line, the need for this power of communication is largely increased on electric roads. Realizing these facts, the management of many electric roads installed telephones at certain points, thus solving the problem so far as allowing the car crews to communicate with the dispatcher, but leaving unsolved the more important matter of permitting the dispatcher to selectively communicate with the car crew.

To overcome this one-sided method of communication, orders were given that at certain points, all car crews should stop and call up the dispatcher. It is almost needless to call attention to the amount of time wasted by both crews and the dispatcher, as well as the halting and antiquated methods of operation that must necessarily result from all crews calling up from fixed points whether they are wanted or not, and the attendant discomfort and loss of time to patrons. The dispatcher is kept busy answering such calls, is thus distracted from more important duties, and is more liable to eventually make a mistake with the usual disastrous consequences. Time is money. Not only to the railway company, but to many of the passengers on its cars. If at certain meeting points a crew must lose a minute or two in calling up the dispatcher, it will not take many such stops to put said crew behind time. Also with this method, the running time must be lengthened, and on long runs, instead of getting four or five trips out of a crew and car, only three or four can be made in a day's work. The loss of a trip by any car crew means the loss of the money which that car and crew would have earned on that trip. Also, it means that in order to carry a certain number of passengers and earn a certain amount of money, eleven or twelve cars must be operated instead of nine or ten. This calls for not only a greater number of cars with the attendant increase of first cost and interest on investment, but the cost of additional crews, additional feed wire, additional power consumption, with increased cost of fuel, maintenance expense and supplies.

It is certainly the legitimate object of any railroad management to get the maximum earnings from a minimum of operation cost, consistent with the comfort and safety of its patrons; and any apparatus which will aid in this attempt, certainly has a positive value, both to the railroad company and the people whom it serves.

A dispatcher's signal eliminates all unnecessary loss of time, establishing a ready and certain means of communication between dispatcher and crew. In addition to the above, a reliable dispatcher's signal increases the safety of operation in the following ways:

All roads have certain meeting points where cars ordinarily pass, and the car crews become accustomed to stopping at these points and running by other sidings and turnouts. Now, if for any reason the dispatcher must give orders for crews to pass at unusual points, he can, by setting a semaphore and showing a red light, insure against the car crew forgetting to stop at this unusual meeting place. Furthermore, many accidents would undoubtedly be avoided by a dispatcher being able to set a signal and stop, or give caution orders to a car crew at any telephone point on the line.

The telephone has reached a state of perfection that makes it as safe and reliable as any human agency can be, while its use has become so general that everyone is accustomed to it and can use it with facility. Thus, the telephone becomes an ideal, cheap method of communication; no specially trained and schooled operator being needed to handle

it. The one thing needed in combination with the telephone is a signal; simple in mechanism, positive in action, and reliable in service, that can be operated by the dispatcher so as to call to a telephone at any desired point, and at that point only, any one of the crews on the line. This is a need that the Blake Signal was designed to meet, and that the solution has been eminently satisfactory is proved by the successful operation of this signal, in various parts of the country, during winters of exceptional severity, involving the severe tests of extreme cold and quantities of snow, ice, sleet, etc., as well as through summers of heavy traffic and the usual electrical disturbances.

The Blake signal is not an automatic signal in the usual acceptance of the term, and does not and never was intended, to cover the field of automatic signals. It is intended for use in connection with the telephone system, and the purpose of the signal is to allow the dispatcher to selectively signal to any point on the line, when he wishes to communicate with the passing crews. The Blake signal, in other words, gives the train dispatcher the same command of car crews that the steam road train dispatcher enjoys by using telegraph lines with stations at certain intervals, where the operators can be instructed to signal the train for special orders. The operation is simplified in that instead of communicating with a telegraph operator, giving orders and having the operator set a signal and repeat the orders to train crews, the dispatcher sets a signal and gives the orders to train crew direct by telephone on its arrival at a certain station.

The mechanism of the Blake signal is entirely independent of the telephone, and where telephones are already installed, the signal may be put up as an adjunct.

I have gone at some length into this discussion of the uses of the signal, in order that it may not be confounded in any way with automatic block signals.

The apparatus consists of dispatcher's office equipment and line semaphore signals, each signal containing an electro magnet and pendulum. These signal pendulums vary in length, and each one corresponds in length to one of the pendulums in the dispatcher's office. The dispatcher's office equipment consists of a desk-like box containing 15 pendulums of different lengths and platinum contacts, which are made and broken by the swing of the pendulums at intervals varying with the length of the pendulums, capable of transmitting impulses over the line (consisting of a single, bare, iron wire) which impulses are synchronous with that dispatcher's office pendulum which happens to be vibrating, and influence only that signal on the line which the dispatcher desires to operate.

The basic principle of the signals is that the time of vibration of a pendulum varies with its length. Therefore, if we, at some central point, such as a dispatcher's office, start in vibration a pendulum of a certain length, allowing it, as it vibrates, to open and close an electric circuit, electric impulses will be set up in that circuit, synchronous with the vibrating pendulum. These impulses energize the electro magnets of all the signals on the circuit, and start vibrations in all of the signal pendulums. On only one signal, however, namely that one whose pendulum is of the same length and therefore synchronous with the pendulum vibrating in the dispatcher's office, will these electro magnetic impulses be of a proper period to be cumulative in effect, and swing the pendulum in an ever increasing arc of vibration. On all the other signals, the impulses being out of beat, the pendulums will receive a check before they have swung through any considerable arc. On the signal which it is desired to set and on the pendulum of which these synchronous impulses are accumulating energy, the pendulum having reached a certain arc of vibration, mechanically trips a lock, releasing a three-foot semaphore arm which falls to the horizontal position by gravity. Having reached a horizontal position, this semaphore closes the local signal lamp

circuit and also interruptedly closes a shunt to ground on the signal line, causing a sounder to draw up in the dispatcher's office and notify him of the fact that the signal has operated.

For instance, when the dispatcher wishes to set signal No. 9 he inserts a plug, similar to a telephone plug, in hole No. 9. This releases pendulum No. 9, and also connects the line with the 500 volt circuit which is brought to the dispatcher's desk. As the pendulum swings it opens and closes the signal line circuit, sending impulses over the line synchronous with its vibration. At the end of 13 seconds this line signal pendulum swings through an arc wide enough to trip a lock and drop the semaphore arm. The car arrives at the station and the motorman or conductor calls the dispatcher by telephone, saying "Brown and Hayes at No. 9 for orders." The dispatcher then transmits his orders to the conductor or motorman. The conductor or motorman, if so instructed by the dispatcher, then pulls a cord which sets the semaphore at "clear" position ready for future operation. Attention is called to the following points in this system:

*First*, when properly set up and adjusted, it is physically impossible for any other signal than the one desired to operate.

*Second*, that there is a positive indication to the dispatcher, showing that the semaphore arm has been set in the horizontal position, and that until the arm has reached an angle of about 45 degrees it is a physical impossibility for the dispatcher to get this indication and the danger of a false indication is eliminated.

*Third*, that the power for operating the signal is obtained entirely through the dispatcher's office, and there is no local circuit at each signal, other than the signal lamp circuit.

*Fourth*. There are no electrical contacts in series with the operating magnets at the various signals. The signal line is electrically continuous throughout, from the dispatcher's office to the return circuit at the end of the line.

*Fifth*. If one signal lamp burns out, a second lamp is automatically cut in circuit. This second lamp is in an interrupted circuit and gives a flashing light, so that any crew can report same and a new lamp can be put in the following day. This detail removes the necessity of having a daily inspection of all lamps, as well as danger from a new lamp being defective and burning out a very short while after it has been put in.

*Sixth*. The widely varying voltage of trolley lines is taken care of by relays which draw up at different voltages and cut in or cut out resistance as the voltage which is supplied at the dispatcher's office rises or falls. We are able to take care of voltage variations between 300 to 700 volts.

*Seventh*. The line consists of a single No. 10 bare galvanized wire supported on glass insulators.

This system is manufactured by the Blake Signal and Manufacturing Company, Boston, Mass.

#### MICHIGAN BELL DEBENTURES.

If you happen to see the fact that the Michigan State (Bell) Telephone Company has sold \$1,250,000 of 6 per cent three-year debenture bonds to N. W. Harris & Company of Boston do not be unduly excited, says King's Financial Bulletin. To be sure, the rate of 6 per cent is fairly decent and quite abnormal, but remember to take into your account the word "debenture." "Debenture" is a modest sounding word and yet it covers a multitude of sins. It means that although the bonds are called six per centers, there is no earthly guarantee that the 6 per cent will be paid, nor has the owner thereof any particular hold upon the promisers. The "debenture" business is one of the evil phases of American finance.

# MANUFACTURERS DEPARTMENT

## WATCH AND SWITCHBOARDS.

The Western Telephone Manufacturing Company of Chicago is carrying on an aggressive campaign for business. Some of the Western's literature is much more than ordinarily good. The following is a circular letter which is a product of the Western's advertising department. It is the kind of advertising that pulls and pays:

"It costs more money to get a good watch movement in a solid gold case than it does to get a poor movement in a cheap case.

"There is where switchboards differ from watches. The maker of the poorest board and the very ugliest design



Style G "Western" Switchboard.

"When a man buys a handsome watch 'on its looks' he doesn't always get a good time keeper.

"Some men would rather have a handsome watch than a watch that keeps good time. Such men may look at their watches often, but they don't depend on them for time.

"Another man would buy a watch because it kept good time, and regardless of its looks. Such a man does not



Style K "Western" Switchboard (Desk Type).

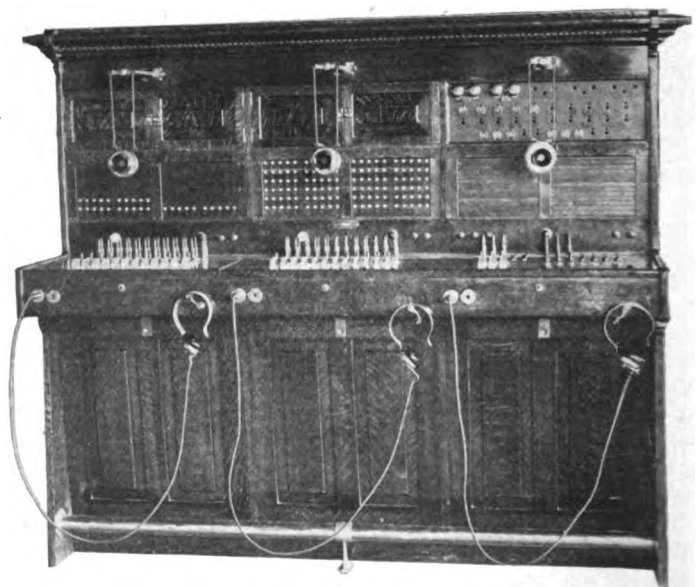
asks and expects just as much for his equipment as the manufacturer who makes only the best grade of switchboards, and has learned that it pays to make his switchboard



Style G "Western" Lightning Arrestor Bank.

want to pay for appearances and doesn't care about anything else as long as his watch keeps good time.

"Switchboards are like watches. There are switchboards that look good and won't work. There are switchboards that do work but which are an eye-sore to their owners.



"Western" Central Energy Special.

of an attractive design as well as a perfect piece of telephone apparatus.

"There are many makes of switchboards and many types of each make.

"There aren't any switchboards made better than the Western, and with due modesty we must say that we have never seen any that we thought were quite so good.

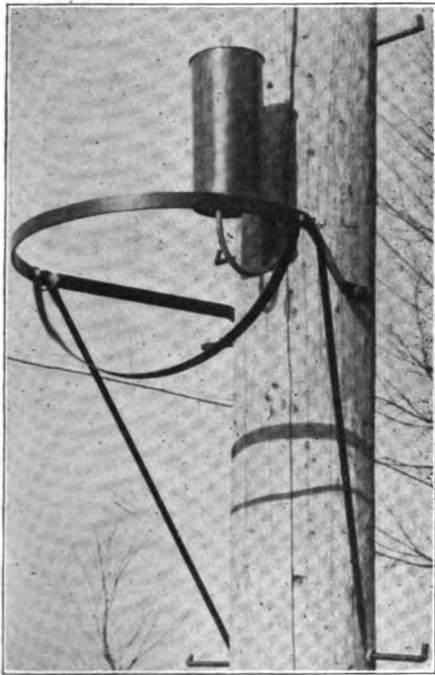
"When you buy a Western switchboard you are safe with it. It is reliable. It is well designed and well made. You have the same sort of satisfaction that a man does when he takes a good watch out of his pocket on a railroad train and finds he is on time.

"An Ingersoll dollar watch may be a triumph of mechanical ability in cheapness of cost, but it isn't the kind of watch you depend on if you have an important engagement, and it isn't the kind of watch you pull out of your pocket in a conspicuous manner in company.

"Now with the Western switchboard you may be proud of its design and proud of the way it works. It will stand abuse, but don't abuse it because it deserves better treatment. A poor operator can do good work with it, but give yourself a square deal and get the best operator you can find. A Western switchboard is something more than a combination of lifeless parts merely. It is a partner in your business,—only you get all the profits.

### A SAFETY SEAT FOR TELEPHONE BUILDERS.

To correct an erroneous impression, caused by the use of the wrong illustration in the February TELEPHONY, we present herewith a correct representation of the Coar safety seat.



The Coar Safety Seat, Improved Type, Showing Seat Ready for Use.

made by the Telephone Appliance Company of Minneapolis, Minn. It is claimed for this device that it is: A combination seat, safe as a cradle. Is rigid and permanently constructed of mild steel, and lowest initial cost with no maintenance.

It is applied to a pole with four bolts, two of which serve as foot rests, and can be used as a seat or as a substitute for a lineman's safety belt.

The seat is slightly, folding up like a jack knife. Workmen climb through instead of over it, lessening time and danger. It is roomy and comfortable; no caught or loosened belt tools, and is free from accumulation of snow or sleet.

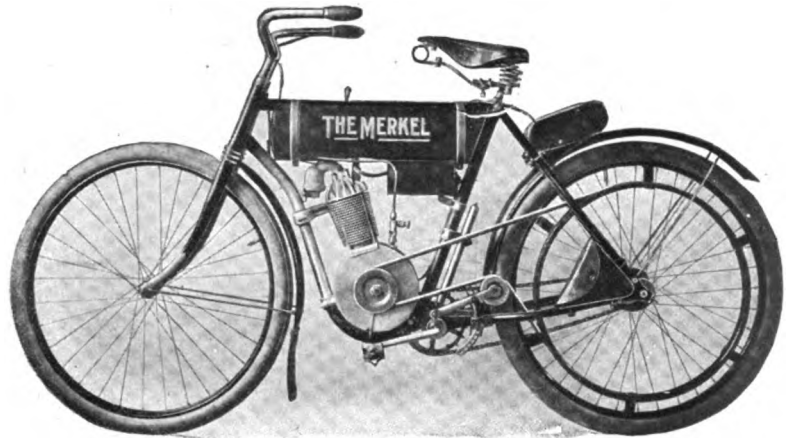
### MERKEL SPRING-FRAME MOTOR CYCLE.

While the American people have been slow in recognizing the general usefulness of the motor cycle, both as a pleasure and commercial vehicle, a large number of them can be seen in the leading centers of this country. In Milwaukee is located, not only one of the oldest but also the second largest motor cycle manufacturing plants in the United States. The Merkel Motor Company's factory is located in the southern outskirts of the city, known as Layton Park subdivision, and it is an outgrowth of the original Layton Park Manufacturing Company which, during the height of the bicycle craze, manufactured bicycle hubs and other accessories for the trade.

In the latter part of 1900 Mr. J. F. Merkel became associated with the old Layton Park Manufacturing Company,

and after having spent more than a year in experimental and developing work, started to remodel the old plant, install new machinery and produce a complete motor cycle. Since that time and during the succeeding years his company has produced a great number of motor cycles, and by judicious advertising and conscientious work gained the confidence not only of the commercial trade of the United States, but placed a large number of machines in the old world. During the past year the Merkel Motor Company has trebled its output, confining practically its entire working force to the production of motor cycles.

The accompanying illustration shows the company's 2¼ horse power spring frame motor cycle. The distinctive features of the motor cycle may be mentioned as the spring



Merkel 2¼ Horse Power Motor Cycle.

frame, long wheel base, large easy riding tires, positive grip control, etc. A peculiar feature of the Merkel line of motor cycles is its new spring fork attachment. A Merkel motor cycle equipped with spring frame, spring fork and hammock motor seat saddle, makes a most easy riding machine. The loop tube in the frame construction which carries the motor or engine, permits of the carrying of the motor lower, thereby bringing the center of gravity closer to the ground, and making the machine easier to balance and more comfortable to ride.

In the past the greatest volume of business has been in behalf of pleasure and recreation, but during the present year the commercial side of the motor cycle industry has been greatly enhanced. Motor cycles are being adopted with a great deal of success as a commercial proposition. Leading merchants in large cities have purchased them for quick package delivery in both city and outlying districts, sometimes using the machine with its three-wheel side car attachment. Gas companies, during the past two years, have adopted them for the use of their street foremen, stove repair departments and meter inspection work.

Telephone companies have found them extremely useful and economical in reaching outlying stations and lines. To even the casual observer this field of usefulness will at once be appreciated. The motor cycle enables telephone repairmen and linemen to reach in a very short time the most remote subscriber. With the addition of the carrying receptacle, which can be placed on the front fork, necessary tools and supplies can easily be taken care of. Either one of the two leaders of the Merkel motor cycle line, the 2¼ horse power machine shown herewith, or the newer model with spring fork attachment, vertical engine, new position of batteries, and other minor improvements, is desirable for telephone companies' use. Any further information along the line of motor cycles adaptable for the use of telephone companies can be secured by writing the Merkel Motor Company, 1118 Twenty-sixth avenue, Milwaukee, Wis.



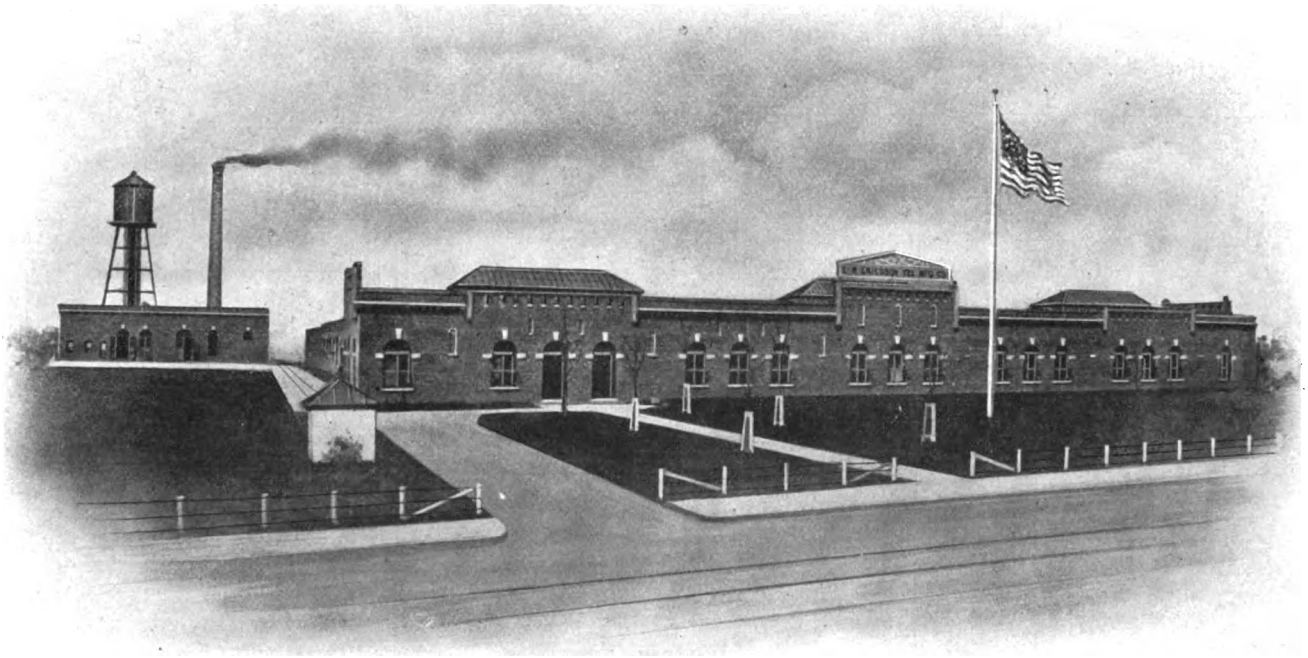
### THE NEW L. M. ERICSSON TELEPHONE FACTORY.

For a number of years the L. M. Ericsson Telephone Manufacturing Company has been one of the leading factors in the telephone industry of the world. The parent factory, located in Stockholm, Sweden, and having branches in various European cities, has for some time past maintained a branch in New York City which operated quite extensively throughout the United States and contiguous territory. When the telephone business of this continent became sufficiently established and had attained such magnitude as to warrant erecting a separate establishment on this side of the water, a careful investigation of available sites was made during the past couple of years, and Buffalo was finally selected as best suited for this purpose. Besides being the eastern terminus of the Great Lakes and the western terminus of the Erie canal, Buffalo has superior railway facilities, having sixteen trunk lines. This advantage not only affords the best possible shipping facilities, but

crete covered with maple. In this building the posts are placed on 25-foot centers one way and 10½-foot centers the other way.

A long hall, containing the lavatories, has walls of enamel brick, steel roof construction with skylights, and mosaic floor. Separate steel lockers and solid porcelain wash bowls are provided for the employes and settees are arranged between the windows for accommodation during the noon hour. Nothing has been overlooked that would contribute to the comfort of the employes.

Further evidence of the care taken for providing every possible comfort and convenience is evidenced by the fact that the plant is heated and ventilated by Sturtevant's hot air system. Large ducts are laid under the floors and along the walls. A 14 foot 7 inch fan, driven by a 50-horsepower motor, forces the heated air into the building through registers in the east and west walls. It is driven 125 feet each way toward the center, where the used



Factory of the L. M. Ericsson Telephone Manufacturing Company, Buffalo, New York.

enables manufacturers to secure materials promptly and reasonably as well as to employ skilled labor at a reasonable price. Another advantage is afforded by the unlimited power of Niagara Falls, which is supplied to this new Ericsson plant through a private underground conduit from the power company's 2,200 volt mains by means of a cable with capacity of 600 horsepower. The current is received at 2,200 volts and transformed for power to 440 volts and 220 volts for lighting purposes. All wires are carried underground.

The site of the new Ericsson factory occupies thirteen acres lying between the New York Central and Eastern River railroad tracks and the Military Road, along which runs the electric line between Buffalo and Niagara Falls. Operations are now being extensively conducted there in a very complete plant of many model features. As it stands at present the new plant has two main buildings of the most modern design and construction, built of shale brick and Portland cement mortar, no lime being used at all. It is but one story in height and without stairs or elevators. The roof construction is of independent trusses, well braced, so as to eliminate all vibration and give rigid support for the shafting. The floor is made of expanded metal and con-

air is drawn out through registers in the floor.

At the side of the boiler room is the fan apparatus with a heater containing 14,000 linear feet of steam pipe. Space is allowed for an additional 14 foot 7 inch fan and its heater.

Back of the boiler room is a large forge and grinding shop. Here are also placed the furnaces and ovens for annealing and hardening.

Economy in operation is also furthered by means of private switches from the New York Central & Hudson River railroad tracks which run along the south side of the building for unloading the raw material into the receiving room and loading the finished product from the shipping department.

Figure 1 shows the press room with a row of machines commencing with a two hundred and ten ton press, which has a separate motor, down to the smallest machine for stamping various small parts.

Brown and Sharpe and Acme four-spindle automatic machines, which turn out four parts for each revolution of the turret, occupy the adjoining bay, Figures 2 and 3. Ample room is provided for additional machines.

The tool room, shown in Figure 4, is one of the best

equipped tool and die rooms in any telephone factory. The milling machines and grinders are all of the Brown and Sharpe make. For the valuable tools, dies and gigs a large fireproof vault is provided.

Each bay in the main factory room has its main shaft run by an individual motor.

The electroplating and enameling departments, buffing room and winding departments, Fig. 5, are all equipped with the most up to date apparatus. The power house contains two 200-horsepower boilers for heating and one 20-horsepower

the main high tension primary panel with oil switches, time relays, recording ammeters, etc. There are also secondary distributing panels with main switches for the different groups of motors. The gas plant consists of a large air compressor and oil pump. This plant supplies all the heat for the furnaces, ovens, brazing burners and the 20-horsepower boiler. Fuel is supplied from a 10,200 gallon oil tank located under ground and outside of the building. This arrangement is entirely automatic and can produce any quantity of gas required. The whole plant is supplied with



Figure 1—Press Room.  
Figure 2—Automatic Machine Room.  
Figure 3—Automatic Machine Room.

Figure 4—Toll Room.  
Figure 5—Electroplating and Enameling Department.  
Figure 6—Lavatories, Lockers, Etc.

Views in the L. M. Ericsson Telephone Manufacturing Company, Buffalo, N. Y.

boiler to supply steam for use in the factory during the summer months.

Figure No. 6 shows the lavatories, lockers, etc., for employees.

The transformer room has two 200-kilowatt Westinghouse transformers with space provided for another 200-kilowatt Westinghouse transformer, making a total of 600 horsepower. In here are the smaller transformers for light,

sprinklers, and a secondary supply from a 50,000 gallon tank.

Care was taken in designing this handsome new factory to provide plenty of room for growth, as it is expected that three more factories will be added to the present buildings in the near future. In fact, plans for same have already been drawn. These additions will necessitate no change in the installations and equipments of the present buildings

as regards water, power, heat, light and other necessities. A broad lawn, which is cared for by an experienced landscape gardener, greets visitors to the new establishment, and heightens the generally pleasing and satisfactory effect which is one of the main ideas pervading everything which the L. M. Ericsson Telephone Manufacturing Company makes or plans.

#### SHAWMUT ALL-COPPER GROUND CONNECTORS.

The Chase-Shawmut Company has just issued a "flyer," descriptive of the Shawmut all-copper ground connection clamp, which it manufactures. For telephone work, it is said, the Shawmut all-copper ground connection clamp will be found very satisfactory. Instead of being obliged to bother with soldering the wire to a pipe, the current may be grounded in a neat manner and give perfect electrical contact. Care should be taken that the pipe is carefully cleaned before the clamp is put in place.



This clamp is made in two parts and when installed it is locked in such a manner as to give the maximum contact on the device upon which it is installed. It is simple in construction, and requires only a pair of pliers to install it quickly and properly. It is also used to a large extent for grounding the metal sheaths on cable, and for grounding conduit installations. For this latter purpose it is pronounced the simplest and cheapest device on the market.

It is made in sizes from one-half to three inches, and is designed to take a No. 4 wire.

#### BARGAINS IN TELEPHONE EQUIPMENT.

The Telephone Equipment Company, of 322 Sixth street, Racine, Wis., announces in this issue of TELEPHONY that it has for sale a choice lot of guaranteed telephone apparatus which can be had at rare bargains. All of this equipment, including central energy, bridging, series and party line types, has been thoroughly tested and is guaranteed to be in first class working order. Interested parties are invited to write for descriptive circulars and price lists.

#### WAPAK ANCHOR TEST.

An interesting test of the holding power of the Wapak anchor was recently made at Wapakoneta, Ohio, the head-



Wapak Anchor vs. a Twenty-Two Inch White Elm Tree Pulled Against Each Other by a Windlass Turned by Four Men.

quarters of the manufacturers, the Wapak Hollow Ware Company. The accompanying illustrations tell the story almost without words, and show the great strength of the anchor, which is described as a device for quickly and

cheaply guying telephone poles, trolley poles, derricks, etc. In order to have something strong and tough to pull against, a white elm tree was chosen, which measured five feet eight inches in circumference about three feet and a half above ground, and was approximately 100 feet high. By means of an Iwan auger a seven inch hole, five feet deep, was bored into the ground, which proved to be average clay soil. A No. 3 Wapak anchor, with blades folded against the rod, was dropped into the hole and the hole filled. All this was



Pulling Hard Against the Anchor. One Inch Rope Pulls in two. Four Strands of One and One-quarter Inch Rope Substituted.

done by one man in less than ten minutes. The anchor and the tree were pulled against each other by means of a system of pulleys and ropes, three strands of one-inch rope pulling on the anchor and the tree, the fourth wound on a windlass turned by four men. When the stress was applied, the blades of the anchor spread out laterally, entering the solid, undisturbed ground on opposite sides of the hole. As the men continued to turn the cranks of the windlass the tree was bent little by little, the anchor remaining unmoved.



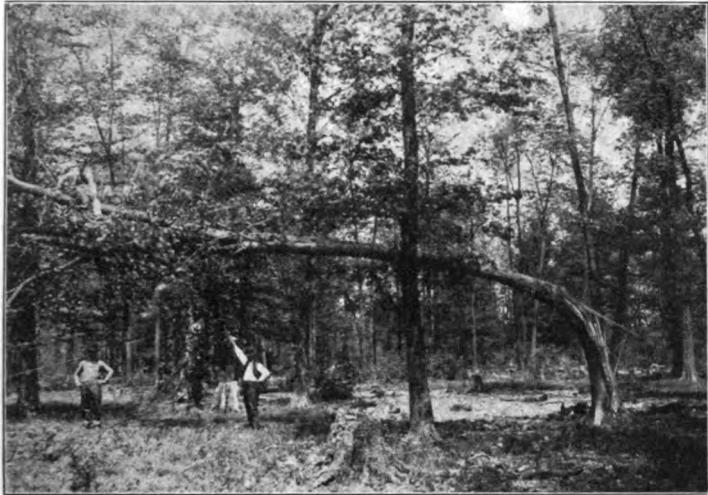
The Anchor Holds its Own; The Tree Begins to Crack Too Much for the Four Strand. Steel Cable and Steel Blocks Substituted.

Suddenly the windlass was torn to pieces and the tree, springing to its former upright position, hurled the large iron wheel of the windlass through the air as if it were a pebble. A stronger windlass was then obtained. The process was continued until the one-inch rope broke. A new one and a quarter inch rope and steel pulleys were then substituted, four strands of the rope pulling on the anchor. The tree was bent over farther and farther until finally this rope also broke, the anchor, remaining fixed, proved stronger



than the four strands of inch and a quarter rope. The tree then assumed its upright position.

Having no heavier equipment at hand operations were suspended for the day and continued a week later when three strands of steel cable were used in place of the four strands of inch and a quarter rope, which had broken. The fourth strand of the steel cable was attached to a second



A Prostrate Victim to a Wapak Anchor. The Anchor Never Budged. system of ropes and pulleys, and this terminated at the windlass.

Little by little the majestic elm bowed to its fate until amid sounds similar to the reports of a gun, it was literally torn to pieces, splinter by splinter. This splintering took place from a point about twelve feet above ground and extended clear down into the roots. The tree is now lying on



Rear View Showing How Tree Was Torn Fibre From Fibre.

the ground, but the Wapak anchor remains firmly fixed just where it was set. The Wapak anchor was invented by S. P. Hicks, Wapakoneta, Ohio.

### THE ROLFE FUSE BOX.

The Rolfe Electric Company of Rochester, N. Y., reports that the sales of its approved fuse box have increased to such an extent as to tax its factory to its utmost. Companies using this box are said to be more than pleased with the results, and not a single case of damage has ever been reported where they are installed. Throughout the east, where power lines are crossing and recrossing on almost every street and road, it is necessary that a protector be used that is absolutely trustworthy, and for that reason, it is said, the Rolfe fuse box has been adopted by nearly all the large telephone companies.

Underwriters' requirements are very strict, and the Rolfe

company was the first to make a protector which met these specifications. From the first the company has devoted its efforts to making the best individual station protector that could be manufactured.

A complete description, prices, etc., will be cheerfully sent upon request to the home office of the Rolfe Electrical Company, Rochester, N. Y.

### THESE BELIEVE IN PROTECTION.

Frank B. Cook has received a great many orders for his No. 10 re-soldering protectors for switchboards since he furnished the 16,000 pairs for the St. Louis main office. A few of the recent orders are as follows:

National Telephone Company, of West Virginia, Wheeling, W. Va.; Home Telephone Company, Ironton, Ohio; Martin Telephone Company, Webster City, Iowa; Auburn Telephone Company, Auburn, Ill.; Monticello Telephone Company, Monticello, Ind.; Tri-State Telephone and Telegraph Company, Minneapolis, Minn.; Chicago Telephone Supply Company, Elkhart, Ind.; Southeast Missouri Telephone Company, Charleston, Mo.; Electric Appliance Company, Chicago, Ill.; Bureau County Independent Telephone Company, Princeton, Ill.; York County Telephone Company, York, Neb.; Suburban Telephone Company, Maplewood, Mo.; York County Telephone Company, Waco, Neb.; Bradshaw Telephone Company, Bradshaw, Neb.; Kellogg Switchboard & Supply Company, Chicago, Ill.; North Electric Company, Cleveland, Ohio; Century Telephone Construction Company, for the Ingersoll Telephone Company, Ingersoll, Ont.; Minier Mutual Telephone Company, Minier, Ill.; Local Telephone Company, Greenwich, Ohio; Stromberg-Carlson Telephone Manufacturing Company, for the Anaconda Copper Mining Company, Butte and Anaconda, Mont.; Wettstein Construction Company, for the Johnson County Home Telephone Company, Sterling, Neb.; Fredonia Co-operative Telephone Company, Fredonia, Kansas.

### THE AMERICAN ELECTRIC FUSE COMPANY'S NEW SWITCHBOARD PROTECTOR, TYPE "H."

On advertising pages 32 and 33 the American Electric Fuse Company of Muskegon, Mich., and New York, illustrates and describes the new American Type "H" switchboard protector, together with main, intermediate and wall distributing frames.

The American Type "H" switchboard protector is a finely made and excellent piece of telephone apparatus. It has proved very popular with the trade and the company has booked a large number of orders for this type of protector. We suggest that every reader will find it a matter of interest and advantage to read the company's advertisements in this issue. The company announces that it will be glad to send free samples on request to those interested and that it is now in shape to fill orders for this type of protector.

### A USEFUL TELEPHONE SPECIALTY.

Operating companies giving party line service over the country are rapidly coming to realize the immense value of telephone condensers as trouble savers. A great many devices of various kinds have been placed on the market with the avowed intention of relieving the party line from the evil effects of that inborn curiosity, which impels many party-line subscribers to take down their receivers and listen when messages to others are going over the line. From the operator's standpoint, there is no real harm in listening in. The trouble comes from the fact that, with receivers off the hook, others on the line cannot be called and very often the curious subscriber breaks in before the signal is completed with the result that the called subscriber does not really know that he is called. Condensers relieve this situation entirely, but the installation of an ordinary tin



case condenser requires some little skill with the pliers and soldering iron. This fact has prevented a great many rural companies from attempting to install condensers on their party lines.

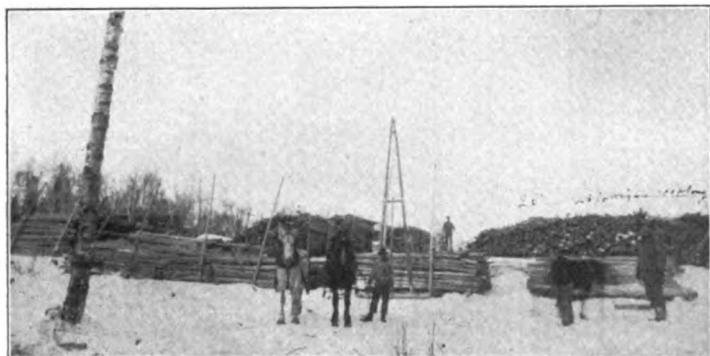
A new instrument has been devised by the Julius Andrae & Sons Company, of Milwaukee, which is the regular one-half M. F. condenser, covered with a small cast iron case, and fitted with cord and binding posts. It is a very simple matter to connect this cord in the place of the receiver cord, and in turn connect the receiver cord to the binding posts on the condenser. No inside work is necessary, no breaking of connections or re-soldering of joints. It is needless to say that this device has proved very attractive to party line operators, and is selling in immense quantities all over the country.

### KAYE & CARTER'S CEDAR YARDS.

TELEPHONY presents in this issue four views of various yards conducted by the Kaye & Carter Lumber Company.



One of Kaye & Carter Lumber Company's Cedar Yards, of Minneapolis, Minn. This concern deals almost entirely in the production and sale of cedar products from its own



Method of Decking Poles.

lands, buying stumpage from the state and also stock from the settlers, as well as contracting with parties owning ce-



Method of Loading Poles.

dar, wherever it is satisfactory and available. Mr. C. S. Carter, a member of the firm, lives at Hines, Minn., and

gives his personal supervision to the producing and shipping end of the business, while Mr. C. A. Kaye conducts the office in Minneapolis, looking after the sales and collection end of



Loading Poles on Car.

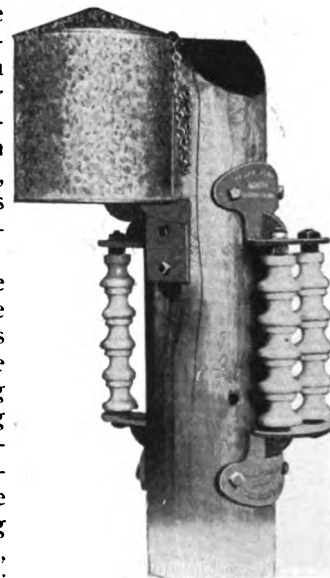
the business. This firm also has large stocks in Michigan and Wisconsin, and conducts an extensive jobbing business. The stocks, being maintained at various points, afford Kaye & Carter advantages in freight covering all the territory from Pennsylvania to Colorado and from Canada to the Gulf. They are soliciting trade in all of this territory, and inform TELEPHONY that they are in a position to supply everything desirable in their line. The headquarters of this concern is in the Lumber Exchange, Minneapolis, to which place inquiries regarding poles should be addressed.

### ROBINSON DISTRIBUTION RACKS.

Many improvements have been made in the Robinson distribution rack since the W. G. Nagel Electric Company of Toledo, Ohio, first put it on the market. We show an illustration on this page of the Robinson rack as used in connection with can top. Modern construction is fast doing away with the multiplicity of overhead wires, having distribution altogether from aerial leads, especially in congested districts where a large number of telephone installations are made.

The extreme flexibility of the Robinson pole rack makes it one of the most desirable methods for distribution. Some of the large companies are distributing from every other pole, having no open wires or leads. The advantages claimed for the Robinson rack over other old-style circle top are many, among them being the item of expense, which is said to be about fifty per cent less than the circle top; no waste of insulation; the placing of distribution on side of pole to which drops are made, as it is possible to distribute five pairs from one side of the pole, and ten pairs from the opposite side. It is also very easy to trace circuits in looking for trouble, and the insulators used on the Robinson rack have a special drip feature which prevents leakage between pairs. All parts are malleable iron, and all metal parts are galvanized.

The W. G. Nagel Electric Company will be more than pleased to send full descriptive matter of this rack to interested parties.



**ACME TELEPHONE & MANUFACTURING CO.**

The Acme Telephone & Manufacturing Company, of Albia, Iowa, has been forging to the front very rapidly since the factory was moved from Chicago last October. Mr. G. M. Heiserman, the company's president and general

The location of the factory at Albia was particularly fortunate for the reason that the surrounding country for a distance of five hundred miles is well developed telephonically, there being in Iowa alone nearly three thousand Independent telephone systems, many of which are farmer



Factory of the Acme Telephone and Manufacturing Company. Albia, Iowa.

manager, with some Albia associates purchased the Acme company last August and immediately made plans to move the plant to Iowa. A new and first-class factory building was erected at Albia and the latest and most modern ma-

and rural lines, for which the Acme company manufactures a complete line of apparatus. The town has splendid railroad facilities. It is located on the direct east and west trunk line of the Chicago, Burlington and Quincy Railroad. The Minneapolis and St. Paul Railroad gives a direct north and south outlet and the comprehensive Wabash system touches the town with a direct line.



Grant M. Heiserman.



W. O. (Billy) Meissner.

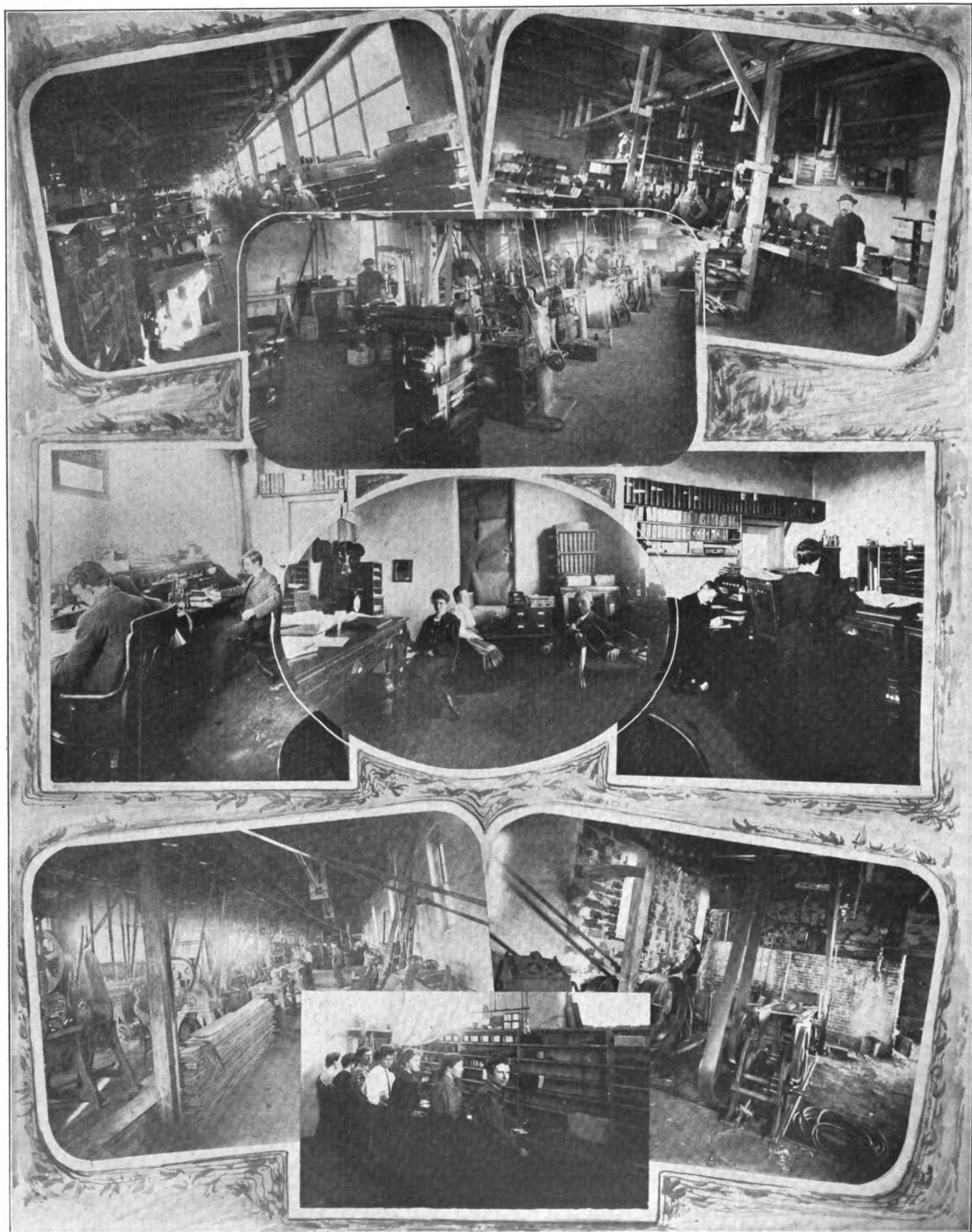
The illustration of the Acme factory on this page and the interior views on the opposite page will give the reader an idea of the company's plant. The apparatus turned out is given a severe test over the Albia Telephone Company's long distance lines before being shipped, thus insuring its practical working. The Albia Telephone Company's entire system, covering, with its own lines, all of Monroe county, is equipped throughout with Acme apparatus, which is giving first-class service.

The company has just completed and has ready for the trade some new equipment of modern design, embodying many original ideas. Its booklets and folders illustrating and describing the complete line of Acme telephone apparatus will be sent free to those interested. The company calls especial attention to its "Blue Book" of telephone information which will be sent without charge as long as the supply lasts. This book is well printed and illustrated and gives much valuable information as to construction, installation troubles, etc. Those who have not received this book should write for it before the supply is exhausted.

chinery was installed throughout. This installation, with the machinery and tools of the Acme company had on hand, placed it in a position to manufacture almost every part of the apparatus turned out under the Acme name plate.

The officers of the company and the men who are working to make the phrase, "Acme Telephones Excel," are most of them well known in the telephone field.

Grant M. Heiserman, president and general manager.



Views in the Acme Telephone and Manufacturing Company Factory, Albia, Iowa.



has had ten years' experience in the Independent telephone field. Six years of which time have been spent in the operating field and four years in the manufacturing and assembling of telephone apparatus. Mr. Heiserman is one of the principal owners of the Albia Telephone Company, has many other interests and is widely known in Iowa and the west.

W. O. Meissner, whom everybody knows as "Billy," is vice-president and chief engineer, and has had a wide experience in the telephone manufacturing field, being one of



E. J. Renz.



T. R. Cole.

the pioneers and the first man to build telephone switchboards (for Independent use) in the west. These switchboards were built by the Washington Electric Company in 1894, of which company Mr. Meissner was founder and principal owner. This company was absorbed by one of the large telephone manufacturing companies, Mr. Meissner taking the position of general superintendent, which position he held until he organized the Acme company in 1901. Mr. Meissner is a mechanical and electrical engineer and is an inventor of some note.

J. C. Mabry, secretary, and J. S. Moon, treasurer of the company, are Albia men who have had considerable experience in manufacturing and commercial enterprise.

T. R. Cole, the company's sales manager, is a young man from whom much may be expected. He is an aggressive, untiring worker and promises to keep the Acme name prominently before the telephone buyers everywhere.

E. J. Renz, manager of the drafting department, and Richard Meissner, manager of the assembling department, are men of long experience in their particular lines.

Taking it all around, the company is well officered, is well located, has a complete line of telephone apparatus and should continue its growth until it becomes one of the large telephone manufacturing concerns catering to the Independent field.

### TELEPHONE EQUIPMENT FOR SALE CHEAP.

W. C. Sterling & Son Company, large cedar pole dealers, are interested in the stock of material that was formerly owned by the Equipment Company, manufacturers of telephone switchboards. They are going out of business and the stock is left with W. C. Sterling & Son Company, of Monroe, Mich., and Mr. Hugh O'Connor, of the Michigan Wire and Cloth Company, of Detroit. These parties are anxious to dispose of the stock, and will do so at a great sacrifice. The stock is advertised in this issue of TELEPHONY. It includes magnetos, cotton-covered wire and, in fact, all kinds of wire, carbons, ringers, switchboard frames, brackets, resistance coils, etc. This is advertised as an excellent opportunity for a party wishing to build a small exchange, as the whole is offered very cheap. Interested parties should take the matter up with Hugh O'Connor, of the Michigan Wire & Cloth Company, or with W. C. Sterling & Son Company, of Monroe, Mich.

### WESTERN ECONOMIST TELEPHONES.

It would seem as if it was almost impossible to design a radically different and decidedly new type of telephone, but the Western Telephone Manufacturing Company of



Western Economist Telephone.

Chicago seems to have been able to accomplish this difficult thing. The Western Economist telephone is certainly unique, and the large sale which it is meeting with in the trade indicates that the manufacturer's claims for it constitute a strong argument to the telephone buyer.

The Western Economist has only one shelf. The generator is mounted on the bottom or floor

of the cabinet, the induction coil being mounted above it. The switch hook is mounted on the front of the one shelf in the cabinet, and the dry batteries are set behind the switch hook where they are easily "getatable." This arrangement makes the cabinet very compact, but it also possesses the very desirable feature of bringing all the wiring "down in front."

The Western Telephone Manufacturing Company advertises that any man with a ten cent screw driver, a pair of hands, and one good eye can make any repairs ever needed on a Western Economist telephone. The instrument certainly has the appearance of simplicity and strength, and the Western company's aggressive advertising campaign is bearing fruit in largely increasing orders for what appears to be a thoroughly high class telephone.

### T. M. PARTRIDGE LUMBER COMPANY.

During the past few years, TELEPHONY has seen several very successful enterprises developed by young men of energy and experience who cater to the telephone trade. Among this number we very cheerfully include the T. M. Partridge Lumber Company, of Minneapolis, Minn., which during the past year has increased its capital stock from



T. M. Partridge.



H. F. Partridge.

\$50,000 to \$100,000 in order to accommodate its growing trade and provide adequate facilities for future growth. The T. M. Partridge Lumber Company is a Minnesota corporation, organized in January, 1901. T. M. Partridge is president; H. F. Partridge secretary and treasurer, and F. B. Partridge vice president. The first two named are particularly well known among telephone and cedar men. Portraits of the officers are presented herewith, together



with views of some of the firm's yards. They have yards in Mizpah, Lammer's Spur, Hought, Funkley, Tafts, Blackduck and Tenstrike. The Tenstrike yard in particular is a very large one, employed for concentrating stock from various smaller yards. The firm has a saw mill at Tenstrike and manufactures pine lumber and white cedar shingles. It also has a large general store at Hought, Minn. The T. M. Partridge Lumber Company is one of the largest con-



Short Pole Stock at Tenstrike Cedar Yards of T. M. Partridge & Co. cerns of its kind in the northwest, owning its own land and producing all of its own stock. It has recently opened a new yard in Beaudette, Minn., on the boundary line between Canada and Minnesota on the Canadian Northern Railway. The Canadian trade is supplied from this yard. Being amply equipped as to capital and experience and



Loading Stock at Tenstrike Cedar Yards of T. M. Partridge & Co. having every facility for securing a satisfactory stock of poles, the Partridge company can be depended upon to supply its customers with the best possible grade of goods and unusually satisfactory deliveries at very reasonable prices. The headquarters of the concern are at 729, 730 and 731 Lumber Exchange, Minneapolis, Minn.

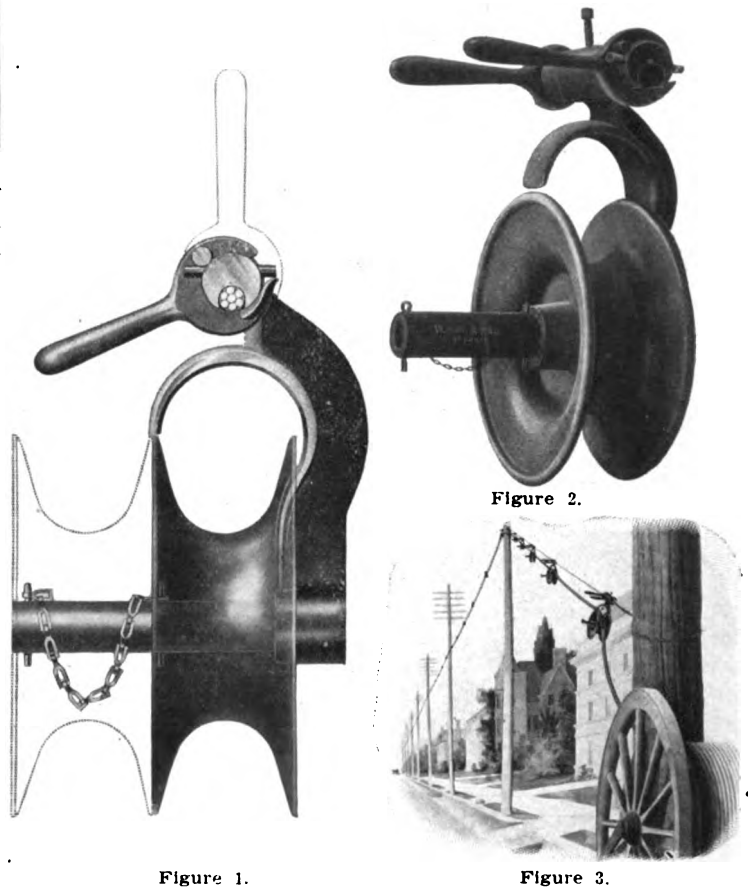
### NEW STYLE OPERATOR'S CHAIR.

The Richards Chair-Panel Company, Chicago, sends out a neat circular advertising its telephone operator's chair.

Here is a quotation from it: "There are many makes of telephone chairs, each known for some one feature, but on the whole all very similar because the builders, being hampered by limited space, by the necessity for strength, by the simplicity required, by the limited cost, and the prejudice against innovations, lost heart. But now, in the days of airships and wireless telegraphy, we have telephone chairs that fit the back, that are a comfort in any position, that make telephoning a pleasure to both operator and patron, that increase business; that are original in design and unequalled for strength. That are cleanly and that require the minimum of floor space. They are new, but they are a fact. They are an innovation, but can you afford to ignore them?"

### THE CALLAHAN CABLE ROLLER.

Construction men all over the country will undoubtedly welcome a cable roller or trolley that is built substantially and will stand the hard knocks that a device of this kind necessarily receives. When Mr. Callahan invented the Callahan cable roller he designed a great advance in the art of stringing overhead telephone and telegraph cable, plan-



ning a roller or trolley that should be a money-saver, indeed. It is claimed for it that while weighing but ten pounds it can be clamped on any size messenger wire instantly; there are no bolts or nuts or catches to fool with or to get out of order; nothing has to be undone, or unscrewed in order to get the cable in or out of the roller.

Referring to Figure 1 the reader will see how the roller can be moved out upon the shaft so that the cable can be put into the wheel. The cotter pin keeps it in place. One will also see how the roller clamps onto the messenger. When the eccentric handles are up straight it can be dropped right over the messenger. By pulling the handles down, they clamp tightly upon the messenger and prevent any possibility of slipping. The set screw in the middle can be lowered or raised to make the slat fit any size messenger.

Figure 2 shows a three-quarters view of the roller and gives a very clear idea of its general appearance.

Figure 3 shows the method of using Callahan cable rollers. Two men, it is said, can put up a set of fifty of these rollers in less than a half hour, and after the rollers are in place it is an easy matter to pull up ten to twelve hundred feet in ten minutes. One can therefore readily see why it is called a money saver.

The wheels of the Callahan cable roller are nine inches in diameter and have the edges carefully rounded off to prevent any possibility of marring the cable armor. The whole thing is made of malleable iron, which is designed to stand hard usages. The weight of the roller is ten pounds. The frame is designed so that the lead lines will not get caught between it and the wheel. Mr. Callahan is to be congratulated upon his invention, as it is pronounced a decided advance in the art and as nearly perfect as possible.

For full information, prices, etc., address the manufacturers, W. N. Matthews & Bro., 226 North Second street, St. Louis.

### AMERICAN ELECTRIC FUSE COMPANY'S BIRTH-DAY CELEBRATION.

The American Electric Fuse Company of Muskegon and New York celebrates this year its fifteenth birthday. The company has planned a unique method of celebrating the passing of the fifteenth year mark. All of the customers of the company are invited to visit the new factory of the American Electric Fuse Company and are assured that they will be given a royal welcome and thoroughly enjoyable time while in Muskegon.

During the coming summer the company plans to entertain a very large number of telephone men and extends the broadest kind of an invitation to all telephone men to "Come to Muskegon." Muskegon has a reputation as a summer resort second to none in the West and the company has a host of fine entertainers among its manufacturing and sales forces. It will be a vacation to any telephone man to visit the American factory this year and attend its year round birthday party and a large number of prominent telephone men have already announced that they are coming, to enjoy the fishing, boating, and picnic entertainments which will be given by the company.

### INGENIOUS NEW PAY STATION.

A new invention of great value in the way of pay stations for telephones is being manufactured by the United States Coin Register Company, of Toledo, Ohio, whose offices and engineering departments are with the W. G. Nagel Electric Company. The new cash register and pay station is an ingenious device, having many features heretofore never applied to pay stations. As, for instance, the single gong from which the signals are given in units of five. Every ring of the gong represents a deposit of five cents; as, one ring for five cents, two rings for ten cents, three rings for fifteen cents, five rings for twenty-five cents, and so on, overcoming any possible chance of error or dispute on the part of the user.



Three Coin Pay Station.

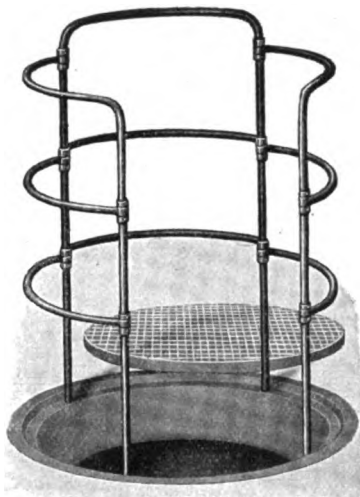
The most valuable feature is the recording tape, numbered from one to 2,000 and good for deposits of \$100. Every number on the tape represents five cents, and at every ring of the gong a number is moved into the cash box. On opening the cash box for collecting, the tape is automatically cut off at the last number

recorded and dropped into the cash box with the money. This gives a true and exact account of all money received. This ticket is then taken with the money to the auditor for his inspection. The number of the pay station is printed on the back of the tape every twenty numbers, which prevents a collection from one pay station being mixed with another. When the first collection is brought to the auditor it is recorded and filed, being held until the next collection. The ticket from the next collection must start to number where the ticket before it was cut off. Should there be any missing numbers it would show the amount the collector was short. The collections continue in the same manner until the tape of 2,000 is used up.

It is said to be the only perfect checking pay station, and the only one making a cash ticket. It is as valuable to a telephone company as a National cash register is to a merchant. From the way the telephone companies are taking hold of this new cash register and pay station, a great benefit is assured the Independent telephone companies through the use of the machine made by the United States Coin Register Company.

### THE COLMAN J. MULLIN DEVICES.

Colman J. Mullin, of 430 Kent avenue, Brooklyn, N. Y., who has already made a reputation for himself throughout



Well Hole Guard.



"Mull" Cable Lubricator.

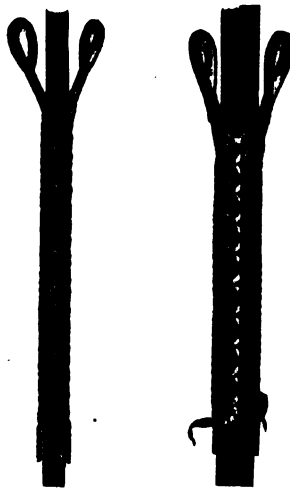
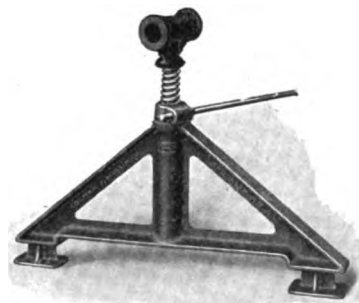


Figure 2.

Figure 3.



Triumph Reel Stand.

the telephone field by means of his "Gem" wire or cable grip, continues to produce other practical devices for this class of trade.

Among these may be mentioned his "Triumph" reel stand or jack, which is not revolved by the head as has been the practice heretofore. In the Mullin reel stand the nut re-

volves and the stand proper is not threaded. The advantage in this lies, it is claimed, in the fact that, because of the tremendous strain, the head usually gives out first in other similar devices. The cable funnel also prevents chafing.

Another Mullin specialty is the "Mul" cable lubricator, shown by cut of cans herewith; also the rigid uprights for well holes. The firm also manufactures sheaves for leading out cable, conduit cleaners, conduit mandrels and everything a cable splicer uses.

Particular emphasis, however, is laid upon the "Gem" wire grip of which two illustrations are presented. No. 2 is for pulling out cable, being designed to displace the marline half-hitch. No. 3 is a split grip used for taking up stock.

It is claimed for the "Gem" wire or cable grip that it is superior, because the wire which composes it is of a temper similar to plough steel, being made especially for its construction and because the lay or turn of the strands is the result of many experiments and tests. Probably its best testimonial is the fact that over 10,000 more were sold during the year 1906 than in the year previous.

Mr. Mullin will be pleased to send all parties interested in his specialties a catalogue and price list. His western office at 632 Monadnock building, Chicago, is in charge of Chas. A. Robinson. Inquiries at either office will receive prompt attention.

### VOTE-BERGER BALLAST SWITCHBOARD.

One of the most interesting exhibits at the recent Electrical Show was that of the Vote-Berger Company, La Crosse, Wisconsin. Outside of its regular line of apparatus, which is familiar to the telephone public, there was exhibited one complete section of the 3,000 line common battery ballast multiple switchboard that the company is

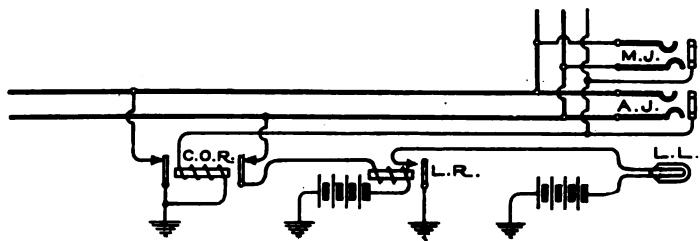


Figure 1.

building for the Minot Light & Telephone Company, Minot, North Dakota.

The company claims the operation of this board is so unique and of so much promise that it merits a detailed description. The design of the board throughout hinges upon the keynote of simplified circuits. In fact, the circuits, taken as a whole, are probably as simple as it will ever

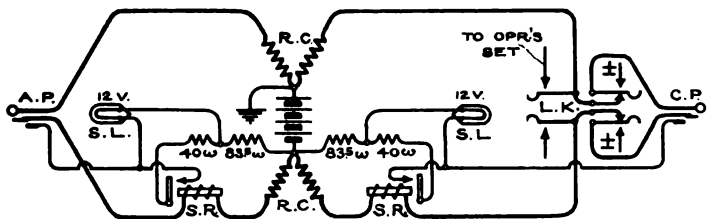


Figure 2.

be possible to make telephone switchboard circuits. When compared with the ordinary relay board circuits there is as much difference between the ballast and the relay circuits as there is between relay and automatic circuits.

Figure 1 shows the line circuit of the No. 1 Bell switchboard. Figure 3 shows the Vote-Berger ballast line circuit. In the Bell circuit, and the same is true of practically all relay switchboards, the lighting of the signal lamp is a secondary operation of the line relay which is controlled by the subscriber's switch-hook. When the subscriber takes

his telephone from the hook battery flows through the relay winding the line, through the subscriber's set back to the exchange and other side of the battery.

The relay is thus operated. When the contact of the relay closes, it, in turn, operates the local circuit containing battery and line lamp. When the operator plugs in, battery flows through the sleeve of her cord to operate the cut-

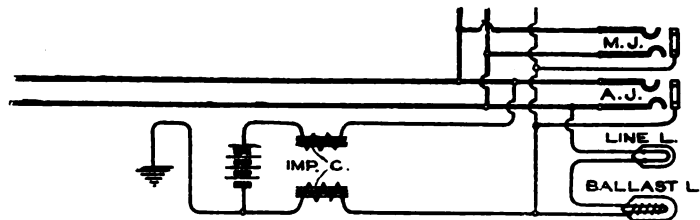


Figure 3.

off relay, which, on operation, cuts the line relay from the subscriber's line. It will be seen that here are four distinct operations, viz., operation of line relay, illumination of line lamp through relay contact, operation of cut-off relay, removal of line relay by cut-off relay, all of which are merely for the purpose of lighting one lamp and then placing the line in a talking position.

To obtain supervision a relay is placed in the ring side of

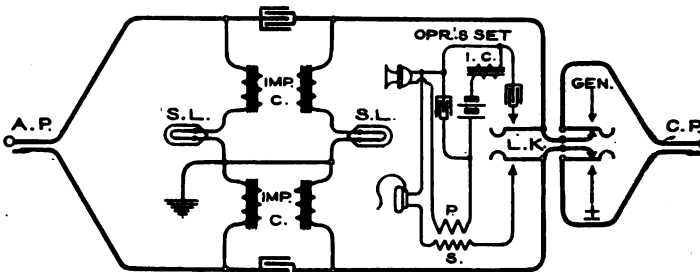
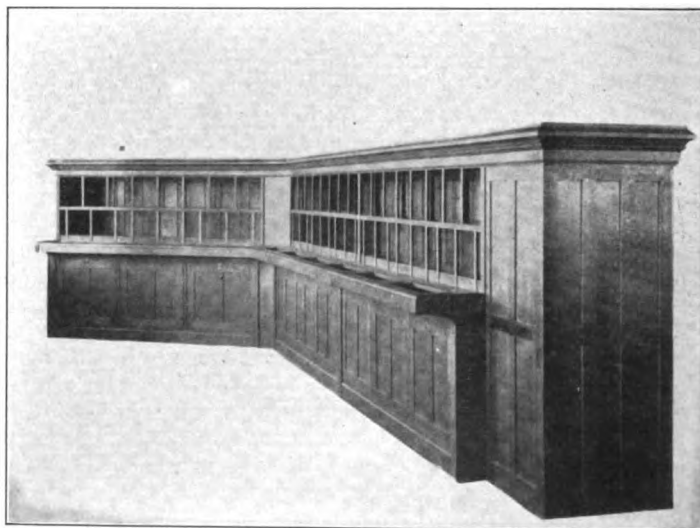


Figure 4.

the cord circuit, Figure 2. This relay is pulled up during conversation and shunts out the supervisory lamp while the contact is closed. The lamp is lighted through the cut-off relay winding when the subscriber hangs up his telephone, thus de-energizing the supervisory relay. This gives us two distinct operations to control the supervisory lamp, viz.,



Frame Work Vote-Berger Ballast Board.

the operation of the supervisory relay and the lighting of the supervisory lamp itself.

In the Vote-Berger ballast board there is only one operation in the line circuit, shown in Figure 3, that is merely the lighting of the line lamp through a straight series circuit. This accomplishes what all signaling circuits are designed

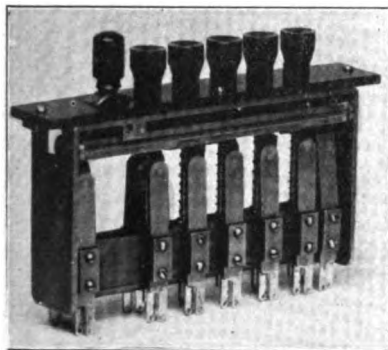
for and does it without introducing any other features. The action is positive and direct.

In the cord circuit, as shown in Figure 4, there is only one operation to control the supervisory lamp. The shunt placed across the cord gives battery current to the supervisory lamp direct without the use of any relays or auxiliary circuits. The act of taking the telephone from the hook shunts out this line directly. It will thus be seen that from the time the subscriber calls up to and including the act of the operator answering, there are in the Bell circuit six distinct functions of the apparatus that must take place properly to insure proper results.

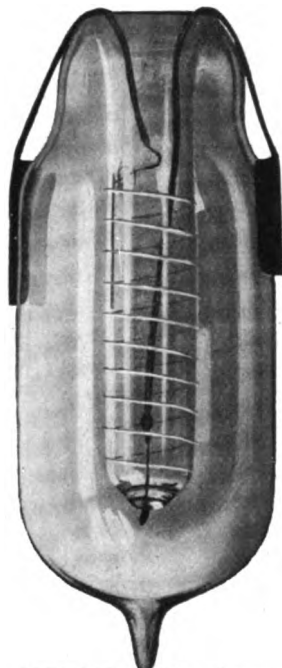
In the Vote-Berger ballast circuits there are only two functions for the same operation.

In the Bell circuit there is the following possibilities of trouble:

- First. Failure of line relay to operate.
- Second. Failure of contact to close after relay has operated.
- Third. Failure of cut-off relay to operate.
- Fourth. Failure of tip side of line being removed.
- Fifth. Failure of ring side of line being removed.
- Sixth. Failure of line lamp lighting.
- Seventh. Failure of supervisory relay operating.
- Eighth. Failure of supervisory relay to fall back when connection is finished.
- Ninth. Failure of lamp being shunted when relay operates.



Four Party Line Key Vote-Berger Ballast Board.



V-B Ballast Line Lamp.

In addition there is the possibility of either supervisory or line lamp being burned out.

In the Vote-Berger ballast board the only two possible cases of trouble are the possibilities of the line or supervisory lamp being burned out. In addition we should note the number of soldered connections required in the different circuits. In the Bell board we have four soldered connections at the relay, four at the intermediate rack, where the relay is connected, six on the cut-off relay and six on the intermediate rack where the relay is connected, four on the supervisory relay, making a total of twenty-four (24) in addition to the soldered connections to the lamp jacks and answering jacks, which will, of course, be the same as in the ballast board.

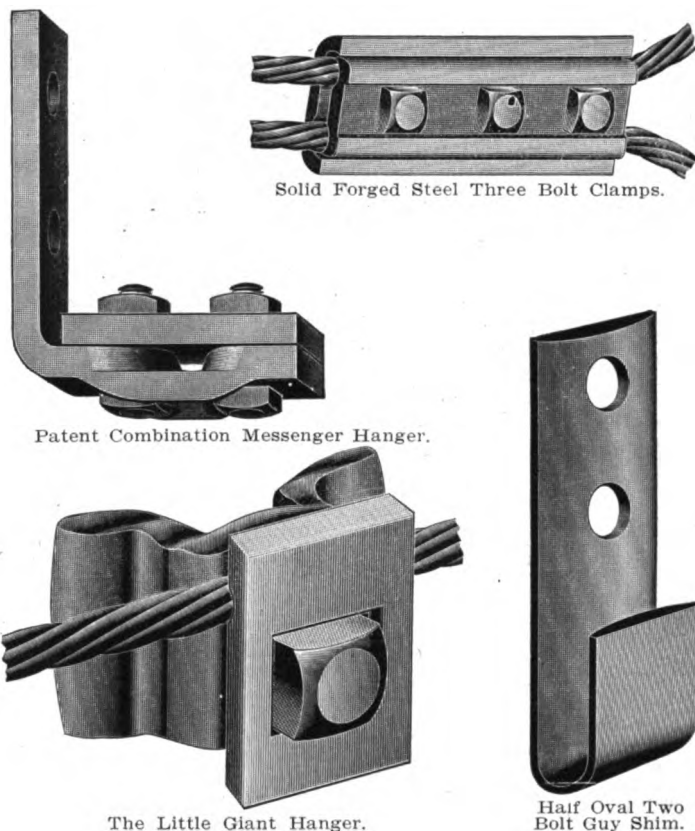
The ballast board has merely the straight series connection through the line and through the cord circuit. It has been evident from the time when the ballast board was first introduced that if it worked properly it was the ideal system of the future. From the manner in which the section at the show operated, it is claimed that the board is not only the coming board of the future, but the board of the present as well.

The photographs shown with the article illustrates the

appearance of the present installation of the Minot exchange showing the frame work only. The four-party line key and the ballast line lamp give an indication of the workmanship in the board. The multiple jack is not only rigid in construction, but is exceedingly accessible. The very evident fact that the maintenance expense on a board of this type would be far below that of any other board created a great deal of favorable comment among exchange managers and technical men at the Electrical Show.

### NORTON TOOL COMPANY'S SPECIALTIES.

The Norton Tool Company, of West Park, Ohio (a suburb of Cleveland), is considered one of the best known concerns catering to the telephone trade. Its line includes



Solid Forged Steel Three Bolt Clamps.

Patent Combination Messenger Hanger.

The Little Giant Hanger.

Half Oval Two Bolt Guy Shim.

Universal and "Little Giant" messenger hangers, "D" and Regular clamps, pole brackets, window brackets, guying shims, etc. The Norton Tool Company advertises that its product is made of solid forged steel, which is not only non-breakable and economical, but which has been demonstrated to be thoroughly practical and convenient for the purposes designed. Specifications for the lowest grade of steel the firm uses must fulfill the following conditions:

Have tensile strength of not less than 48,000 pounds per square inch of section, and elongation of not less than 15 per cent in 8 inches.

All galvanizing is done by the hot dip process and must stand the established acid test. The company also claims that its bolts are the best because of the extra quality of material and workmanship.

Prompt deliveries are assured, as a large stock of both manufactured and raw material is always carried. Inquiries and orders should be addressed to the Norton Tool Company, West Park, Ohio.

MR. H. C. SLEMIN, formerly of the engineering and sales departments of the Stromberg-Carlson Telephone Manufacturing Company, has taken Mr. J. O. Oliver's place in the advertising department. Mr. Oliver expects to be more closely connected in the future with the sales organization of the company.



## TRADE NOTES.

NOKORODE SOLDERING PASTE is rapidly making its way into the esteem of practical telephone men. Nokorode is not only put up in neat form, but it appears to go farther and work better, so many telephone workmen say, than any preparation yet designed for similar use.

THE DE VEAU TELEPHONE MANUFACTURING COMPANY, 27 Rose street, New York, will remove to a commodious new factory in Brooklyn, April 1. Mr. De Veau and his staff have made a great success of the telephone manufacturing industry in the eastern metropolis.

GORDON D. WILSON, who recently left the purchasing department of the Western Electric Company after ten years of service with the concern and who was for a short time thereafter connected with the Machinists Supply Company, Chicago, is now associated with H. E. Cobb, of 1501 Monadnock block, Chicago.

W. E. STEPHENSON, who for the past two or three years has been connected with H. E. Cobb at Chicago, became associated with the Northern Electric Company at Minneapolis March 1. Mr. Stephenson's many friends in the telephone and electrical fields will wish him all possible success in his new relations.

FRANK B. GRIFFIN, Oshkosh, Wis., is prepared to fill orders for silk-covered magnet wire in any quantities desired. The insulated covering is carefully wound, and the manufacturer believes that his wire will fulfill any requirements necessary to be observed in the winding of high-grade apparatus. He will send full information and prices upon request.

TELEPHONY acknowledges the receipt of a de luxe edition of the New Gray Pay Station Company catalogue. This company has prospered because of its earnest efforts to keep thoroughly up to date and do things right. Its new catalogue, which can be obtained on application to the company's headquarters at Hartford, Conn., is only another evidence of the concern's successful policy—"We believe in the best."

THE INTERNATIONAL TEXTBOOK COMPANY, proprietors of the International Correspondence Schools, Scranton, Pa., has prepared a souvenir anniversary book, containing the addresses delivered at its fifteenth anniversary celebration held last October. The book explains in an interesting way the method of education, the success with which it has met, and shows the advantages of technical education to those unable to go to college.

THE H. P. RUSTLESS CABLE HANGER can be had of H. P. Copeland, 200 W. Broadway, New York. This hanger is made of one piece of sheet zinc. There is, therefore, no danger of electrolytic action taking place, it is claimed, between separate parts and there are no loose parts to become separated or lost. It is very simple and quickly applied. The hanger cannot jump off the suspension wire, and it grips the cable tightly and does not allow it to slip.

THE AMERICAN ELECTRIC FUSE COMPANY of Muskegon and New York has recently closed contracts for complete switchboard protector equipments of the new American type "H" protector for the following exchanges: Erie, Pennsylvania; Leavenworth, Kansas; Montevideo, Minnesota; Columbus, Ohio, branch exchange; Holland, Michigan;

besides a number of smaller equipments, making a total amounting to over 14,000 pairs of protectors. All these protectors are the new American Type "H," which is meeting with decided favor in the trade.

THE SWEDISH-AMERICAN TELEPHONE COMPANY began making shipments from the new branch at Sioux Falls on February 1, and a number of telephone operating companies in the territory adjacent to that city have placed good-sized orders, appreciating the location of this branch in their midst and enjoying prompt delivery and decreased freight charges. The Swedish-American company is in a position to care for western business with promptness and dispatch, making shipments from Kansas City and Sioux Falls as well as from the factory in Chicago.

THE NEBRASKA ELECTRIC COMPANY, Omaha, Nebraska, has moved to the four-story building at 1207 Harney street, which will be wholly occupied by this concern in the future, thus giving it about four times the capacity which it has heretofore enjoyed. The company has evidently prospered, having found that its increased trade rendered improvements necessary. It will continue to handle a complete line of telephones and telephone construction supplies as heretofore, and will have better facilities than ever for accommodating the trade with good goods and making prompt shipments.

THE STANDARD VARNISHING WORKS, 29 Broadway, New York, announces that its waterproof "insulating black," which has been gotten up especially for use in connection with interior wiring, signal telegraph and telephone work, has been approved by the Underwriters' Laboratories of Chicago, which concern passes on the various electrical appliances and materials used in wiring construction. This material is being used extensively for wiring and construction work and has received the recommendation of prominent engineers and construction concerns on account of its ability to dry quickly and at the same time retain its plastic and water-proofing properties. This material at the same time possesses high insulation, is easy to work and is free from all objectionable odor.

THE CENTRAL TELEPHONE & ELECTRIC COMPANY of St. Louis and Dallas have just shipped two carloads of construction material to be used by the municipal telephone plant at Edmonton, Alberta Province, Canada; also two 100-drop switchboards and complete equipment for exchanges in Mexico. Shipment of thirty-five cable terminals to Brazil on one order, and four other orders for Brazilian points for Becker cable terminals and other special protective devices show the foreign demand for these products. The company now has one order for over fifty terminal heads to be shipped to an operating exchange in Texas, and reports that its protector department, as well as other departments, is working over time to keep up with the orders.

AMONG THE TELEPHONE COMPANIES that have recently placed their orders with the Swedish-American Telephone Company, for exchange equipment are the following: Fulton Mutual Telephone Company, Fulton, Ill.; St. Mary's Telephone Company, St. Mary's, Iowa; Johnson County Home Telephone Company, Adams and Tecumseh, Neb.; Farmers' & Merchants' Telephone Company, Persimmons, Okla.; Templeton Telephone Company, Templeton, Iowa; Page Independent Telephone Company, Page, Neb.; Grant

Co. Telephone Company, Silver City, N. M.; Glenn View Telephone Company, Blue Hill; Kearney County Telephone Company, Norman, Neb.; Emerson Telephone Company, Emerson, Ark.; Wessington Springs Telephone Company, Wessington Springs, S. D.

HAVING BECOME the sole importers of the well known battery carbon products of Fabius Henrion, of France, in the United States, and being prepared to offer the trade these products, battery carbons, carbon-flour, as well as enclosed arc lamp carbons, at very satisfactory prices, the French Battery Company announced that it has changed its name to that of the French Battery and Carbon Company. The company is also in direct touch with producers of manganese, graphite, chemicals, and in fact everything which enters into the manufacture of dry batteries, and is willing to quote prices on anything in this line. The French Battery and Carbon Company keeps a sufficient stock of imported materials in its warehouse in New York City, to protect customers against delays in shipments from abroad. Inquiries regarding arc lamp carbons should be addressed to its New York office, 59-61 Park place. The company is pleased to handle all business pertaining to the manufacturing of dry batteries and to dealings in battery supplies from its factory in Madison, Wisconsin. The company thanks the trade for the cordial reception which "Fleur de Lis" dry cells have found on the American market and will be pleased to be of further service to buyers.

THE LONG DISTANCE TELEPHONE MANUFACTURING COMPANY, of South Bend, Indiana, is now mailing its new general catalogue, 1907 edition, to all who desire a copy. This catalogue is a very fine edition, both from the standpoint of engineering description and the artistic make-up in general. The cover is of handsome blue Westminster paper, printed in three colors. In addition to the two hundred handsome half-tone illustrations, a full and comprehensive description of each and every part manufactured by the company is given in short, terse composition. To those who contemplate entering the telephone field or for those who are looking for new equipment, this catalogue is especially designed, as it gives a complete engineering description and illustration of all the different parts of each instrument. It is the last of a series of six publications issued during the last six months, and is the culmination of a successful sales campaign carried on under the direct and personal supervision of Mr. S. A. Duvall, vice-president of the company. The company takes this opportunity to give full credit and thanks to the efforts and efficient advertising space of TELEPHONY, which has been largely instrumental in developing the rapidly increasing business of the company.

#### THE FRENCH BATTERY & CARBON CO.

The French Battery & Carbon Company, manufacturers of the "Fleur de Lis" dry batteries, at Madison, Wisconsin, announces that it has become sole importers of the renowned battery carbon products of Fabius Henrion, Nancy, France, for the United States, and is prepared to offer the trade the products of said concern, including battery carbons and carbon-flour, as well as enclosed arc lamp carbons, at very satisfactory prices. Readers will note a change of name from the French Battery Company to the French Battery & Carbon Company. This firm states that it is also in direct touch with producers of manganese, graphite, chemicals, and, in fact, everything which enters into the manufacture of dry batteries, and would thank customers to allow it to quote them on anything in this line. It will be always the company's aim to keep a sufficient stock of imported materials in its warehouse in New York City, to protect its customers against delays in shipments from abroad.

Inquiries regarding arc lamp carbons should be addressed to the New York office, 59 to 61 Park place, while all business pertaining to the manufacturing of dry batteries and to dealings in battery supplies will be cared for at the factory in Madison, Wisconsin. The French Battery & Carbon Co. wishes to thank the trade for the cordial reception with which the "Fleur de Lis" dry cells have met in the American market and particularly from the telephone trade.

#### PLATINUM RIVETS.

Economy in the use of platinum is an object much sought by telephone manufacturers. Baker & Company, Inc., Newark, N. J., claim that their platinum rivets are made in such a form that their use for contact points makes it possible to effect a saving. By the time they are in place the cost of points made from these rivets is said to be lower than when wire is cut, finished and in place. This saving comes from the fact that with the rivets it is necessary to do no cutting of material to fit the contact point into the recess provided for it, and that the cost of labor in setting the points may be made very low.

The company issues a sheet showing dimensions of a great many standard sizes which it manufactures, covering a sufficient range to be adapted to practically all purposes of the manufacture of telephone apparatus. This list and full information will be sent by the company upon receipt of a request.

#### A NEW VISUAL SIGNAL.

The Monarch Telephone Manufacturing Company of Chicago is advertising its central energy visual signal as the tools for the manufacture of this article are now completed and visual signal boards can be furnished promptly. A catalogue describing the signal is being prepared and will be ready for distribution within a very short time. The Monarch characteristics, which are always so very apparent in equipment produced by this company, are noticeable in the new visual. It is so constructed that the coil or the armature can be removed without breaking any soldered connections. The desirable features of the Monarch magneto drop and jack are embodied to a great extent in this central energy line signal.

The Monarch company is advertising the signal as a new piece of apparatus without fear of anyone criticizing it on that account. The reputation that Monarch equipment has secured in the past is considered a recommendation which every buyer realizes and acknowledges, so no hesitancy is shown by the concern in proclaiming this new device as new. Requests for information and prices will be answered promptly if addressed to the Monarch Telephone Manufacturing Company, Chicago, Illinois.

#### AMERICAN ELECTRIC FUSE COMPANY INCREASES FACTORY CAPACITY.

The American Electric Fuse Company, which only moved into its new factory at Muskegon, Michigan, in the summer of 1905 is already so crowded in its manufacturing departments owing to the great increase in the company's business, that plans are out for a new building in extension of the present plant. The company now employs approximately four hundred workmen and is doing business in excess of half a million dollars per annum.

The American Electric Fuse Company's sales department has always been very aggressive. Its advertising has been good and strong and the company enjoys the enviable record of fair dealing with its customers. The year 1907 promises to be even larger than 1906, which was the largest year in the history of the company.

*"SEEING IS BELIEVING."*

Probably it has never occurred to many readers that it would be an advantage to see what their anchorage looks

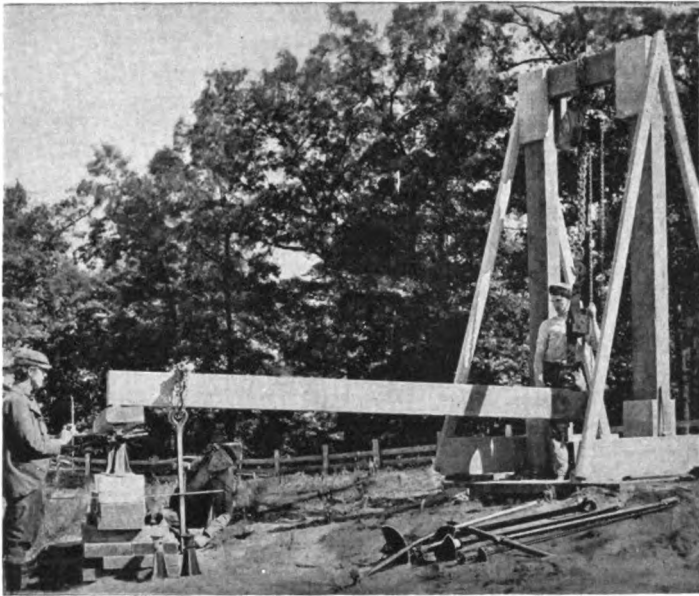


Figure 1.

like after it is set and they are ready to put the strain upon it.

Did you ever wonder what your "dead-man" or other anchorage looked like after it is covered by the ground? No doubt many people have wondered why it is that the Stombaugh guy anchor holds such enormous strains; why it was that Professor R. C. Carpenter, of Cornell University, after seventy odd diametric tests found the five-inch anchor would hold 12,500 pounds when bored into the ground five feet; the six-inch anchor 15,000 pounds; the eight-inch anchor 20,000 pounds; the ten-inch anchor 25,000 pounds; and the twelve-inch anchor 30,000 pounds.

The photographs shown herewith enable one to see how these enormous holding powers are possible. Figure 1 shows the apparatus with which Professor Carpenter tested the Stombaugh guy anchor. Figure 2 shows a photograph of a twelve-inch Stombaugh guy anchor from which half of the clay into which it was screwed was carefully taken away. By close examination one can see where the helix or screw passed through the clay, and will note that the solid clay was not disturbed while the anchor left practically no trace of where it went in. It literally "goes into a hole and pulls the hole in after it." Figure 3 shows the same anchor and clay after the cuts of the helix have been opened out with a putty knife, to more clearly show the downward path of the anchor.

A study of these photographs should convince any "doubting Thomases" of the holding power of this simple time-saver. Engineers use them all over the country because they know just what happens under the ground. They state that they are set after one gets them in five feet, that there is no guesswork about it, no moving parts to break or wear out, nothing to pull back, and no digging.

The manufacturers, W. N. Matthews & Bro., 226 North Second street, St. Louis, will gladly furnish further information and a report of Professor Carpenter's tests.

*NEW POLE CONCERN INCORPORATED.*

The increasing scarcity of white cedar and the difficulties experienced by many small dealers in procuring satisfactory stocks has led of recent years to more or less centralizing in the pole producing industry.

One of the most interesting of recent developments in this important field was the incorporation some weeks ago of the W. C. Church Lumber & Coal Company, with headquarters at Des Moines, Iowa. This concern, headed by practical cedar men of mature experience and established reputation, is bringing to the attention of many buyers throughout the telephone field "an attractive proposition whereby they may become stockholders in the concern and thus not only participate in the financial benefits accruing from vigorous and intelligent operations in the cedar field but be assured of a future supply of poles for their own purposes and those of their friends."

The W. C. Church Lumber & Coal Company states that such proportion of its capital stock as was reserved for sale in the process of organization could readily have been disposed of in a lump to local parties, but it was considered better policy to allot same in smaller quantities to leading cedar consumers who might be interested in a proposition of this kind.

This programme is already an assured success; a large portion of the authorized capital has been subscribed and paid in. Stock is held by both lumber dealers and telephone

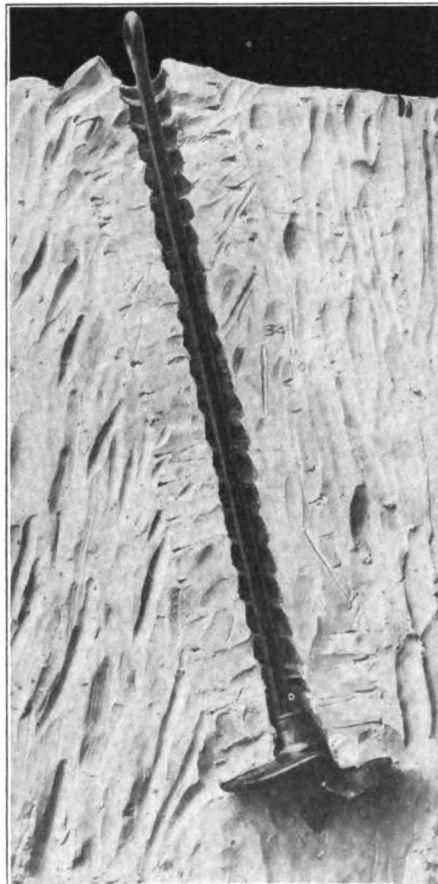


Figure 2.

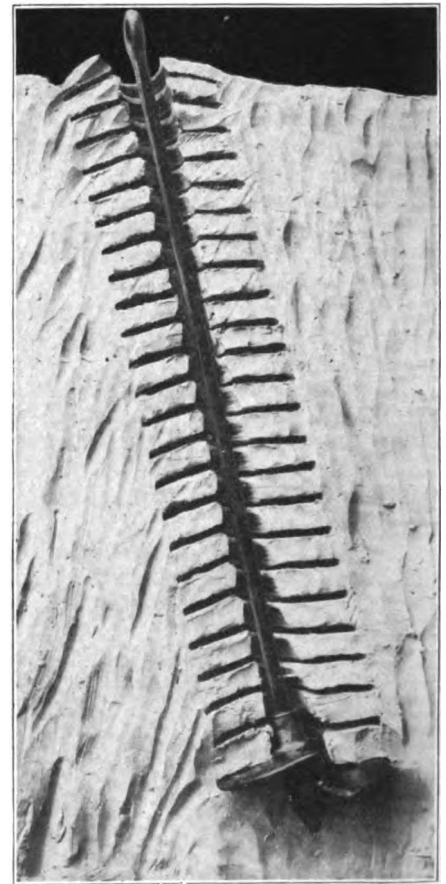


Figure 3.

companies, including a number of eminent and influential men in various parts of the country who will be personally interested in helping it to attain all possible success. With this additional capital it is proposed to buy extensively of standing timbers while available and thus insure a supply

for many years to come. In other words, the W. C. Church Lumber & Coal Company proposes to "stay to the finish" and furnish its customers with the best quality of cedar.

The company is officered by W. C. Church, president and general manager; F. L. Townsend, vice-president; W. K. Jones, secretary, and J. D. Whisenard, treasurer. As to the company's responsibility, ability and integrity, it refers to the Central State Bank of Des Moines, Iowa, and the Lumbermen's National Bank, of Bemidji, Minnesota, both of which banks have examined the company's contracts, watched its progress and know of the business methods, past success and future possibilities of the concern.

Every branch of the business, the company states, is under the superintendency of expert cedar men. The company produces what it sells and ships what it invoices; it owns its own land and cuts the timber in season, thereby producing the best quality of cedar. Having a large concentrating yard, insures stock for shipment of all orders in straight or mixed cars at all times. The company offers every advantage to be derived by dealing direct from stump to line at minimum prices, thus obviating all chance of inferior grades, insuring prompt shipments and avoiding jobbing speculation on orders as well as uncertainty of delivery.

Mr. Church established, managed and carried on the successful business of Church-Deal Company for a number of years, and severed the copartnership thus formed to organize a stronger company and enter the field on a larger scale. He needs no introduction to the trade.

Certainly, the W. C. Church Lumber & Coal Company is making a strong bid to become one of the prominent factors in the cedar industry.

#### *FIRE UNDERWRITERS' RULES FOR INSTALLING TELEPHONE PROTECTORS.*

Two or three months ago the American Electric Fuse Company, of Muskegon, Michigan and New York, announced in *TELEPHONY* that it would send free to any inquirer a copy of the National Underwriters' specifications for installing telephone protectors. The result of this announcement has been an astonishingly large number of requests for the book.

The Fuse company reports inquiries received up to the night of February 20 for these Underwriters' Rules numbering 1,288, which indicates two things very clearly. First, that *TELEPHONY* as an advertising medium is unsurpassed, and second, that the American Electric Fuse Company's booklet fills a long-felt want.

The American Electric Fuse Company as usual is right at the front in getting out new and interesting things in the telephone field.

#### *OF INTEREST TO NORTHERN TELEPHONE TRADE.*

The Northwestern Electric Equipment Company of St. Paul, Minn., has a handsome new telephone catalogue now in process of preparation and expects to have it ready to mail about February 15. Interested parties are invited to send in their applications at once. The Northwestern Electric Equipment Company has for some time past been formulating arrangements for the telephone trade, and will be found in a position to fill promptly from a fine stock orders for wire, anchors, insulators, braces, distributing rings, lightning arresters and other construction supplies. The establishment is especially well situated as regards wire, carrying constantly from five to ten cars of the American Steel & Wire and Jno. A. Roebling's products. The company is the agent for the celebrated Security Pole Houses. Mr. A. J. Anderson, manager of the supply department, formerly was with the Manhattan Electrical Supply Com-

pany, and has had wide experience in the supply business in both the telephone and general electrical field.

#### *SUCCESSFUL KANSAS CONVENTION.*

The annual convention of the Kansas Independent Telephone Association was held at Topeka, February 5 and 6, and proved an unqualified success in every particular. More than 150 delegates were present, representing every section of the state, and derived material benefit from the meeting. The convention met in the new home of the Independent Telephone Company of Topeka, which acted as host, and accommodated the visitors in every way desired. The enthusiasm manifested by those in attendance was unbounded and promises marked development for the Independent movement in Kansas.

The convention was called to order by W. H. Nelson, of Smith Center, president of the association, and W. P. Hemphill, of Topeka, was appointed temporary secretary, as F. M. Pearl, secretary of the association, was absent. President Nelson called attention to the fact that most Independent companies are owned by local stockholders, and not controlled by outside capital. He urged the association to employ a competent, reliable man to look after its interests continuously, and also recommended quarterly meetings of the executive committee, the members of which should be paid their expenses. A motion to appoint committees on resolutions and auditing was carried, and the committees named were: Resolutions, J. M. Doyle, Charles Henderson, A. T. Rogers; auditing, C. L. Brown, H. G. Miller and J. S. Zimmerman.

The vice-presidents of the various districts reported for their territories and showed all to be in good condition. J. M. Doyle, of Belleville, was appointed to represent the association before the legislative committees of the general assembly with reference to bills affecting the telephone situation. After a full discussion it was also decided to authorize the executive committee to employ a traveling secretary to work under the direction of the committee.

When the convention reached the election of officers the following slate was adopted unanimously: President, W. H. Nelson; secretary, W. P. Hemphill; treasurer, C. L. Brown. President Nelson selected the following executive committee: A. T. Rogers, Beloit; J. E. Byers, Ottawa; C. C. Van Deventer, Kingman; C. E. Betts, Atchison, and J. M. Doyle, Belleville. Senator Noftzger was invited to address the convention on the telephone legislation pending before the legislature, and explained his bill to compel telephone companies to exchange messages. He emphatically declared he had no intention of injuring the Independent movement and agreed to amend his bill so it would apply only to long distance connections. The Independents in Kansas are in control of the situation so well that it is firmly believed that no adverse legislation will be passed in that state. The Topeka convention adjourned with the members confident that the coming year will bring the movement unparalleled success.

George Cardwell, a telephone lineman at West Chester, Pennsylvania, made an odd discovery and at the same time met with a surprise while "shooting trouble". Cardwell climbed to the top of a big pole near Chester Heights and opened a cable box when he was surprised by three small animals darting about. He nearly fell from the pole, but managed to catch one of them and found it was a flying squirrel. The animals had a neat nest in the box, and he did not disturb them further. There may have been others in the family which were away from home at the time of his visit.

"We often find sparrows or other small birds in the boxes," he said, "but this was the strangest find I have ever made, and I did not disturb the animals, as they can do no harm."





# ITEMS FROM THE RURAL LINE DISTRICTS



Illustrated by O. H. Brandenburg

Geo. Bestor and E. N. W. S. were fixing up telephone lines Saturday afternoon. We don't see why the farmers can't get their heads together and in some way get better phone service.—*Prairie Queen Correspondence, Preston (Minn.) Times.*

Frank Boyd, general manager of the Independent telephone system of Rockville, was in the city Monday evening with several members of his Sunday school class. The party called to see how the Tribune is made.—*Terre Haute (Ind.) Tribune.*

Jack Mast and O. Fisher are stringing the wires for the Little Laramie Telephone Co.'s line. There are about nineteen patrons on the line who will have connection with the Laramie exchange when the line is completed.—*Laramie (Wyo.) Boomerang.*

Ole Kittelson, long distance lineman for the Northwestern Telephone Exchange Company, left last evening for Blackduck to make some repairs on the long-distance line near there. There was a break in the line between the "Duck" and Hines.—*Beveridge (Minn.) Pioneer.*

Manager W. F. Westfall is looking for a carload of Chestnut telephone poles this week. This is a strong indication that the Independent Telephone Company is in a healthy and prosperous condition, for they already have more phones than any other system in Grayville and are growing daily.—*Grayville (Ill.) Independent.*

L. H. Myers of Rensselaer, Ind., was here over Christmas visiting his son George of the telephone company. Mr. Myers owns three fine farms near Rensselaer and reports good crops this year, corn on his place averaging 50 bushels and oats 60 bushels. He reports there is still a good deal of corn to husk. Mr. Myers is much improved in health.—*Washington (Ill.) Post.*

Lewis Noel is having the Dunlaps Telephone Mutual line extended to Epriam Sigerfoos' house. Mr. Noel is a stockholder. Anyone wishing to inform the correspondent of anything please phone to Mr. Noel's. We will get it all right. Not later than Wednesday morning, for Mid-Week. Fires, accidents, deaths or sudden sickness will be phoned direct to office.—*Goshen (Ind.) Times.*

A few days ago the Hudson River Telephone force was obliged to look after trouble on the line to Goshen. Just beyond South Centerville, in Greenville, the men found that an owl had become tangled in the wires cutting off the service. The wings were spread out fully and the men had to tear the body from the wires. Whether the owl died from an electric shock or from starvation and exhaustion is not known.—*Port Jervis (N. Y.) Gazette.*

Officers, by order of the city councilmen, stopped the work on the long distance telephone line Monday evening. The action was taken on complaint of residents along the line who are opposed to the crooked poles that are being erected. They are so crooked that even the most sober citizen begins to zig-zag at the very sight of them. One of the councilmen said this morning that he feared



that even the lightning would be ashamed to follow them. It is said that the superintendent of the company will arrive this evening to settle the matter with the city.—*Huntington (Ind.) News-Democrat.*

A. J. Whitlock, manager of the Bell Telephone Company at Alliance, and E. R. Roach of Alliance, and F. E. Lynn and W. J. Monnot of this place, with numerous dogs, etc., put in a busy day in hunting bear near here to-day and as a result, got 59 rabbits and 23 quail. In his perambulation Mr. Whitlock came near being gored to death by a vicious bull, and would no doubt have been seriously injured had it not been for the timely arrival of his companions.



One of the supposed rabbits was brought in dressed by the boys, which had the appearance of dressed lamb, but when questioned, the boys refused to discuss the matter and was referred to James Amerman as referee.—*Ravenna Correspondent in Alliance (Ohio) Star.*

A Jamestown lad called up the central telephone office and asked to be placed in connection with Santa Claus. He was told the good saint was out just then. This failed to faze the lad, who immediately called out: "Give me his mother, then."—*Jamestown Correspondence, Buffalo (N. Y.) Times.*

J. B. Walling of Spring Valley, the jolly good fellow who tries his best to keep the Northwestern telephone lines out of trouble, was called down the Branch Monday. He straightened things out as he always does and found time to jolly the printer a bit before returning home on the evening train.—*Preston (Minn.) Times.*

The Clear Fork Telephone Company held its quarterly business meeting at Morrison Burkhardt's in North Bridgewater Wednesday, and regaled themselves and families with oysters and other good things. The day was much enjoyed but would have been more so if all on the line could have been present.—*Amboy Correspondence, Hillsdale (Mich.) Standard.*

Monday morning telephone line number 28 was put out of commission by a common door key having been hung on the telephone. The key happened to be hung so it touched the transmitter and the entire line was dead for some time. The incident happened at the Philip Walters residence. Be careful and keep any kind of metal from your telephone.—*Hicksville (Ind.) News.*

Word has been received from Grandview that Jones Johnson, an eighteen-year-old boy, has perfected a wireless telegraph, on which he has been working for several years, and that a company has been formed to manufacture the instruments, which, it is said, can be sold for \$5 each, and which, it is claimed, will revolutionize the telephone system of the country.—*Jasper Correspondence, Indianapolis (Ind.) News.*

It seems that some of the Wearies of Peshtigo have come to the conclusion that the Wisconsin Telephone Co. have placed phones in the several direct places in our city for their special amusement. Now this is not the case, however, and we hope that those parties will take a tumble and find some more profitable occupation to devote their time to. People who have phones do not care to be annoyed unnecessarily by the ringing of their phones. Now, if parties participating in this kind of sport would please drop the notion, it would be a great accommodation to the subscribers as well as to the company.—*Peshtigo (Wis.) Times.*

# Telephony

VOL. XIII.

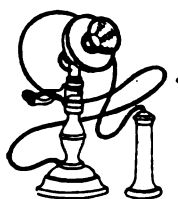
APRIL, 1907.

No. 4

## THE STORY OF MICHIGAN

*The Fourth of a Series of Articles Dealing with the Telephone Development of the States*

By J. B. Ware



**M**ICHIGAN has played an important part in the history of the Independent telephone movement, and the annals of the contest with the Bell monopoly would be incomplete without a comprehensive chapter on the influence the Wolverine state has wielded in that crusade. From the time the telephone was first exhibited at the Centennial Exposition at Philadelphia in 1876 to the present day, Michigan has been identified with all of the interesting incidents of telephone development.

Probably the first pair of telephone instruments taken out of the East were those presented by Prof. Alexander Graham Bell, the father of the telephone, to his friend, Mr. J. W. Converse, who brought them to Grand Rapids, where they are still preserved by the company formerly using them. They bear the following inscription:

The first telephones brought into Michigan. Presented by Professor Bell to J. W. Converse, Boston.

By him taken to Grand Rapids and used between the office and the mills of the Grand Rapids Plaster Company in the fall of 1876.

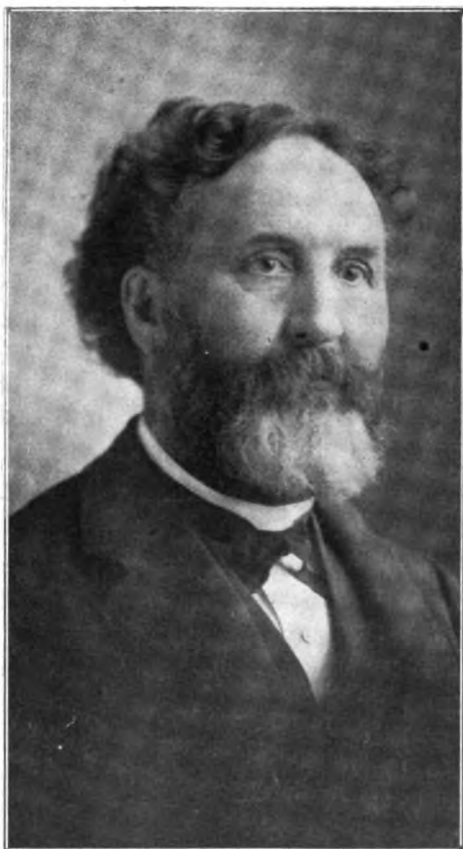
These instruments are identical in shape to the present Bell telephone receiver, being but a trifle larger, and are made of wood. They were placed upon a single iron wire circuit about three miles long, and attracted wide attention by reason of enabling the successful holding of conversation between individuals a furlong apart.

Mr. W. A. Jackson, manager of the American District Telegraph Company, Detroit (A. D. T. Co.), conceived the advantage of putting the newly discovered telephone in place of their call boxes in certain of their subscribers' offices, for messenger service. Late in 1877 this A. D. T. Company received its first telephones. It experimented

with them with the result that on August 15th, 1878, an exchange of twenty telephones was opened in Detroit, being the original exchange in the state, and possibly in the entire west. These twenty instruments were on two iron ground circuits, having a total of about six miles of wire, and each circuit having an operator. One line ran up Jefferson avenue and the other up Woodward avenue. To Michigan readers it will be of interest to know that Mr. James Land, present general manager of the Michigan Bell, was a messenger boy with the A. D. T. Co. when the first telephones were received, and

has been in the telephone business ever since.

At the time the parent Bell company was selling territory and exclusive rights for telephone purposes, Mr. G. W. Balch, Detroit, purchased the rights for Michigan, paying therefor, it is understood, the sum of five thousand dollars. Soon thereafter the Telephone and Telegraph Construction Company was organized by Mr. Balch, Mr. James McMillan and Mr. John C. Newberry, to take over the tele-



E. B. Fisher.



J. B. Ware.

phone branch of the A. D. T. Co.'s business and to develop it throughout the state.

The first exchange built by the new company was at Grand Rapids, which began service October 1, 1878, with twenty-five telephones and ten miles of wire for circuits. In 1888 this exchange had grown to 1,100 telephones, at which time Grand Rapids had 59,000 population. The claim was proudly made by the Michigan Bell officials that, population considered, said city had the largest telephone development of any in the United States, being approximately one telephone to each fifty-four inhabitants! The first Bell toll line in the state was between Detroit and Mt. Clemens. Its first circuit across the state connecting Detroit and Grand Rapids was an iron ground line completed about 1891. It is of historical interest to interpolate that the first long distance Bell circuit connecting Chicago with St. Louis, Mo., was completed in August, 1896, only 10 years. It was built for the purpose of handling business of the Republican National Convention that year, which nominated the Hon. Wm. McKinley for President.

It is a strange coincidence that President McKinley died in the home of John G. Milburn, Buffalo, N. Y., and that this gentleman is to-day a resident of New York City, the attorney for the Bell Telephone Company in that metropolis.

The Michigan Bell Telephone Company was organized January 10, 1881, with \$250,000 capital, by Messrs. James McMillan (later U. S. Senator), George W. Balch, John S. Newberry (father of present Assistant Secretary of the Navy), Henry B. Ledyard (many years head of the Michigan Central railroad), W. A. Jackson and Hugh McMillan. This corporation succeeded the Telephoné & Telegraph Construction Company.

It is understood the original investment of \$25,000 was all the cash capital actually paid into the business. So anxious were persons and firms in different parts of the state to obtain the use of a telephone, that large donations were made and much script was sold, which, with the large profits realized, enabled the company rapidly to increase its property and become a great financial institution.

In the spring of 1883 a state telephone law was passed by the legislature. The Michigan Telephone Company, with an authorized capital of \$2,500,000, was promptly in-

corporated by Mr. McMillan, Mr. Newberry and others. This Bell company absorbed the property and business of the Michigan Bell Telephone Company, and Mr. W. A. Jackson became the general manager, as he had been in each of the preceding companies.

These several Michigan corporations were licensees of the parent Bell Telephone Company of Boston. They operated under the famous perpetual contract, which was based upon the control by the Bell company of all important telephone patents, and the belief that before their expiration that organization and its licensees would be able to prevent or defy competition.

Among the provisions of said perpetual contract were:

That all apparatus must be purchased from manufacturing companies controlled by the Bell—the Western Electric Company being the successor of several such, and a large majority of its stock being owned by the parent Bell Company.

That only Bell instruments shall be used, and a royalty of fourteen dollars per year be paid on each telephone.

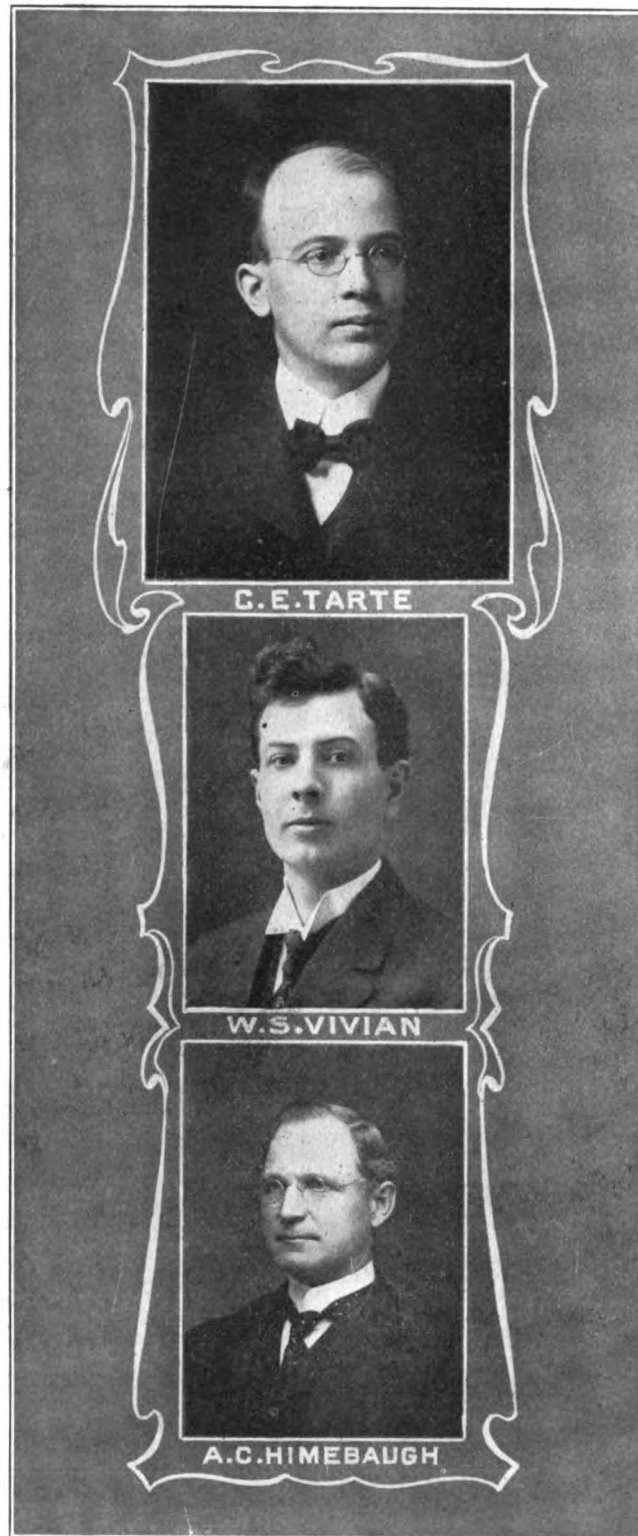
That no connection shall be made with other than Bell telephones and apparatus.

That question of validity of patents shall never be raised.

That violation of any of the provisions of the contract authorizes the Bell Company to take possession of the property, etc., etc.

It is believed that all licensee companies of the Bell operate under this form of contract, which was in force in Michigan until the failure of the Michigan Telephone Company in 1903. As a final and perfect safeguard to Bell interests, as a rule the parent company secured and yet retains a control of the stock of each of its licensees, with two or three exceptions, thus not only preventing litigation, or undue friction, but enabling the policy of each licensee to be absolutely determined and fixed at Boston, without question and without modification.

During recent years as competition has rapidly increased and threatened the overthrow of the Bell interests, and in order to, if possible, enable the licensee companies to compete therewith, the parent Bell has from time to time voluntarily reduced the royalty exacted from its licensees, until at present it is about five per cent of the gross income of each such subordinate company, with a minimum of one dollar and a half per telephone. However, the licensees' contract remains as originally drawn, it having evidently been the hope of the American Bell officials that there might come a time when conditions would be such as would enable licensee companies to again be



Prominent Michigan Independent Telephone Men.

taxed a royalty equal to the limit provided in *the original contract, which is yet in force.*

Previous to competition (1895), by reason of that fact and the heavy royalty mentioned, service rates were not only very high, but the Bell companies being without incentive to improve service, as a rule that furnished was in every way unsatisfactory, and the cause of great complaint on the part of the public.

Excepting in Detroit, where the rates were excessively high, in the cities, towns, and villages throughout the state having Bell telephone service previous to 1895, the lowest business subscriber's rate was \$50 within half mile of the exchange, with an increase based on \$36 per mile beyond said limit; residence telephones were \$40, likewise with higher rates for increased distance from the exchange. The rates named were for both ground lines and common return service. A metallic circuit business telephone was based upon \$80 with the increase outside the limit as named.

In Detroit, with less than 3,500 telephones in use, the business rate for a Blake instrument was \$80 per year, and for a long distance or metallic circuit was \$120, within the first limit; and likewise increased outside of the circle indicated, so that there were a number of factories paying as high as \$240 per year within the corporate limits of Detroit. The residence telephones cost \$60 for Blake service, and \$72 for the metallic service, with an increase for distance.

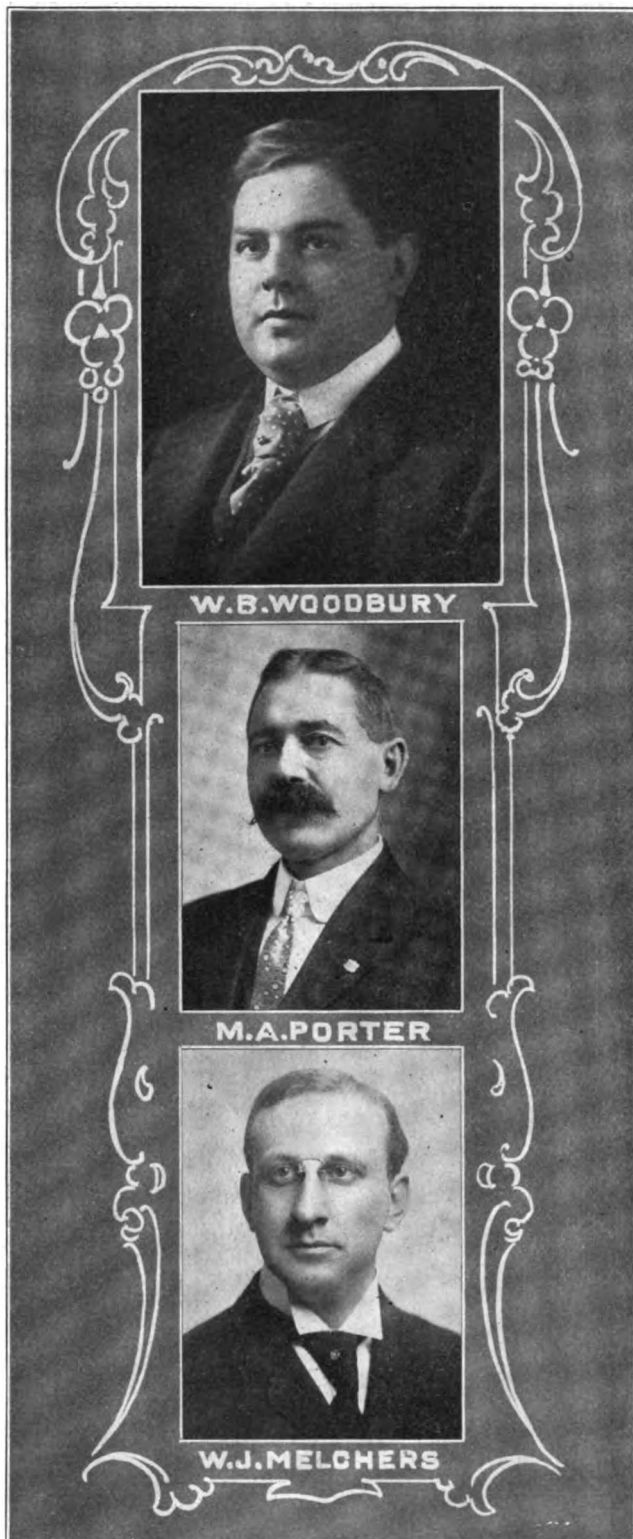
As a consequence of the rates above named, and the poor quality of service furnished, as well as because of the arbitrary and unfriendly attitude on the part of Bell officials to their subscribers and the public, the number of Bell telephones in service in the entire state was about 13,000 in 1895, and as late as January 1, 1898, the number had reached but 16,270. It is interesting to note just here, that after more than seventeen years without competition, the Bell companies throughout the United States had on January 1, 1895, only 243,432 telephones in service; and on January 1, 1896, but 281,695.

Reference has been made to the exclusive control of the telephone field for so many years by the Bell company by reason of its telephone patents. Its harsh and unreasonable methods in enforcing its rights, especially just previous to the expiration of its broadest patent, in 1893, caused additional bitterness toward the Bell. This was aggravated and

increased by its determined effort to prevent competition after said patent had expired, by claiming its exclusive rights had been extended another seventeen year period under the Berliner patent. Suits were brought and injunctions sought against opposition companies, and its licensees were permitted to continue the old policy of neglect and extortion.

Up to 1895, and even for five years thereafter, it had been the rule with the Bell companies to refuse to furnish telephone service in the villages and smaller towns, and in many through which their toll lines ran they had failed to establish toll offices. Previous to this time (1895) the Bell had likewise refused to furnish farmers with telephone service at any price. For several years in a few cases only was farm service furnished, and under rates of \$100 or more per telephone, and usually with conditions that were particularly burdensome. Thus, throughout the state and nation, the citizens everywhere, except possibly in some of the cities and larger towns, were banded together in sentiment against the Bell companies, by reason of inability to obtain the full advantages of the telephone. It was but natural that with the expiration of the patents that previously had prevented competition, in many places throughout the nation individuals and small companies should undertake to provide for themselves a limited telephone service.

The success, which to a considerable degree was thus early obtained, soon led stronger companies to enter the field, until by 1895 the great Independent telephone movement had been born. Rapidly its development has increased until at the present time it has surpassed the Bell in the number of telephones actually in service by approximately half a million; has revolutionized the business until the quality of service, both exchange and long distance, exceeds in its perfection the highest ideals of ten years ago; service rates have been reduced to a point that in most instances is reasonable, being based upon the cost; not only cities and towns have a



Prominent Michigan Independent Telephone Men.

largely increased number of telephone users, but almost every village, hamlet and rural community has like benefits. These results have been obtained through the effort of the people in their own behalf and have been brought about without a single disadvantage in connection therewith, other than the temporary annoyance of two tele-



phones on the part of a small percentage of telephone users—the expense of the dual service to such users being as a rule no greater than was formerly charged for Bell service.

The effect of competition caused the Bell to reduce rates in many instances even below cost, in order if possible, to drive out competition. After three or four years of struggle it became a foregone conclusion that the opposition could not be driven out; that patents would no longer protect a telephone monopoly; that competition among Independent manufacturers was making rapid strides in the improving of telephone apparatus and instruments, even threatening to entirely eclipse the similar product used by the Bell. Then the general policy of the Bell companies was modified. All along the line an effort was made to improve service and increase the number of telephones in use, apparently with the hope not only of retarding competition, but also the belief that with an improved quality of service the high rates prevailing *could be increased where competition did not exist*. Thus has great benefit come to telephone users, both Bell and Independent, in the greatly improved service furnished by both, and for this desirable result the credit is due almost wholly to the Independent movement, as stated.

Much in a general way has been published as to this movement in different states and localities. The writer aims to deal with the Independent movement in Michigan in such manner as will not only give a fair and proper understanding of what has been accomplished, but also furnish interesting and important events and data not heretofore published. The prime object, however, is to enable those not as yet familiar with the details and merits of the telephone struggle now taking place, to clearly see that the Bell companies of to-day are those of yesterday, and represent the monopoly element or factor working against the people's best interest; that the Independent companies are of and for the people and have demonstrated both the ability and the willingness to furnish at reasonable rates the best telephone service to be found either in the United States or abroad, and under proper municipal restrictions.

The fundamental patent of the Bell company expired in 1893, as before stated. It is very probable that a number

of private non-Bell telephone lines were constructed in that year. Present records as to the pioneer Independent telephone exchanges in Michigan establishes the first as built in 1894.

Thus, a small exchange began to furnish service in Ontonagon in October, 1894; an other at Niles in November of the same year. It is believed a small exchange built by Mr. G. W. Finch, began to furnish service in Escanaba a few months previous to these dates, thus apparently securing to the Upper Peninsula the record of the first Independent battery telephone exchange established in Michigan. Also in this section were located the two Independent companies first to incorporate in the state, being the Marquette County Telephone Company, Ishpeming, on March 26, 1895, and the Menominee Range Telephone Company, Iron Mountain, on April 22, 1895. With these brief statements as to the Upper Peninsula that section will be dismissed from further consideration in this article, by adding this only, that owing to the rough and broken condition of that upper portion of the state, and to the Independent companies being widely separated, no toll line system was developed between them. This resulted to the advantage of the Bell, and some three years ago it completed a line across the Upper Peninsula to the Straits, thus affording connection with its Lower Michigan system.

The Michigan Harrison Telephone Construction Company was formed in 1894, through the efforts of Mr. R. E. Brett, and a small exchange was completed by said interest in Port Huron in March, 1895. At Cadillac Mr. W. H. Sill started an exchange late in 1894 or early in 1895.

At Ithaca in 1893-4 the Bell company had from twelve to sixteen telephones at \$40 or \$50 each, there being a difference of memory on the part of former subscribers. The toll charge was 25 cents to St. Louis, eight miles distant, and the same to Alma, nine miles away, in each of which towns was an exchange like in size to Ithaca. (The lowest Bell toll

rate in the state before competition was 25 cents.) Several business men in Ithaca became interested in the Acoustic telephone and led by Mr. James P. Gibbs, decided to endeavor to furnish themselves local telephone service. In 1894 ten citizens each contributed \$10 to construct a plant. After a few months they re-



Prominent Michigan Independent Telephone Men.

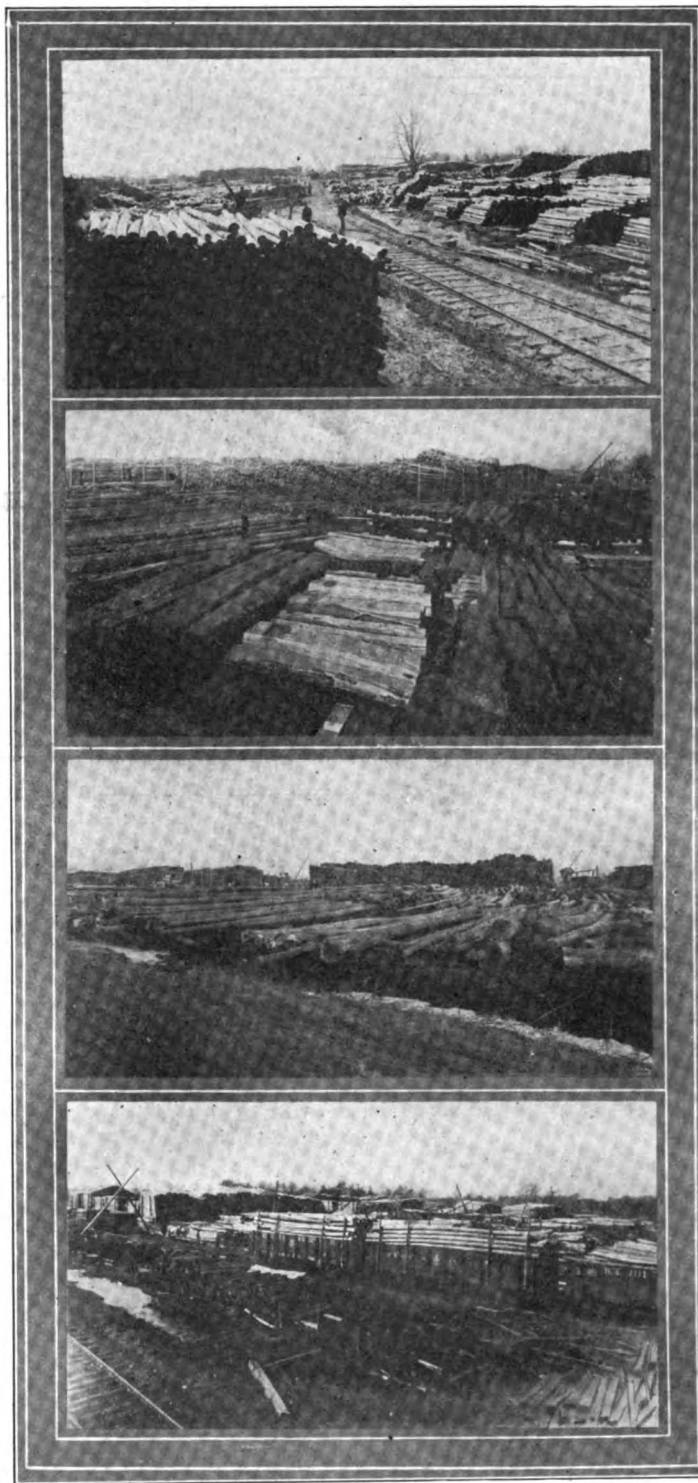
placed the Acoustic instruments with battery telephones made by the Gilliland Company in Adrian, and sold in April, 1895, to the Ithaca gentlemen by Mr. W. O. Hunt (afterwards the father of the Adrian Telephone Company, which under his supervision has made such a pronounced success to himself and associates). The Gratiot company gradually developed the county until, with perhaps 300 telephones it was absorbed by the Union Telephone Company of Alma.

In 1895, besides the events and results in Grand Rapids and Detroit, to which special reference will later be made, pioneer exchanges were built in the following towns and villages: Homer, by B. F. Woodbury; Allegan, by M. D. Owen; Saugatuck, Ganges and Fennville, by a mutual organization of over sixty fruit farmers, with H. H. Hutchins as main organizer and general manager; Holland, South Haven and Cassopolis, also had small local exchanges that year.

The following is a nearly complete list of Independent companies formed or plants built, between the years 1895 and 1900, being arranged in the order of date of incorporation, where so organized, and with the name of the "active" official:

- 1896.
- Evart—E. E. Bell, proprietor; sold to Citizens' Telephone Company, 1905.
- Macon—Union Telegraph Company, R. B. Mills, manager.
- Sparta—Sparta Telephone Company; sold to Citizens' Telephone Company, 1905.
- Munising—Munising Telephone Company, C. R. Langley, manager.
- Muskegon—Citizens' Telephone Company, of Muskegon, Hugh Parks, organizer; Wm. Robinson, manager.
- Alpena—Alpena Mutual Telephone Company, F. S. Dewey.
- Muskegon—Crosby Telephone Company; sold to Citizens' Telephone Company of Muskegon.
- Lansing—Lansing Telephone Company, Frank B. Johnson, manager; sold to Citizens' Company, 1900.
- 1897.
- Saginaw—Valley Telephone Company, James E. Davidson, president; R. F. Johnson, general manager.
- St. Johns—Crowley Telephone Company, later the National Telephone Company; J. H. Tildew, general manager; absorbed by Union Telephone Company, 1899.
- Edmore—Montcalm County Telephone Company; merged with Union Telephone Company, 1899.
- Uby—Uby Telephone Company, owners, A. E. Sleeper and F. H. Brown.
- Northville—Northville Telephone Company, M. A. Porter, organizer and manager.

- Greenville—Greenville Telephone Company, Dr. Black, owner; sold to Citizens' Company, 1904.
- 1898.
- Battle Creek—Calhoun County Telephone Company, A. J. Little, promoter; Citizens' Company, 1904.
- Kalkaska—Swaverly Telephone Company, Chas. W. Swaverly, builder and manager.
- Morenci—Morenci Telephone Company, Albert Deyo, president.
- Reed City—C. F. Marshall's Telephone Exchange; sold to Citizens' Company, 1906.



Cedar Yards of W. C. Sterling & Son at Monroe and Bay City.

- Blissfield—Blissfield Telephone Company, John Rentz, organizer, chief owner, manager.
- 1899.
- Alma—Union Telephone Company, C. O. Trask, organizer; W. J. Melchors, now general manager.
- Concord—Concord Telephone Company, all party line exchange during early years.
- Hart—Oceana County Telephone Company, Dr. G. S. Root, manager; name changed to Lake Shore Telephone Company; Thos. Bromley, Jr., St. Johns, general manager.
- Benzonia—Benzie County Telephone Company, W. A. Young, organizer and general manager.
- Saranac—Saranac Improvement Company; sold to Citizens' Company 1906.

In Detroit a telephone franchise was applied for December 4, 1894, with business rates at \$50, professional at \$40, and residence at \$30 per telephone, there having been previously secured three thousand subscribers' contracts at these rates. After many delays on the part of the Common Council the rates were reduced to \$40 for business and \$25 for residence telephones, the franchise was then granted by the city council on July 30, 1895, and refused by the Harrison company making the application. Later Charles Flowers and William L. Holmes, who had been connected with the Harrison company, with others applied for a franchise for the Detroit Telephone Company and at the same rates which had previously been refused by the said Harrison company (\$40 for business and \$25 for residence). On March 14, 1896, the franchise was granted to said company, and it was duly incorporated under the state law July 23, 1896.

These same gentlemen organized a construction company, also the Detroit Switchboard & Supply Company, to manufacture telephone apparatus and handle supplies. A little later, on February 10, 1897, they likewise incorporated the New State Telephone Company, with main office in Detroit, for the purpose of owning and operating exchanges and lines in the state outside of said city.

Thus, within a period of about six months, were four

companies organized, each having practically the same board of directors, which showed comprehensive and well formed plans for the future policy of these interests. Being early in the field, with a splendid start in manufacturing, constructing and operating these branches of the telephone business, apparently the finest opportunity was offered to build up large and successful enterprises. The writer cannot recall another Independent interest which at that time had as great financial strength and as high a standing and influence as these. Yet, as will appear from a review of their acts, one is led to suspect that possibly these companies were organized, not upon sound business principles, and proper motives, but, contrary to the established principles, so common to Independent companies, they were organized for personal gain, by sale to the Bell, thus involving the betrayal of the Independents.

On September 10, 1894, during the administration of Mayor E. B. Fisher, an application for a telephone franchise was made in Grand Rapids, of which Mr. Charles R. Sligh was the prime mover. This was probably the first telephone franchise asked for in the state. Great care was taken by the city to properly safeguard its interests. The franchise was granted on January 7, 1895, the maximum service rates being fixed at \$36 for business, and \$24 per year for residence telephones. There followed a canvass for subscribers at \$30 for business and \$20 for residences. By early summer some 1,200 service contracts had been signed and \$40,000 subscribed to a fund for the construction of an exchange. On June 6, 1895, arrangements were made with ex-Mayor E. B. Fisher and the writer to endeavor to secure \$30,000 additional stock subscriptions in order to complete the amount of \$75,000 which had been

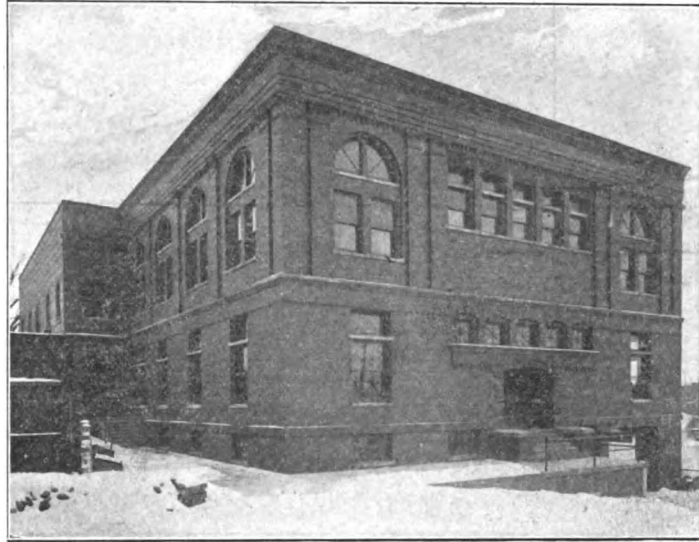
pany was incorporated, having an authorized capital of \$100,000. The actual work of construction was commenced on October 9, 1895. Although incomplete, the exchange was opened for service on July 1, 1896, with about 1,000 telephones, which number was increased during the following six months to 1,776, on January 1, 1897. This exchange was the first in the United States to have 600 telephones in service, and passed the 2,000 mark before any other had reached the former number. In fact, as far as known to the writer, but two exchanges had reached 500 telephones previous to the beginning of service on the part of the Citizens' company, one of these being at La Crosse, Wisconsin, which had that number of telephones on January 1, 1896, the other was at Little Rock, Arkansas, which began service about March 1 and on April 1, 1896 had 534 telephones.

Mr. E. B. Fisher at the organization of the Citizens' company was elected the first president and served for two years. In 1901 he was elected secretary of the company, which position he has filled ever since with

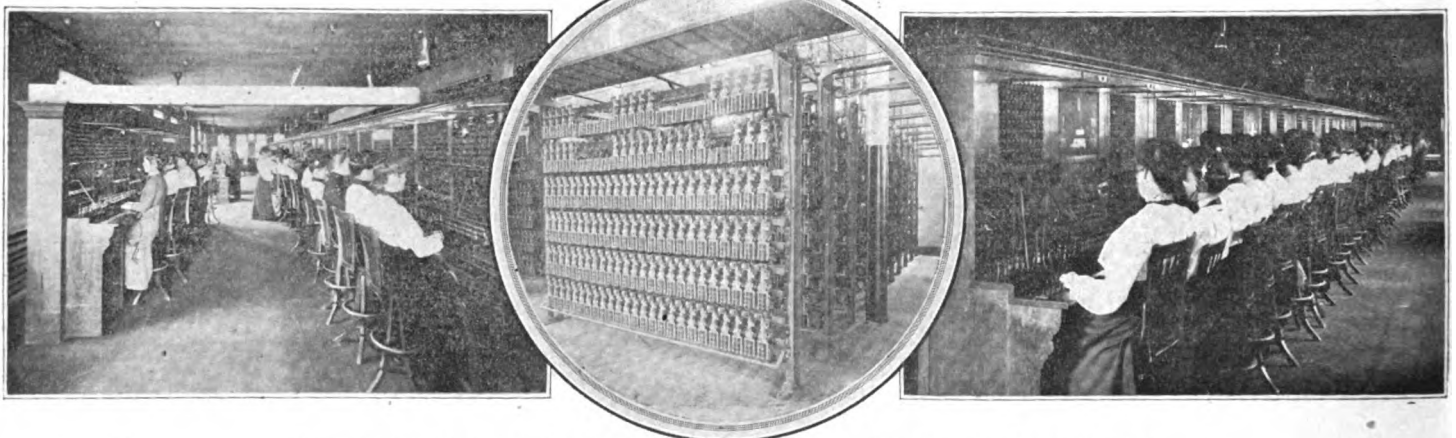
great advantage to the company and a great credit to himself.

The writer of this article was made the business manager of the Citizens' company at its organization, becoming also its secretary two years later, which positions he held until 1901, when he resigned to take charge of the developing of the Independent interests in Detroit and vicinity.

It is a somewhat remarkable fact, as has been true in a large number of other telephone companies, that among the officers and directors of the Citizens' company, during its earlier years, there was not one having had previous experience in the telephone field.



Building of the Citizens' Telephone Company, Grand Rapids.



Showing Old Manuel and New Automatic Switchboard Installed at Grand Rapids.

estimated as necessary to build a telephone exchange in the city (1895—75,000 population). In sixty days was accomplished the task assigned and the total number of subscribers to the stock of the proposed company was 268. The large number of stockholders this company has had (now exceeding 2,200) has ever proven a source of great strength and advantage to it.

On September 13, 1895, the Citizens' Telephone Com-

Naturally the new company followed closely in the footsteps of the Bell in its construction. An endeavor was made to place all wires above those then in the city, resulting in the use of many long poles. The construction was entirely aerial and practically no cable was used at the start. The circuits were common return, and iron wire was used throughout the city, excepting in the case of two carloads of steel wire which were purchased before the

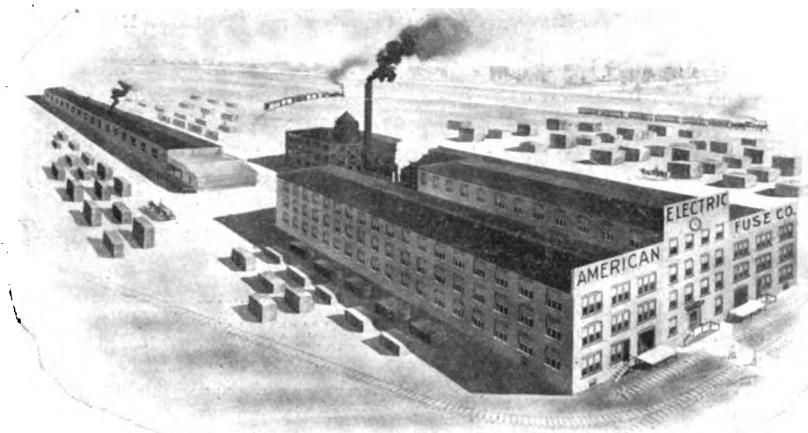


manager understood the difference in quality. That wire is still in service, after more than ten years' use. The price of wire was then about one-half what it is to-day, and the same was true as to the cedar poles. Those who are purchasing at the present time will be interested in the prices which were paid for the highest grade of cedar delivered in Grand Rapids during the year 1896-7. Thus, 25-foot, 6-inch top, poles cost 65 cents, and correspondingly low prices for other lengths and sizes up to the 60-foot, 7-inch tops, which cost \$8 each; the 65-foot, 7-inch top, which cost \$9, and several 70-foot, 7 and 8-inch tops, which were delivered at \$10 each. Labor in those days was much less expensive than at present. Linemen's wages ranged from \$2 to \$2.25 per day for ten hours' work. These prices go far to show how it has been possible for the Grand Rapids exchange to furnish service at the very low rates charged.

In connection with the outside construction of the plant, no great difficulty arose until one of the main leads, with eight cross-arms thereon had been completed within about four or five squares of the exchange. It occupied the west side of the street, on the east side of which the Bell had a heavy line of poles and wires. In order to delay the construction of the Citizens' company, employes of the Bell under orders changed the location of the subscribers' drops in the street being occupied by the Citizens' lead, so that the wires crossed it at various angles and elevations. Superintendent of Construction John C. Crowley was instructed by the writer, then manager, of the Citizens' company to elevate or lower the individual drop wires of the Bell as necessary to enable him to carry forward the work

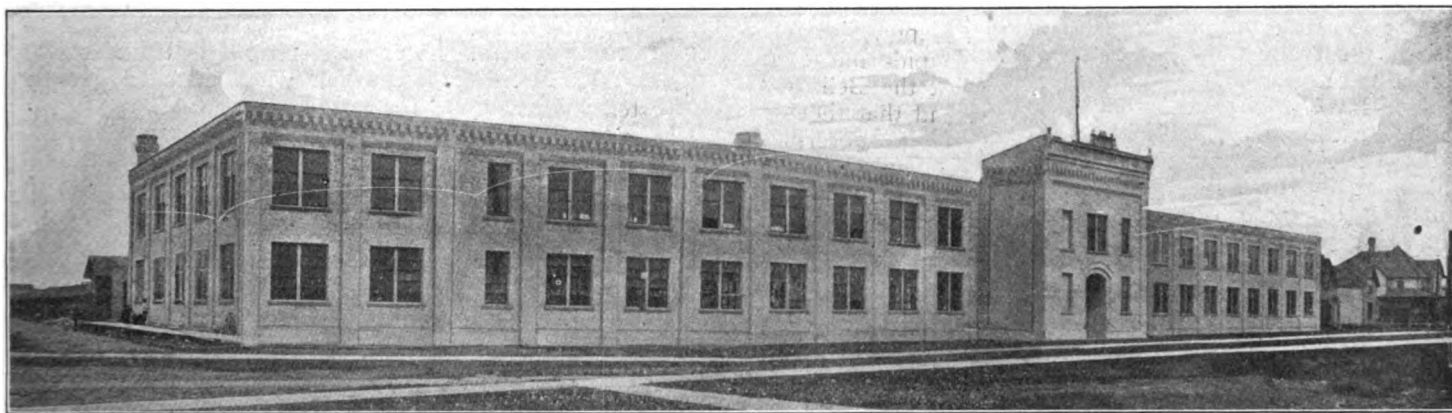
The management believed in publicity, and as a result the papers of the city gave elaborate accounts as to the wire cutting and the damage done by the Bell company. Whatever may have been public sentiment previous to this occasion, this unfair act on the part of the Bell, and done under orders of its officials, secured to the Citizens' company the sympathy and moral support of the entire community.

The next day the legal representative of the Bell company came from Detroit to Grand Rapids and had a long interview with the writer, who stated to him that the Citizens' company refused to recognize the right of the Bell to occupy exclusively both sides of the street, and announced the determination to carry forward the work of the Citizens' company exactly as planned. Possibly the attorney of the Bell company realized the justice in the position taken, for no additional wires were cut, and no other similar act of lawlessness was done. Bell repre-



Factory of the American Electric Fuse Company, Muskegon.

sentatives, however, canvassed the city, assuring the people that service could not be given, and even if it could be that the company would not be allowed to operate its plant by reason of the Bell patents. Every effort was made to discourage subscribers, stockholders and the company's directors and officials. As the time approached for requiring the services of operators, naturally those who had had previous experience were sought out by the new company, provided not then in the employ of the Bell. Just before the exchange opened, on July 1, 1896, the Bell by threats persuaded several of its old employes to leave the new company. Thus the exchange opened with a very large majority of the operators entirely new to the business. The

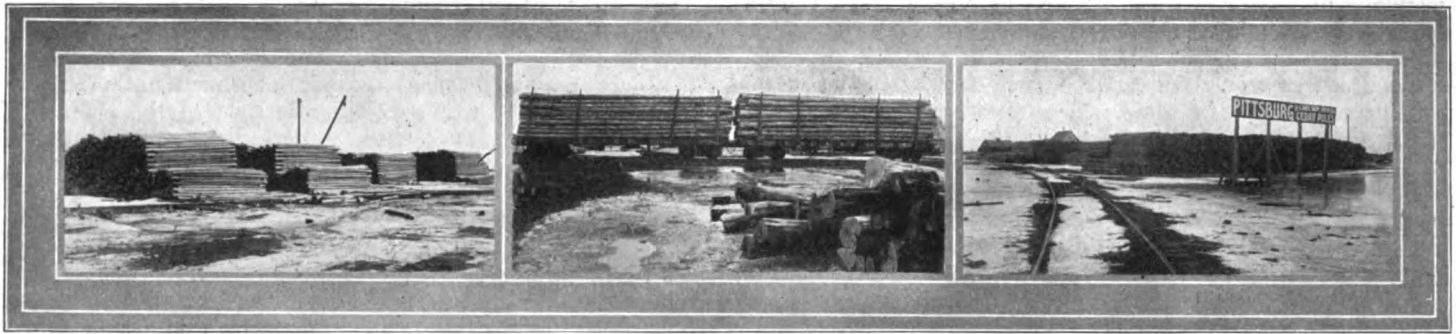


Factory Menominee Electric and Manufacturing Company Menominee.

of construction. One night some forty of the wires were cut upon this Citizens' lead. The manager of the company sought legal advice and was informed the law was with the Bell company, as it was the first in the street. It was absolutely essential to the welfare of the new company that the main lead in question should be completed, so the writer issued orders to have the wires promptly replaced, and to guard the poles during the following night. Inasmuch as the Citizens' crew numbered about 100, while that of the Bell numbered but ten, no wires were cut during said night.

switchboard\* was the first transfer board by an Independent company, and had been rushed to completion and hastily installed. In addition to other troubles natural to new operators and a new system, the lacquer work on the drops was not so thoroughly dry but that the extreme heat of July and August caused them to stick in many cases, thus greatly adding to the burdens of the new company. Mr. H. A. Douglas, now of Cedar Rapids, Iowa, had been secured as traffic manager, with Mr. Owen Freeman as his chief switchboard man. Largely through the efforts of these





Cedar Yards of the Pittsburg &amp; Lake Superior Iron Company, Escanaba.

two, and the loyalty and invaluable assistance of the few ex-Bell operators with the new company, together with the determination and untiring efforts of the new operators and other employes of the company, order was brought out of chaos, and by September the service of the local company was equal to that of the Bell. Improvement continued until by October the quality of service in most parts of the city was superior to that furnished by the old company.

The Bell exchange numbered 1,471 telephones April 1, 1896. The following October the success of the Citizens' company was so assured that nearly half the Bell subscribers ordered their telephones removed. Meanwhile the Citizens' growth was larger than could be conveniently cared for. In November the Bell company reduced its business rate to \$24, and began the giving of free service to residence users, and for two years continued this policy. During that period they kept from five to twenty solicitors in the field, and placed telephones in anyone's residence without regard to cost of construction or probable future business. This resulted in a very large increase in the number of Bell telephones, so that at the end of the two years they had about 4,500 in service in Grand Rapids. Meanwhile the Citizens' company increased the number of its telephones each month and had reached about 2,500. It had not changed its rates, as it was realized that if the company could not maintain \$30 and \$20 rates, which were necessary to meet its financial demands, it would not be able to maintain any other rates, as undoubtedly the Bell would then continue to furnish less than cost service sufficiently long to force the local company into bankruptcy. It is to the credit of the business men of Grand Rapids and to the citizens generally that they recognized that the Bell company's effort was to ruin its competitor, and that they remained loyal to the local company. The new subscribers to the Bell, in a large majority of cases, had never expected to have telephones, and the apparent seriousness of the situation at the time was in part relieved by the financial standing of some of the Bell patrons. Thus, several families supported by the poor department of the city were able to order their supplies from their homes over the Bell telephone!

At the end of the two year period of free residence service the Bell established a \$12 residence rate, resulting in

the loss of nearly one-half of its subscribers. Meanwhile the Independent exchange continued to grow, the best evidence of which is the publication of the following table, which has appeared in each of the telephone directories issued from time to time by the Citizens' Telephone Company:

Directory.	Date Issued.	Telephones in G. R. Exchange.	State Line Telephones.	Total Telephones.
First.....	June 1, 1896.....	400	None.	400
Second.....	September 1, 1896.....	1,400	951	2,411
Third.....	January 1, 1897.....	1,776	1,628	3,404
Fourth.....	May 10, 1897.....	1,919	1,848	3,767
Fifth.....	Oct. 20, 1897.....	2,074	2,028	4,102
Sixth.....	April 22, 1898.....	2,326	4,382	6,708
Seventh.....	November 1, 1898.....	2,488	5,677	8,165
Eighth.....	May 1, 1899.....	2,841	19,043	21,884
Ninth.....	November 1, 1899.....	3,064	20,000	23,064
Tenth.....	May 8, 1900.....	3,306	21,888	25,194
Eleventh.....	November 1, 1900.....	3,428	22,000	25,428
Twelfth.....	May 6, 1901.....	3,559	24,050	27,609
Thirteenth.....	January 27, 1902.....	4,121	24,155	28,276
Fourteenth.....	September 10, 1902.....	4,768	29,450	34,218
Fifteenth.....	May 9, 1903.....	5,104	33,069	38,173
Sixteenth.....	December 21, 1903.....	5,277	39,335	44,602
Seventeenth.....	July 25, 1904.....	5,633	49,658	55,291
Eighteenth.....	January 24, 1905.....	6,237	59,725	65,962
Nineteenth.....	August 2, 1905.....	6,602	60,708	67,400
Twentieth.....	March 1, 1906.....	7,449	68,557	75,006
Twenty-first.....	September 15, 1906.....	7,998	80,013	88,011
In service.....	March 26, 1907.....	8,611	82,000	90,611

During its second year the Citizens' company established an improved switchboard manufactured by the American Electric Telephone Company of Chicago, whose telephones and apparatus it was using. It had a transfer capacity of 3,200 lines, and was equipped with the Beech-Cook transfer system. Later an electric light transfer was suggested by Mr. Douglas, which when installed greatly added to the efficiency of the service.

The Bell company followed these improvements of the Citizens' company by thoroughly rebuilding its plant and installing a modern central energy, multiple system, with which the Citizens' company continued to compete until its present automatic apparatus was installed in 1904. Mr. C. E. Tarte became the traffic manager of the Citizens' company in September, 1898. To his ability and expert knowledge belongs the credit of so handling and operating the said transfer switchboard and making such changes



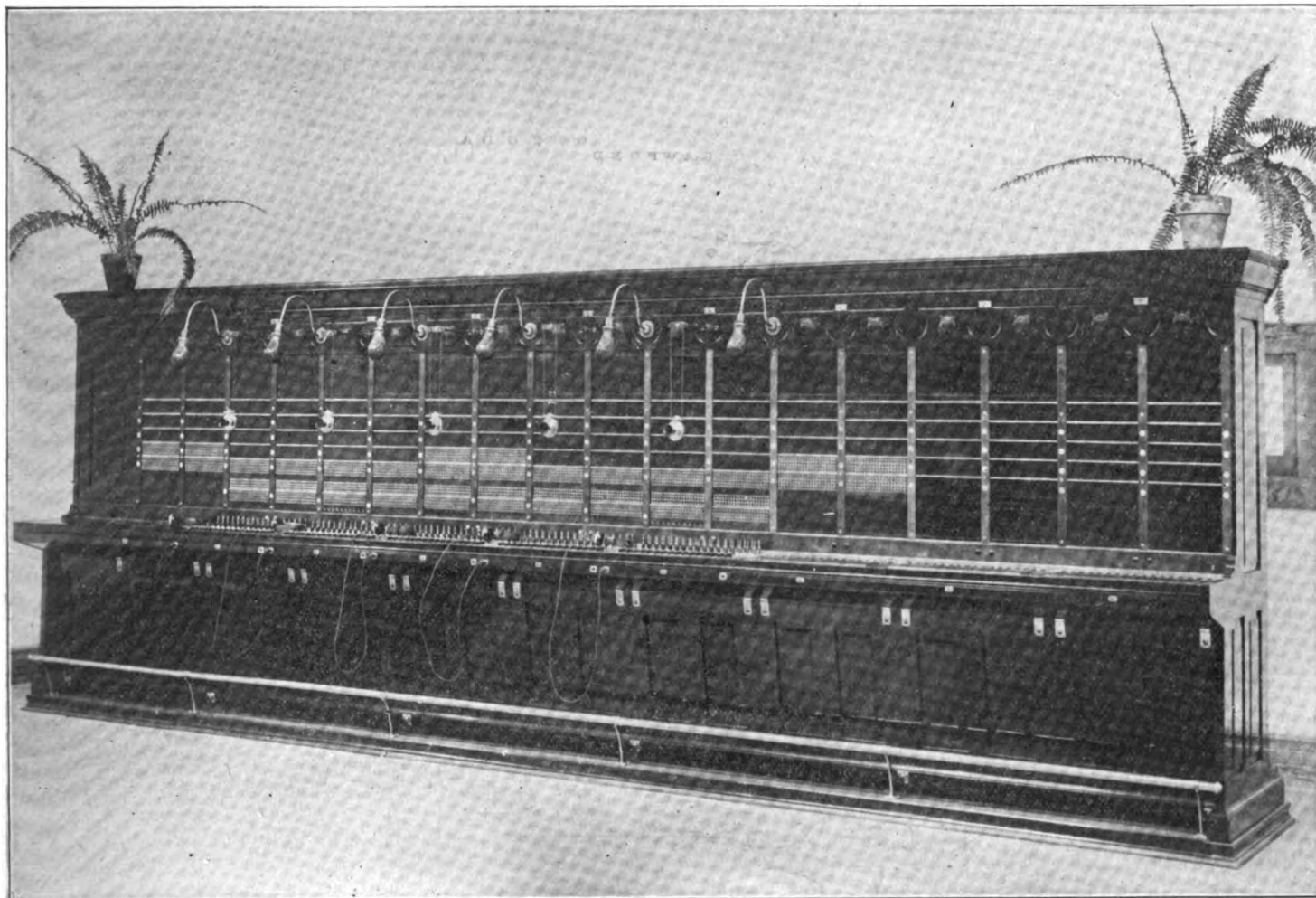
Roper Lumber and Cedar Company Yard, Menominee.

thereon as to provide service to the ever increasing list of subscribers of the Citizens' company until the number of telephones reached 5,300 on January 1, 1903—the largest number of telephones ever operated on a transfer switchboard—a number about twice as great as the Bell telephones in the city at that time.

Before proceeding with more recent history in connection with the Citizens' company, which has had unqualified success in every respect, we will consider other conditions existing in the state during the earlier days. Like other companies, it was originally expected that the Citizens' would be purely local in character. Its board of directors at first refused to consider the building of any toll lines to neighboring cities and towns. Before the Grand Rapids exchange was in working order the writer

far as possible. This in fact has been the policy of each of the Independent companies of the state, which largely accounts for the present ascendancy and the very complete development of said interests.

After operating its exchange two years, the board of directors of the Citizens' company at Grand Rapids were convinced that the toll lines were somewhat more profitable than the exchange business, and were also most valuable as strengthening and fortifying the local exchange. The Citizens' therefore purchased at approximate cost the lines to Holland and to Cadillac, together with the Holland exchange, and began the active development of other lines and the establishing of exchanges thereon. In the fall of 1898 a state or toll line was built along the Michigan Central railroad to Charlotte, and thence to Lansing, being



Switchboard of the Washtenaw Home Telephone Company, Ann Arbor, Michigan.

realized that it was necessary to have toll lines in connection therewith, and personally proceeded to construct one to the nearest neighboring exchange, being that located at Holland. This line was probably the first toll line built by the Independents in the state, being a copper metallic circuit about twenty-five miles long, on 6-inch top, 25-foot poles. It was placed in service July 4, 1896, four days after the local exchange at Grand Rapids had begun its service. The next year lines were built to Cadillac, also independent of the Citizens' company, but connecting therewith.

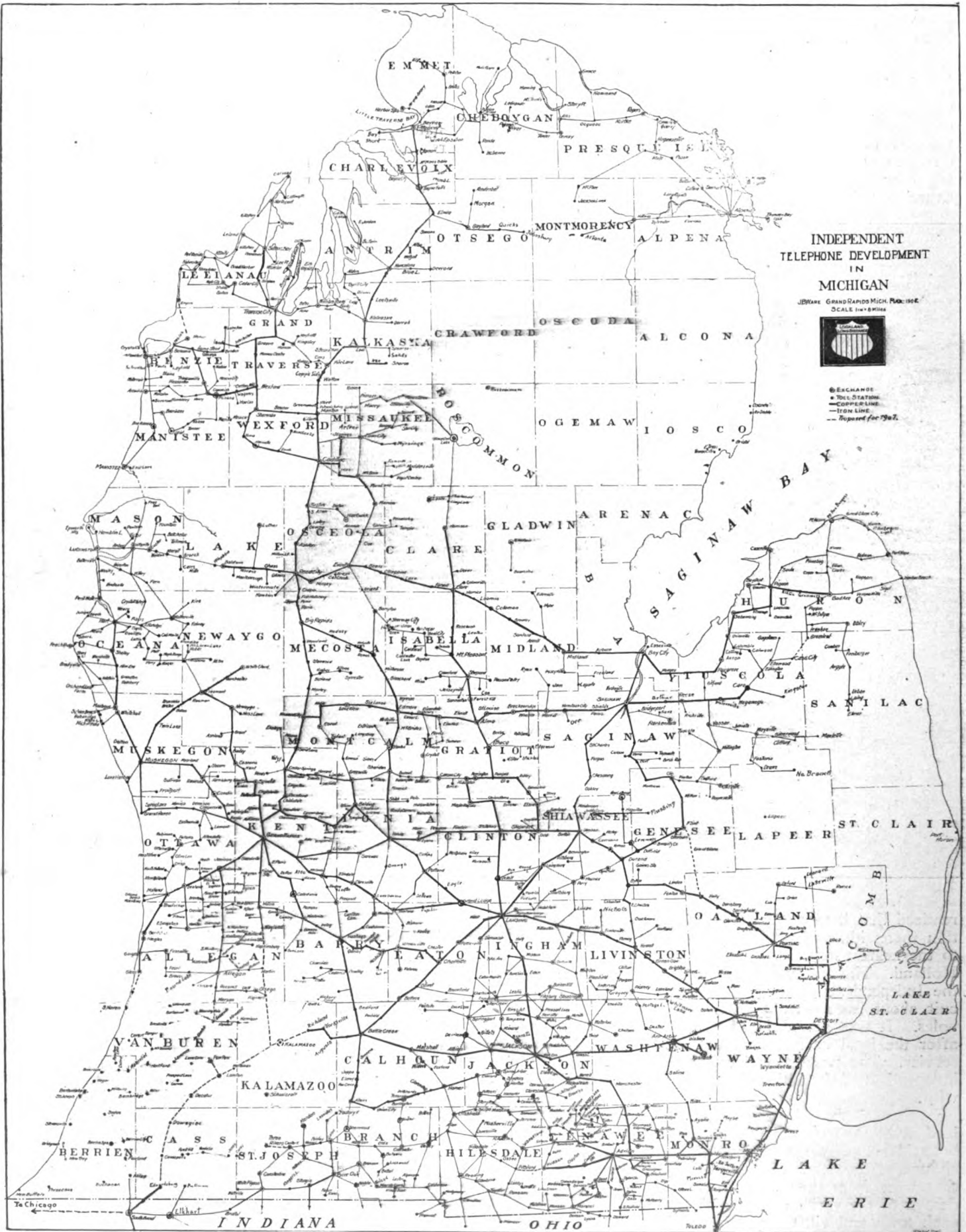
In September, 1896, a local Citizens' company was organized at Muskegon, and the next year toll lines were built by said company connecting with the Grand Rapids exchange. Along each of the toll lines mentioned, and others that were from time to time constructed, it was the endeavor of the various companies to establish toll offices in each town and village, and to develop local exchanges as

hurried by the fact that it had been learned that the Detroit companies were endeavoring to dispose of their properties to the Michigan Bell.

In 1898 was demonstrated beyond cavil that in Michigan the Independent movement was flourishing, and it was apparent to the Bell officials that radical action was necessary. The first drastic effort made on the part of the Bell was to offer service in a large number of towns at less than cost. Thus in Hastings, where there was a small Bell exchange of less than a hundred telephones, the Citizens' company prepared to build one with rates \$12 for residence and \$20 for business telephones. The Bell immediately cut its rates to \$6 for residence and \$18 for business purposes, and placed three canvassers in the field. The result was that in spite of the higher rates for residence service the Citizens' exchange was established with more than a hundred telephones, which rapidly increased, year by year, until at the present time, with a population of about 3,300, Hastings

has 680 Citizens' telephones, the Bell having but four remaining in the town. In part this large development is accounted for by the farmer telephone subscribers who have

been added to the exchange. Like results occurred at various places in the state, Lowell being one. There the Bell had made rates of \$6 for residence and \$12 for business





service and built up an exchange of 154 telephones just before competition entered. In order to get a foothold not only was Lowell itself built by the Independent company, but the farmers in each direction were furnished with telephones at reasonable rates, with the result that success crowned the Independent efforts even at the much higher

able to establish local exchanges in the towns and villages, the farmers who offered to build their own lines, according to any reasonable specification that might be prescribed, were refused connection by the Bell company upon any terms, Owing to this policy of the Bell, and the admission on the part of its officers and employes that the new rates which they made in various parts of the state were purely war measures, the people generally refused to accept the bribe offered and continued their hearty support of the local companies. This frankness on the part of the Bell officials to state that an appeal to the pocket books of telephone users would decide the issue is illustrated by a statement made by the Bell manager of the Grand Rapids exchange to two stockholders of the local company, when he said: "We expect eventually to control the telephone business. It is then merely a question of bookkeeping and interest, and you gentlemen will pay for our present losses." That this was the belief and intention on the part of the higher officials of the Bell cannot be doubted, and if the Bell should ever become again supreme in the telephone world can there



Main Exchange Building Home Telephone Company of Detroit.

rates than then being charged by the Bell, and to-day there are but five Bell telephones in Lowell, and about 400 Citizens' telephones.

In addition to the support which the public generally were giving to the various Independent companies in the state, by reason of their furnishing better and more extensive local service than the Bell, and at lower rates than



Building of the Washtenaw Home Telephone Company, Ann Arbor.

be any question but that this policy would be established, and that an endeavor would be made by high rates to recoup for past losses?

A crisis in the telephone situation of the state rapidly came to a head in 1899. The Erie Telephone Company's management of the Michigan Bell company, under President Charles J. Glidden, the self-styled "Telephone King," was spectacular, strenuous and ultimately disastrous to Bell interests in Michigan. As already indicated the Independents were active, progressive and victorious in all parts of the state. In addition to what has been herein recited, other interesting and important facts should be mentioned as influencing nearby events.

In Battle Creek, Charlotte and other places local exchanges had been built or were under way. Not only did Kalamazoo have a growing exchange of over 600 telephones, but its Central Telephone Company's toll lines extended via Battle Creek and Albion to Lansing; from Grand Rapids to Kalamazoo, Dowagiac and Niles, and covered thoroughly the Benton Harbor, South Haven, Hartford, Paw Paw district. The Adrian section, with the great state of Ohio to the south, was rapidly developing, and the result of the friendliness to and efforts of the Independent companies in behalf of the farmers was yielding a magnificent harvest in the rural companies springing up in many parts of the state and always natural allies of



Branch Exchange Home Telephone Company of Detroit.

it had formerly charged, the fact that all such local companies were endeavoring to properly care for their rural communities was of great advantage to them. The Bell had not only refused in years past to build lines to the farmers at any price, but in many instances during the years just mentioned before the Independent companies had been



the Independents and antagonistic to their old enemy, the Bell.

Perhaps as a final fact greatly bearing on the situation was the success of the Detroit companies. The New State Telephone Company had built its lines from Detroit to Toledo, to Jackson, to Lansing and Grand Rapids; to Pontiac, Flint and Saginaw, and to Port Huron; being the largest opposition toll line system in the state. Upon these it had built exchanges in Monroe, Ypsilanti, Ann Arbor, Jackson, Eaton Rapids, Grand Ledge, Ionia, Belding, Pontiac, Lapeer, Mt. Clemens and Port Huron, besides an equal number of lesser note in its territory. It was doing a fine business, paying good dividends from its profits, and owned more than 4,000 of the telephones in its system. Its associated company, the Detroit Telephone Company, had developed its exchange to more than 5,000 telephones.

Thus at the beginning of 1899 the outlook for the Bell was most threatening. Its effort to retard Independent growth by furnishing less than cost service had no effect on the movement, unless to cause increased activity. Not an Independent company had failed, and those owning sixty per cent of the telephones in the state were paying eight per cent dividends from their profits. Meanwhile the Michigan Bell had been rebuilding its plants and endeavoring to compete in the quality of its service, with the result that while expending large amounts upon construction it had not been increasing its subscriber business materially, but was rapidly decreasing its average income per telephone. Its officials apparently had become thoroughly frightened and realized the Independents were threatening the very life of the company.

It was an opportune time for any with disloyal motives to make terms with the former giant. Before the end of the year negotiations had been completed for the selling of the Detroit and New State companies to the Erie-Bell. It also was so arranged with the Kalamazoo companies. The effort made to induce the Citizens' Telephone Company to join such sale was spurned. Time and lack of space does not permit the writer at this time to enter into a recital of the most surprising and at the same time most inexcusable and traitorous transaction ever perpetrated in the state. Suffice it to say that by basest trickery, in the writer's judgment, the stockholders of the New State Company were induced in December, 1899, to vote to increase the authorized stock issue from \$800,000 to \$1,500,000, and late in January, 1900, the \$700,000 treasury stock, with enough of outstanding old issue to give a majority, was sold to the Michigan Bell Company. Thus was consummated the transaction which resulted in the ultimate loss of every dollar invested by the New State stockholders. A few days later (Feb. 2, 1900) the Kalamazoo companies were sold to the Bell, equally betraying the other Independent companies of the state, but securing to the Kalamazoo stockholders in cash dollar for dollar invested.

The telephones thus transferred to the Bell by reason of the sales named were:

The Detroit Telephone Company .....	5,200
New State Telephone Company .....	4,457
Mutual Telephone Company, Kalamazoo .....	819
Central Telephone Company, Kalamazoo .....	413

Total telephones .....

There remained less than 30,000 Independent telephones in the state in 1900.

Following the sales of the above to the Bell, the state association held its annual meeting in Battle Creek on February 14, 1900, at which Judge J. M. Thomas, of Cleveland, president of the United States Telephone Company (Ohio), was present. He proposed that his company would extend their long-distance lines into Michigan as soon as the Independent companies entered into a state compact insuring permanency. Under authority then given by the association the writer arranged a contract with Mr. H. D.

Critchfield, attorney for the United States company, which contract drawn for a twenty-five-year period, was signed by the said United States Telephone Company, and by Michigan companies owning over 70 per cent of the telephones then in the state. The United States telephone lines were built as promised, being the line from Toledo to Jackson, Lansing and Saginaw, as shown upon the map of the Michigan toll lines published as a part of this article.

Perhaps the value of a state and national association is nowhere better shown than in connection with the incident just related.

As representing the largest operating company in the state the writer issued the first call for a convention of the Independent companies, which was held in Detroit, June 21, 1897. Here was organized the Michigan Independent Telephone Association, with the following officers: J. B. Ware, president, Grand Rapids; W. L. Holmes, vice-president, Detroit; J. E. Davidson, second vice-president, Bay City; G. W. Finch, third vice-president, Escanaba; Alex. J. McLeod, secretary, Detroit; J. H. Fildew, treasurer, St. Johns.

The executive committee was composed of the president, secretary, treasurer, and J. Williams, Jr., Adrian; S. G. Higgins, Saginaw; F. B. Johnson, Lansing; Hugh Park, Muskegon; Geo. A. Weed, Lake Odessa; E. H. Parker, Detroit.

Annual meetings have been held in Grand Rapids, 1898; Lansing, 1899; Battle Creek, 1900; Lansing, 1901; Detroit, 1902; Jackson, 1903; Grand Rapids, 1904; Lansing, 1905; Ann Arbor, 1906; Coldwater, 1907.

The present officers of the association are: E. B. Fisher, president, Grand Rapids; A. C. Himebaugh, treasurer, Burr Oak; W. S. Vivian, secretary, Grand Rapids. Two strong and successful organizations are auxiliary to the state association, being the Michigan Independent Traffic Association, with C. E. Tarte president, and the Michigan Telephone Managers Association, with F. V. Newman president.

The National Independent Telephone Association of the United States of America was organized June 23, 1897, the meeting being held in Detroit; Judge J. M. Thomas being elected first president, in which capacity he served for seven years with great honor to himself and of inestimable advantage to the Independent movement.

Michigan has heartily supported the National association from its birth. Hon. E. B. Fisher, Grand Rapids, was chosen its first member of the advisory board, and served in that capacity until the association was merged into the present International Independent Telephone Association, in which Mr. Fisher is the state association's official representative. The state has had but one office in the National association, being the secretaryship in 1902-3, held by the writer.

From necessity much that the writer would like to include is omitted as to the events and data bringing this historical sketch down to 1907—the present.

The first building, exclusively for an Independent telephone exchange in Michigan, was erected in 1903, in Grand Rapids, by the Citizens' company (82 x 146), and equipped with an ultimate capacity of 19,000 lines.

The apparatus of the Automatic Electric Company, Chicago, was installed, service being commenced on January 9, 1904. It was necessary to increase the exchange rates to the maximum allowed by the franchise, being \$24 for residence and \$36 for business telephones, and on March 15, 1904, the subscribers of the company were notified of the change in rates to be made on April 1 following. It seemed very remarkable that while this change increased the revenue of the company over \$25,000, not one protest was received by the company or any newspaper, and that while the number of telephones lost in April was fifty-two, the number of new subscribers that month was sixty-four, thus leaving the company with twelve more telephones at the end of the month than before the increased rates were

made. Three months after the change in rates the net increase to the company was 113 telephones. The increase for the year was 1,028 telephones. The following year the increase was 1,126 and the last year (1906) the increase was 1,146. At the time that the Citizens' Telephone Company made the change in rates the Bell increased its service charges six dollars per year (to \$18 and \$30), and has since maintained its rates six dollars less per year than those of the Citizens' company. At this date (March 20, 1907) the Bell has about 3,500 telephones in Grand Rapids and the Citizens' 8,549. In its system the Citizens' company owns over 27,000 telephones, with over 3,700 miles of metallic circuits for long-distance purposes. It has no bonds out and has paid eight per cent dividends on its stock



This map without the bars, was issued by the Erie-Bell in May, 1900, shortly after its purchase of the Detroit companies. Mr. Ware promptly corrected and republished the map, as above reproduced, with this signed statement,—“The lines crossed out by bars are not built—the Michigan Telephone Company has no wires or poles there now (June, 1900), nor has it ever had.”

for over nine years in 38 two per cent consecutive quarterly cash dividends.

Among those to whom large credit is due for the remarkable and continued success of the Citizens' Telephone Company is its present general manager, Mr. C. E. Tarte. Because of his very able and thorough handling of the company's electrical interests, its service is admitted to be unsurpassed, and by its Grand Rapids patrons believed to be unequalled.

The Union Telephone Company, Alma, has 7,000 telephones. It has paid eight per cent dividends for eight years past, which is likewise true of the Muskegon and Adrian companies.

When the Union Company of Alma had been organized, through the personal efforts of Mr. C. O. Trask, and incorporated on March 22, 1899, absorbing the Gratiot County Telephone Company and the Montcalm County Telephone Company, it very rapidly spread over the middle portion of the state north of Lansing with Alma as the center. The Valley Telephone Company, incorporated April 23, 1897, had made great headway in Bay City, Saginaw and Flint, and had later spread over the entire northern portion of the “Thumb.” Its activity and success was largely due to its general manager, Mr. R. F. Johnson, of Saginaw.

The Saginaw Valley Telephone Company has 5,300 telephones. It has recently been granted a new franchise in Saginaw, fair to company and city, and \$100,000 new capital provided for rebuilding and extensions.

The Livingston Home Telephone Company, Howell, was incorporated September 17, 1901. It has developed most of the territory between Lansing and Detroit, including the excellent long distance copper circuit lines. Its president, Mr. R. B. McPherson, has not only been its leading factor and supervisor, but he has been one of the most active and influential telephone men of the state, and much of the present most excellent and promising conditions in eastern Michigan is due to his efforts and personality.

There are over 150 Independent companies in the state, operating about 100,000 telephones, of which about half are owned by six of the largest companies. Over 12,000 stockholders, citizens of Michigan, own these companies, among which have been no financial failures, and whose outlook is exceedingly bright.

It is impossible in this article to give the history of the financial failure of the Michigan Telephone Company (Bell), by which its property was sold under a foreclosure decree upon its \$5,000,000 mortgage, in December, 1903. At that time the American Telephone & Telegraph Company had \$3,687,300 of the Michigan Bell stock—the control—the balance of \$1,312,700 being owned by 743 individuals who never realized one dollar upon their holdings.

The old company was succeeded by the Michigan State Telephone Company, with heavier capitalization than had its predecessor. The new company is a Bell licensee, and the control of the stock lies outside the state. In Michigan reside but 76 of its 855 stockholders, and but 2 78-100 per cent of its stock is held in the state.

These figures are based upon the company's annual report filed in January, 1906, with the secretary of state, Lansing, as provided by law, which shows the stock held in the state is distributed as follows:

	Holders.	Shares.
In Detroit.....	26	1,529
Grand Rapids .....	10	426
Manistee .....	2	146
Upper Peninsula .....	6	90
Twenty-nine other places ....	32	111
Total .....	76	2,302

The total shares outstanding are 82,850; each, \$100.

Thus, whatever controversy exists in the telephone field in Michigan is between the interests of the Independent companies owned by many citizens of the state on one side, and on the other the Bell licensee company with over ninety-seven per cent of its stock owned outside the state. In the judgment of the writer the Independent interests have very much the advantage at the present time, with the indications for the future all favorable to them.

Owing to the unfortunate experiences of the city of Detroit in telephone matters, more than ordinary interest in the state and the country at large centers upon the present development of that city by the Home Telephone Company, with Mr. W. B. Woodbury as general manager. In order that special attention might be given to this interest, the writer has left for TELEPHONY the treatment of the present situation in Detroit, which follows:

The Detroit situation is attracting a great deal of attention, not only in Michigan, but in the country at large, owing to the fact that Independent telephony has had several rather unfortunate experiences in the City of the Straits.

The Home Telephone Company of Detroit, the latest entry in the field, is the fourth corporation to offer competition to the Michigan State Telephone Company, which is the Bell licensee. The Home Telephone Company of Detroit is amply backed by St. Louis, Detroit and eastern capital, and has the amount of money necessary

to build the plant, something over \$3,000,000, actually in bank, and ready to be put into the work as it progresses. The Home Telephone Company is being financed as an investment and not as a promotion scheme.

The most conservative ideas have ruled throughout in laying the foundation of the financial plan. The bonds carry a sinking fund provision of approximately two and one-half per cent of the gross. This sum is to be deposited with the trustee and to be used for the purchase of securities of the company. In addition to this reserve for bonds there is also a further cash reserve provided of five per cent of the gross earnings. This reserve is to be an actual cash reserve. There are very few telephone companies in the country, either Bell or Independent, that have this cash reserve provision—in fact the Keystone Telephone Company of Philadelphia, which has a cash reserve of \$3.50 per telephone, and the Chicago Bell, which maintains a cash reserve of approximately \$2.28 per telephone, are the only telephone companies in the country which absolutely maintain intact a cash reserve. The trustee of the bonds of the Home Telephone Company is the Commonwealth Trust Company of St. Louis, one of the strongest financial institutions of the west, and the members of the underwriting syndicate include men of such financial standing as Edward F. Goltra, Adolph Busch, Edward A. Faust, Henry Koehler, Jr., Hugo A. Koehler, C. Marquard Forster, Arthur W. Lamber, Thomas H. Wagner, Joseph Glaser, A. H. Bauer, Ben Alheimer, Herman C. Stiefel, Henry Nicolaus, Peter J. Doerr and many others who are recognized captains of finance.

Interested in the long distance development (for which a \$15,000,000 company, known as the Interstate Long Distance Telephone Company was recently organized with \$10,000,000 preferred stock and \$5,000,000 common stock, are some of the best known men in the city of Detroit, including William T. Barbour, president of the Detroit Stove Works; F. T. Moran, capitalist; Henry C. Potter, Jr., and George E. Lawson, vice-presidents of the People's State Bank, the strongest bank in Michigan, and John M. Dwyer, president of the Peninsular Stove Company. These gentlemen are not only interested in the company which proposes the long distance development, but are also directors of the Home Telephone Company of Detroit.

The construction work of the Home Telephone Company of Detroit is being done by the Electric Construction Company of St. Louis, Missouri, the officers of which are Max Koehler, president; W. B. Woodbury, general manager; B. H. Brooks, chief engineer. The work is being done by the construction company without any cash profit. This is a notable departure from the usual procedure in such cases. The fact that this plant is being built under the plans and specifications of Mr. Charles H. Ledlie, the eminent consulting engineer, is a sufficient guarantee as to quality. Owing to climatic conditions, and the great number of trees, Mr. Ledlie recommended that practically all of the area bounded by the boulevards and the river, with the exception of a small piece of the northwest and northeast corners, be underground work and connecting each one of the sub-exchanges with the main exchange through subway. The distribution system will be made in this area either by direct laterals to buildings or by block alley aerial distribution. This subway will contain approximately 3,000,000 duct feet and will be amply large for 30,000 telephones. Detroit will have the largest telephone subway system in the world.

While the first cost will be excessive at the same time the cost of maintenance will be reduced and experience has shown that the reduction of cost of maintenance on subway over aerial work will more than pay the difference of the interest, etc., on the cost of the subway, and then, too, subway construction insures more positive service to subscribers.

The central exchange district, which is practically the area bounded by the boulevards and the river, is rapidly nearing completion. About 6,000 poles have been set in this district, including terminal poles, and the greater part of the subway has been completed.

The central exchange building at the northwest corner of John R and Madison streets, which occupies a most commanding position, is about one-third done, and as soon as the weather becomes more favorable will be pushed rapidly to completion. The structure represents the very best thought and experience of years in the construction of telephone exchanges. In preparing the plans the architects, Messrs. Stratton & Baldwin, consulted with telephone experts in nearly all of the large cities in the country, and also had the constant advice of Mr. Ledlie.

The location of the building being in a most desirable neighborhood it was thought best to abandon the idea of installing an independent heating and power plant for the new building, and to contract for heat and power with the local heating and power companies, so no heating or power plant will go into the new building, and consequently the smoke nuisance will be abated. The building is 100 x 105 feet. The exterior is to be finished with terra cotta up to the sills of the second story and to have granite about the main entrance. The second and third stories will be finished on the outside with red pressed brick, and the entire building will be capped with a heavy ornamental terra cotta cornice. The first story will accommodate the general manager's office and the various staff employes in the construction and accounting departments, also a directors' room and a large and well lighted room for the draughting and engineering departments.

The public will enter through a vestibule which is finished with ornamental terra cotta walls and ceiling, with a granite flight of steps. The vestibule will open into a public lobby with marble floors and wainscoting, and about this lobby the various business offices will be arranged. From the center of this lobby a grand staircase leads to the third story. It is constructed of marble and will have rubber tiling on treads and landings, silence being one of the principal results to be obtained. Opening from the main hall in the second story will be commodious rooms designed for the comfort of the many telephone switchboard operators. These rooms are arranged en suite and consist of a large lounging room, dining room and kitchen, locker room and toilet room. The latter, on this floor, as well as the others throughout the building, are equipped with the highest class of plumbing. On the second floor provision has been made also for the long distance operating room, terminal room and battery room. The interesting feature of the third floor lies in the fact that it has been entirely given up to the main exchange switchboard operating room, and it is designed to have a lofty ceiling, over twenty-five feet in height, entirely carried by trusses, thus keeping the operating floor space free from posts or columns. The room is well lighted with windows about the four sides and is provided with a mechanical fan exhaust system for heating and ventilating. The vacuum system of cleaning will also be installed for the cleaning of the switchboards and for the cleaning of the building generally.

The switchboard apparatus is being constructed by the Dean Electric Company, of Elyria, Ohio, of which W. W. Dean is vice-president and chief engineer. The central exchange switchboard has 15,000 line capacity, bridge multiple lamp line signal, central energy, consisting of twenty-seven "A" sections of three operators' positions each, and one end section equipped for the immediate operation of eight thousand subscribers' lines with three hundred and eighty outgoing trunks; also seven "B" sections of two operators' positions each, equipped for the immediate opera-

tion of three hundred and fifty-one incoming trunks and the necessary lines and trunks to the desk.

The protectors for Detroit are being manufactured by the American Electric Fuse Company of Muskegon. This will be the largest installation of protectors ever made in the Independent field.

The west exchange, which is located at the corner of Lafayette and Dragoon streets, will have a switchboard of 7,200 lines ultimate capacity, consisting of six sections of three operators' positions each, and one end section equipped for the immediate operation of eight hundred subscribers' lines, two hundred and forty outgoing trunk lines, two hundred and forty-three incoming trunk lines and the necessary lines and trunks to the desks.

The north exchange, which is located at John R. and Bethune streets, will have 7,200 line ultimate capacity, consisting of twelve sections of three operators' positions each, and one end section equipped for the immediate operation of twenty-four hundred subscribers' lines, two hundred and forty outgoing trunk lines, two hundred and forty-three incoming trunk lines, and the necessary lines and trunks to the desks.

The east exchange, which is located at the corner of Sylvester and Field streets, will have 7,200 line ultimate capacity, consisting of eight sections of three operators' positions each, and one end section equipped for the immediate operation of 1,300 subscribers' lines, two hundred and forty outgoing trunks and two hundred and forty-three incoming trunks. It will serve the eastern section of the city.

These four exchange buildings are about two-thirds completed, and the work of their construction is progressing at a very satisfactory rate. As they are all similar an illustration is shown of one only.

The work of installing the switchboards will commence between the fifteenth of May and the first of June. The company expects to be occupying its new building by the first of June.

The engineering work for the Home Telephone Company and for the Interstate Long Distance Company is being handled by Mr. B. H. Brooks, chief engineer, who is also general superintendent of the two companies. Mr. Brooks is an engineer of wide experience, and is bringing to the Detroit plant the very best thought and experience in his chosen field.

Mr. W. W. Grayson is the auditor of both companies, and also the representative of the Commonwealth Trust Company on the ground.

Mr. Joseph Lillich of St. Louis is the representative of Mr. Ledlie, the consulting engineer.

Mr. Charles H. Hood, of Detroit, who has had wide experience in the development of telephone properties, is the contract agent of the Home company, as well as of the Interstate company, and has exclusive charge of the development. Under Mr. Hood's able direction the company has already nearly 11,000 contracts, every one of which has been verified by him and by personal visit and inspection.

Mr. W. H. Woodbury, of Columbus and Cleveland, is vice-president and general manager of both the Home Telephone Company and Interstate Long Distance Telephone Company. He is a man of wide experience and will be heard from in the future telephone history of Michigan.

The fight in Detroit has been a spectacular one from the very start. The canvass was actively instituted about the first day of April, 1906, and has continued with unabated industry to the present time.

The unfortunate experiences of the past which the people of Detroit have undergone had a tendency to make contracts come harder in the beginning. The people, while ready to welcome the proper kind of competition, were not absolutely certain in their own minds that the new company meant business, there had been so many instances of competition starting, obtaining a good foothold and then selling

out to the Bell, the Bell afterward following the usual tactics made and provided in such cases.

It was not until the Home Telephone Company had shown the people that it intended to build the most modern telephone plant in America and that money was no object where its value was received in quality that the people began to have confidence in the proposition. This confidence has been steadily growing until to-day the people of Detroit believe that the Home Telephone Company is an honest, conservative, well-managed investment seeking proposition.

The Interstate Long-Distance Telephone Company of Detroit, the long-distance end of the Home Telephone Company, proposes spending about \$1,500,000 this year in the development of the long-distance situation in Michigan.

The first estimate contemplates four heavy trunk lines and one spur line. The trunk lines will radiate from Detroit to Toledo where the lines of the United States Telephone Company are tapped and messages transmitted into Ohio, Indiana, Pennsylvania, New York, West Virginia, Kentucky and other states; from Detroit to Jackson, where connection is made with the lines of the Citizens' company to Grand Rapids, and through them connection is made at Lawton, Michigan, with the South Bend company for Chicago connections; from Detroit to Lansing, the capital of the state, where connections are made with the Grand Rapids system, to its 78 exchanges, and some 30,000 telephones, and the other systems that lie to the north, west and east of them; from Detroit to Holly, where the lines of the Saginaw and Bay City companies with the other development in the thumb of Michigan are tapped, and also where the connection is made with the large and flourishing system of the Union Telephone Company at Alma, Owosso and other points and the spur line running from Detroit to Port Huron tapping Mt. Clemens, Port Huron and other points where only the Bell have exchanges at the present time, and where a strong and powerful Independent movement will soon be inaugurated.

#### TELEPHONES ON THE BURLINGTON.

The Chicago, Burlington & Quincy Railroad has nearly completed a telephone system of its own along the St. Paul division. Telephone wires are being strung on the telegraph poles, and it is expected the new service will largely contribute to the safe operation of trains. Every station along the line will be provided with a telephone by which the agent may communicate only with the station nearest him in each direction. When a train leaves a station the agent will telephone the stations on either side of him notifying the agents of the fact. By this means a block system of running the trains will be made possible—that is two trains will not be allowed to be running between any two adjoining stations at the same time. The telegraph lines are so busy with long distance work that it is impossible for local operators to get the wires.

#### TELEPHONES FOR THE INDIANS.

An extensive telephone system is to be installed on the Cheyenne River Indian reservation. Heretofore the government officers in charge of the various Indian sections of South Dakota have had difficulty in communicating with remote points on the reservations, having to depend upon couriers in conveying orders to the various substations and in receiving reports from the subordinate officials stationed at various points on the reservations. Now an up-to-date telephone system is to be built. The proposed new lines will aggregate about one hundred and thirty miles in length and will connect the United States Indian agent in charge of the reservation with the three substations on the reservation and all the Indian schools. The work of constructing the line will commence soon.



# THE WIRE CHIEF'S DESK EQUIPMENT

*A General Discussion of the Testing Appliances and Arrangements Required by the Wire Chief of a Modern Exchange*

By H. P. Clausen

**B**EFORE entering into a general discussion of the different testing equipments which should form a part of every well-designed wire chief desk, let us discuss the question of the wire chief's working place.

First, as a rule, most engineers favor placing a wire chief's desk in such a position that ready access may be had to the protector—or, what is commonly named, the switchboard side—of the main cross-connecting frame. for, upon receipt of any ordinary trouble report, the first act on the wire chief's part would be to insert the test plug

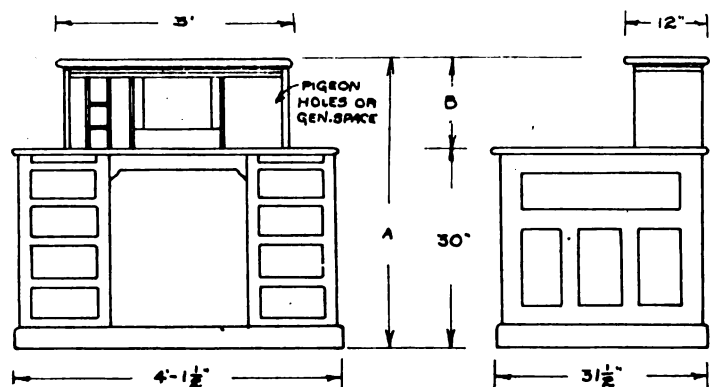


Figure 1—Single Position Wire Chief Desk.

into the protector spring so as to permit of testing for the trouble and thus immediately determine whether it is "in" or "out." Therefore, the desk should be placed so that the protector side of the main frame is readily accessible. As a second consideration, we have the location of the power equipment. As a rule the average common battery exchange is so laid out that whenever one works at the power board, particularly at the motor starting panel, he is enabled to observe the operation of the machinery, and if we then consider that the fuse board is generally located beside the charging and discharging panels of the power plant, it is easy to see that the logical location of the wire chief desk would be somewhere within easy walking distance of the power and fuse board equipment.

Granting that this relative arrangement between the wire chief desk, the protector rack and the power equipment is acceptable, we need pay no particular attention to the location of the intermediate cross-connecting board or relay rack. One point, however, may be added, namely, with the switchboard located, say, on a floor immediately over the terminal room, the wire chief desk should be somewhere near the stairway leading to the exchange room; and with a switchboard on the same floor with the terminal apparatus, it is an obvious advantage to have the wire chief desk located reasonably close to the "rear of the switchboard" entrance to the exchange room.

However, in locating the desk, due consideration should be given to the fact that numerous tests which are made by a wire chief call for comparatively quiet surroundings, and that easy access to the power plant may be sacrificed as a first consideration in designating the location of the wire chief desk. With regard to the construction of the desk, local conditions, of course, determine the general dimensions. For small exchanges, however, the single position desk is best adapted for general purposes.

Figure 1 shows a general outline of such a desk. In

case an exchange calls for wire chief's equipment consisting of more than one position, Figure 2 may be adopted, this being practically a desk similar to that shown in Figure 1, extended in length and provided with two operators' positions.

It will be observed that both of the desks shown are of the low table type. In the past year, however, more experience has been gained in providing the most suitably arranged desk for the use of a wire chief.

Figure 3 shows one of the types which the writer believes has many points of superiority over the low type top. It will be observed that the key board of the standing type desk is about forty-four inches high, the slanting portion of the keyboard being slightly lower. This desk, then, is of a height which permits a person to stand before it and make the different test combinations. Of course, when a wire chief is located at a desk and remains there for hours at a time, there is no question but that the low top table would be preferable, but as in most exchanges the wire chief is required to do his own setting up of test clips, opening of fuses, etc., it then becomes quite tiresome to be required to sit on a low chair and arise again every time a test is made. With the standing type desk chairs can, of course, be provided, but for rapid work the wire chief will simply set up the testing clips, say, on the protector rack, and upon returning to the desk, he is not required to sit down nor lean over in order to make the required key combinations for a particular test, but may make the test while standing up and return to set up another connection without seating himself. It is thought, therefore, that in the medium size exchanges the desk shown by Figure 3 will prove to be the most acceptable one.

In order to place the testing requirements of the wire chief desk before us in an easily understood manner it may be well to analyze the different divisions of the work.

First. The wire chief must be able to test a line circuit from the protector rack towards the switchboard and towards the outside line. Further, he must be able to reach

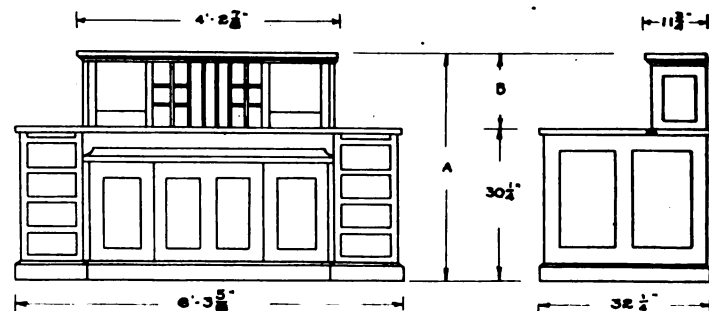


Figure 2—Two Position Wire Chief Desk.

the protector rack from the switchboard end, and, as a rule, provisions should be made for testing from the first section to the last section of the switchboard, and between these two points to the switchboard side of the protector rack. Again, aside from providing means which will be described later on for making these different inside and outside tests, the desk is generally provided with means for permitting any subscriber's circuit to be supervised either for the purpose of discovering intermittent faults, observing traffic, or holding lines which are being equipped or repaired.

The test equipment called for in the average desk consists of a voltmeter provided with at least one low reading scale, and another scale graduated from 0 to 150 volts, and sometimes a third scale is added reading up to 600 volts. Recently, owing to the increased number of long distance lines terminating in most exchanges, the wire chief is provided with a suitable type of Wheatstone bridge with which he may make accurate resistance measurements and which is provided with ready means for permitting the application of such tests as the Murray or Varley loop. Some engineers also favor the installation of the milli-ammeter, although the uses of this instrument are of questionable value.

In designing the circuit requirements of a wire chief desk, we will first consider the most important one, namely, the four conductor test trunk from the wire chief desk to the terminal room. Such an arrangement is shown by Figure 4 and consists of two jacks terminating on the main frame and so arranged that through an auxiliary plug, connection may be made between any subscriber's line circuit and the wire chief's desk. Assuming, for example, that such a connection has been set up, the subscriber's line terminates on the wire chief desk in a jack marked "test out," and it will further be observed that the line relay and lamp signal are so connected to the "test out" trunk that

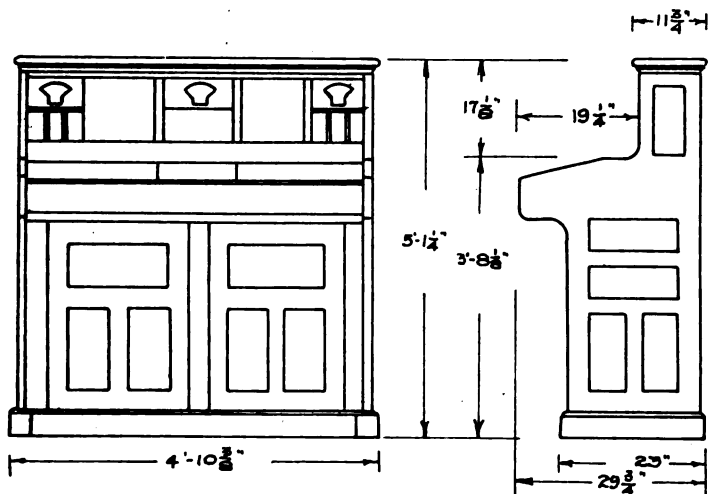


Figure 3—Standing Type Wire Chief Desk.

should the subscriber remove his receiver from the hook switch, battery would flow over the line circuit through the line signal relay and light the line lamp on the wire chief desk.

It is understood, of course, that whenever a line has been plugged up at the protector rack, the subscriber's line is no longer connected with the main switchboard. Any call extended from his station will terminate in a signal on the wire chief desk.

Now, with regard to the switchboard side of the circuit: This, it will be observed, terminates from the terminal room into the "test in" jack, and this jack is provided with circuit connections which will produce a signal on the wire chief desk should the main operator ring over the plugged up subscriber's line. So, then, as we have the circuit arranged, whenever a given line has been plugged up towards the wire chief's desk, the line is severed so far as direct service between the main switchboard and the subscriber is concerned, but the wire chief will get the signal from either the switchboard or the subscriber whenever a call is projected.

Now, let us assume that owing to being in trouble a line has been plugged up on the wire chief desk and that a subscriber calls for central. The wire chief will answer the call, and if he sees fit will connect together the "test in" and "test out" jack by means of a cord circuit such as is shown by Figure 5. It will further be observed that the

moment the Figure 5 cord circuit has been used for extending through a connection between the subscriber's line and the switchboard circuit, the signal is immediately recorded on the main switchboard, and that means is provided for the wire chief to observe the operation of the circuit through a proper manipulation of the operator's set cutting-in key which forms a part of the Figure 5 cord circuit.

Referring now to Figure 6, this shows a wire chief uni-

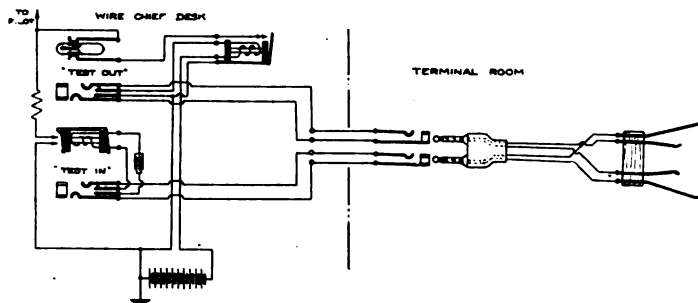


Figure 4—Trunk Circuit To Terminal Room.

versal test circuit. It terminates in a jack at one end and a plug at the other. This test circuit contains an equipment of keys, impedance coils, a relay and a signal lamp with which any of the following tests may be made without any special apparatus, and by simply plugging into the jacks shown by Figure 4. It may be added that whenever the universal test circuit is installed in a desk, it should be furnished in duplicate, and, better still, four such testing circuits may be used to good advantage with each wire chief's position equipment.

Referring to Figure 6, say that the test plug has been inserted into a "test out" jack shown by Figure 4, and that this circuit has been connected to a subscriber's line in a manner already described. First, it will be observed that the tip circuit of this test plug extends throughout the series of keys and finally terminates in the tip of the spring jack. It also will be observed that the sleeve of the test plug makes a direct connection through to the sleeve of the test jack. With such a connection set up, the following combinations may be executed:

By throwing key *J* a howler current may be projected over the subscriber's line. By throwing key *H* generator current of any required character may be projected over the line circuit, and by throwing key *G* the telephone circuit may be connected to the subscriber's line. If the sub-station is of a common battery type, key *F* may be thrown while throwing key *G*, and thus permit a communication with the party operating the common battery telephone;

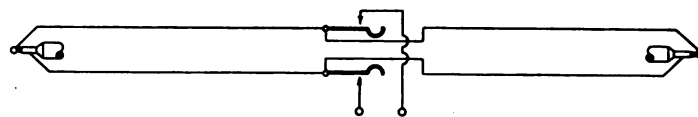


Figure 5—Special Cord Circuit.

and in case it becomes necessary to test the line for insulation and other purposes, key *A* is thrown. This operation, it will be observed, connects the plug circuit direct to the test bus bars, and, as will be explained later, these test bars connect to suitable testing apparatus.

We have, however, not yet exhausted the uses of the universal test circuit. For instance, an inspector has been sent out over a line for clearing a cross. Ordinarily a cross would produce a continuous signal with the usual loss of current. In order to provide against this permanent burning of the signal when the test trunk is connected to a crossed line, it is only necessary to manipulate the *E*, *D*, and *B* keys. This will result in the armature of the relay being drawn up and of placing the signal lamp on the back contact of the relay, which produces a condition of no signal until the cross is removed from the line. The moment

this is done the relay armature is released, and in falling back, places current on signal lamp, and in this manner attracts the attention of the wire chief, who has been waiting, in this instance, for an "open" to come in. Now, say the line in trouble shows an "open." In this case, the wire chief would wait for a "cross", to come in, and set his keys accordingly, by manipulating the *E* and *D* keys, which operation places battery on the line through the relay and leaves the signal lamp on the front contact of the

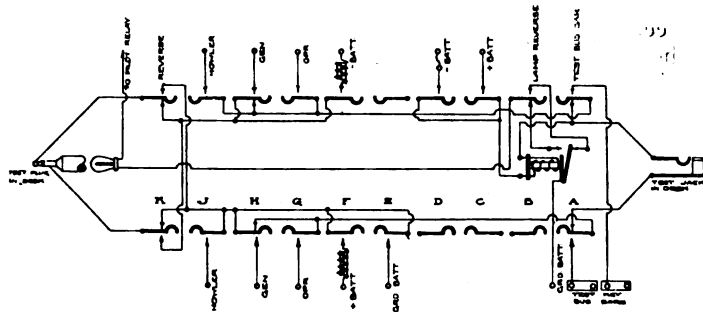


Figure 6—Wire Chief Universal Test Circuit.

relay, so that whenever the line is closed the armature of the relay, being drawn up, lights the signal lamp and gives the required call for attention.

It will further be observed that with this test trunk it is possible to check foreign currents. For instance, one of the line wires has become crossed with an outside source of current. Under these conditions it will only be necessary to manipulate either *D* or *C* key in addition to setting the *B* key, so that when the foreign current is removed the signal lamp will light up owing to the armature of the relay being released. It will also be noted that with several of these trunk circuit at his disposal the wire chief will be able to plug up several outside lines and by means of cord circuits such as is shown in Figure 5 plug the lines together over the test jacks, and can thus connect together two common battery telephones for conversational purposes by a proper manipulation of the switching keys, and is also enabled to supervise the connection by cutting his operator's telephone circuit across the cord connection.

As already stated, this article is not prepared for the purpose of showing how to make calculations for the results obtained while making tests, but rather a discussion of the general requirements of a wire chief desk. Therefore, the writer will conclude with a brief reference to the voltmeter, ammeter and bridge test circuits.

Figure 7 shows a two scale voltmeter complete with an

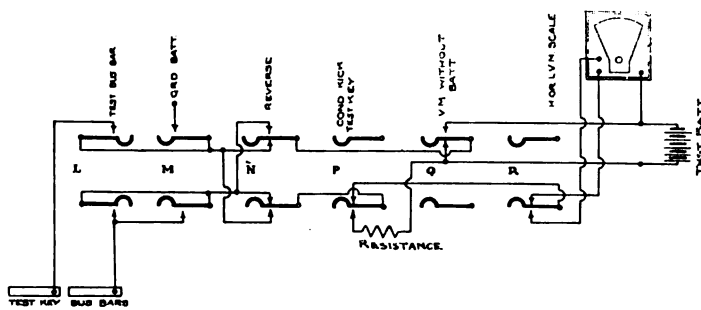


Figure 7—Volt Meter Test Circuit.

equipment of batteries and the necessary switching keys. It will also be observed that the test key bus bars are shown which were referred to in connection with Figure 6. In other words, while the test plug of Figure 6 is in line jack and key *A* is thrown over, then in order to connect the voltmeter to the test circuit, Key *L* of Figure 7 is thrown over. When this has been done, it will be observed that one scale of the voltmeter is connected direct to one of the bus bars, and that the test battery connects to the remaining bus bar. In this manner we have then provided for a metallic test with voltmeter and batteries

connected in series. We may select the remaining scale of the voltmeter by operating key *R* or if we desire to make a test without battery, key *Q* is thrown over. This disconnects the battery and connects the voltmeter direct to the bus bar. Obviously, key *R* may now be operated and either the low or high scale connected to the test bars, and with the same circuit, we may reverse key *K*, Figure 6, and take a reversed line reading. Again restoring the voltmeter keys to normal, we may by operating the *M* key ground one side of the test battery and take a reading from this grounded test battery through the voltmeter to either the tip or sleeve sides of the line circuit, depending on the position of the key *K*, in Figure 6. Obviously, if we desire to place the negative side of the battery to earth while making this test, it can be done by operating the *N* key, in addition to operating the *M* key.

There is one more test which is of considerable importance, namely, when *Q* has been thrown, say for connecting voltmeter direct to the line, then key *P* may be thrown, and through it, by placing battery on the line, charge whatever apparatus on the line circuit may be susceptible of a charge, and, upon allowing the key to return, a discharge will be obtained from the line through the voltmeter. Obviously, whatever type of voltmeter is used will determine the relative connections of the circuits.

Figure 8 shows the ammeter and the Wheatstone bridge connections. We have the test key bus bars so arranged

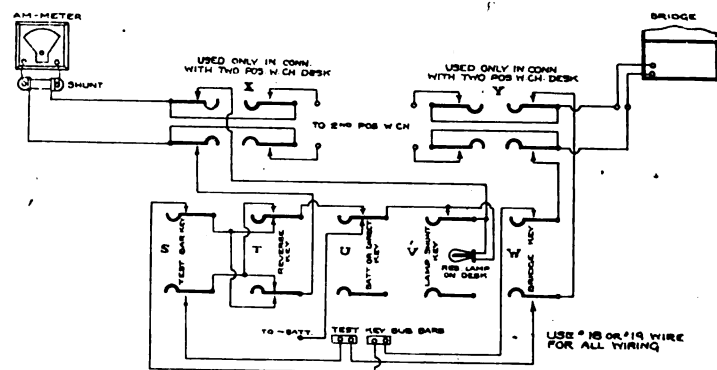


Figure 8—Am-meter and Wheatstone Bridge Test Circuit.

that one bridge and one ammeter may be used by either of two wire chiefs, the *X* key being used for connecting the ammeter to either one position or the other, while the *Y* key is used for connecting the bridge to one or the other positions. The *S* key is used for connecting the ammeter circuits to the bus bars, and key *W* connects the bridge to the bus bars. Key *T* is simply a reversing key between the ammeter and the bus bars, while key *U* is so arranged that a test may be made direct to a line circuit without local battery flowing through the ammeter. Key *V*, in connection with its resistance lamp, is provided for the purpose of giving a visual signal should the amount of current flowing from the local battery through the ammeter exceed a certain predetermined amount, the lamp flashing as a danger signal before damaging the ammeter needle adjustment. Of course, to make an accurate test the key *V* must be operated so as to shunt the lamp out of circuit.

### WEST VIRGINIA INDEPENDENTS.

The executive committee of the West Virginia Independent Telephone Association will meet at Parkersburg in April to arrange for the state convention, which will be held at Wheeling, May 9 and 10. It is proposed to make the 1908 convention the greatest event in the history of the West Virginia association, and a large attendance is expected. The executive committee consists of Alonzo Hutchinson, Huntington; A. C. Davis, Parkersburg; J. W. Barnes, Fairmont; H. A. Hartford, Charleston, and W. C. Handlan, Wheeling.

# GETTING BUSINESS

*Abstract of a Paper read before the Michigan State Telephone Convention at Coldwater.*

By Charles H. Hood

NONE of us is a stranger to the topic assigned me, "Getting Business." It is one that has caused us much worry and many troublesome times in the past. My view may be optimistic, but I see a brighter future before us. It is rather a difficult task, when I come to look it over, to tell you how to get business, after you have accomplished so much. The telephone business is a business that is disagreeable at times, but it is fascinating. It is a business where you deal with the classes and the masses; you solicit every known business and residence on the globe. I find only five per cent of the salesmen that apply for positions as solicitors that can sell telephones. A successful solicitor must have backbone, and a great many have a wish-bone where the backbone ought to be. The solicitor must be energetic, have tact, be a student of human nature and understand the subject thoroughly, and in this connection I want to say that to keep in touch with the times and up to date, it is imperative that every solicitor and every employe of a telephone company or corporation should subscribe for one or more good telephone magazines. This advice is not directed to the practical men for I cannot recall one that does not subscribe. The best solicitors we have ever employed have been devoted to their magazines. In no other way can a man or woman, in practical work, keep in touch with the rapidly advancing ideas of telephony. All of our solicitors in Detroit are subscribers to telephone magazines. I know that it helps them in getting business, for in this line of work it is necessary to talk to get results and you cannot secure satisfactory results unless you are posted in every detail of the business you represent.

I do not make this statement to boost the publishers, but I honestly believe that it adds a vast amount of ginger and ambition and I know that if every stockholder in a telephone property read a telephone journal he would be a better worker.

Every company should exercise great care in selecting employes that are liable to meet and come into contact with the subscribers. They should be uniformly courteous and carry out their instructions in a pleasant and agreeable manner.

Employers often spend thousands of dollars to influence the public in taking their service and are losing them through some other channel. A discourteous employe should never be tolerated. I admit there are times when we come close to the precipice but it does us no good to go over and it may hurt. I believe that every complaint should receive a personal call. A satisfied subscriber is a big asset to us and a large liability to our opponent. Harmony be-

tween the company and the public will bring great results. There are many methods of "getting business" but they are all subservient to a good solicitor. Judicious advertising is a great help to the canvasser but with all the advertising we have done few came to the office to sign for a telephone. Still we believe in advertising. Our large billboard advertisements in Detroit read: "Agent will call, subscribe with him and 'Look for the Shield.'"

I will cite a few methods used in our recent canvass in Detroit which has secured us 10,173 contracts up to and including yesterday. Each contract is verified by mail and

by a personal call. In the first place we educate men in the art of selling telephones for we realize an inexperienced man will spoil twice as many as he will secure. We familiarize them with the local condition from the incorporation of the Michigan (Bell) Company in 1883 to date and there is considerable local history in Detroit as you all know.

When we began our campaign for subscribers the city was laid out in 21 districts and a man assigned to each district and a thorough canvass made from business to business and from house to house. This first canvass secured us 3,386 contracts.

We changed all of the men to new districts and had them turn over all prospects to the succeeding solicitor in that territory who received a book form of reports covering that district.

We called all of the men off the field and gave each one a certain class to call on such as clergymen, physicians, attorneys, contractors, druggists, grocers, etc.

We gave each man a number of streets and a list of the parties that had signed on these particular streets.

We turned all solicitors loose, go as you please, for a couple of weeks. The plan is capable of bringing in a great amount of business for a short time, but if persisted in, will discourage the solicitor and the subscriber.

I could go further in regard to the Detroit canvass, and many others, but I do not wish to go into too much detail. With an operating company there are more and varied methods in "getting business" but different conditions and districts require different methods and I hope to go into this more fully at some future time.

To show that we have your interests as well as ours in mind, we compile from our long-distance tickets lists of lost calls and calls to those who have not subscribed for Independent service and use every effort to induce them to subscribe. I earnestly wish that the companies that are safely entrenched and enjoying quarterly dividends would take a friendlier interest and boost the smaller companies. They could do this by building three-quarters of the way



Charles H. Hood.



the small company building one-quarter. This is generally done or we would not have the magnificent system that we have, but it is human to forget when success is coming our way.

A prospective subscriber or what we term a prospect is one who can afford a telephone and has none. This prospect is followed up until the man leaves the city, dies or signs for a telephone. Tuesdays and Thursdays of each week we have a solicitors' meeting.

At these meetings we discuss Bell methods and rates, the inadvisability of knocking your opponent, except as a matter of protection, merits of one system over another, class of service, equipment, composite circuits, etc. These meetings are beneficial to the men and to the company. It is a good plan to keep in touch with the solicitors personally and have each man make his report in presence of the others. A little encouragement spurs solicitors to greater effort and promotes rivalry for the best results. Solicitors to be successful must be kept enthused. We instruct our men to study the requirements of subscribers and not to induce anyone to take service which their business will not warrant or they cannot afford. It is a good idea for the contract agent in charge to canvass occasionally in the different districts to keep in touch with the people and their wants and in this way know the conditions that have to be met by the men. The contract agent should cultivate the friendship of the press, should belong to the business men's association and most of the social clubs, for in no better way can he come in personal contact with the heads of the larger concerns with whom it is necessary sooner or later to adjust some matter of importance. To be successful, in "getting business," be thorough, be persistent. Of all the

positive qualities of success persistency ranks the highest, for no real success has ever been attained without it. There is no successful business that was not built by persistency. Persistence has been the slogan of the Independents and see what they have accomplished.

Josh Billings expressed a very good thought in his advice to his son, which was "Konsider the postage stamp, my son; its usefulness konsists in its ability to stick to one thing until it gets there." Persistency acquires all things. I intended to hang up the receiver at this point, but before I do I will repeat a few lines which I read recently:

"Genius that power that dazzles mortal eyes is oft but perseverance in disguise;  
Continuous effort of itself implies, in spite of countless falls, the power to rise;  
'Twixt failure and success, the point's so fine men sometimes know not when they touch the line;  
Just where the pearl was waiting one more plunge? How many a struggler has thrown up the sponge?  
As the tide goes clear out, so it comes clear in, in business 'tis at times the wisest win,  
And oh! how true when clouds of doubt dismay, 'tis often darkest just before the day!  
A little more persistence, courage, vim, success will dawn 'o'er fortune's golden rim,  
Then take the honey for your bitterest cup, there is no failure, save in giving up;  
No real fall as long as one still tries, for seeming setbacks make the strong man wise;  
There's no defeat in truth, save from within; unless you are beaten there, you're bound to win."

## DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

### ADDITIONAL SERVITUDE IN PENNSYLVANIA.

THE rule in this state has recently been declared by the superior court. The Bell Telephone Company of Philadelphia was engaged in the erection of certain poles and wires in city and borough streets under charter rights, with municipal consent, and was conforming to the municipal regulations. One Shinzel brought suit against the company, claiming compensation for the damage to the fee in the lands occasioned by the erection of poles and wires. It was held by the above court that such use under these circumstances was not an *additional burden* for which Shinzel could recover compensation.

*Shinzel v. Bell Telephone Company, of Philadelphia, 31 Penn. Superior Court, 221.*

### LINEMAN INJURED BY ELECTRIC LIGHT WIRE NEAR POLE—CONTRIBUTORY NEGLIGENCE QUESTION FOR JURY.

A good case setting forth the duties of electric companies to place their wires a sufficient distance from telephone poles upon which linemen may ascend and descend in the performance of their duties has recently been decided by the Maryland court of appeals. The facts were as follows: Robert Ziehn was employed on July 31, 1902, by the Maryland Telephone Company as a lineman to test the lines and answer "trouble calls." On this date he received a call to go to Pikesville to locate and ascertain "a trouble." When he reached the place he found it necessary, in order to locate the difficulty, to ascend what is called the distributing pole, the cable box being at the top. In going up he had to pass three electric wires of the United Electric Light & Power Company, of Baltimore, in close proximity to the

pole and somewhat lower than the cable box. The first wire was three inches, the second twenty-five inches, and the third fifty inches from the pole. He ascended without injury. In descending his left hand came in contact with one of the heavily charged wires, from the shock of which he was rendered unconscious, resulting in a fall to the ground and severe injuries. Ziehn said with reference to the way the accident happened: "I was coming down and had my left hand on the step and was to lower myself to get on the step below, and as I took my hand off, the wire swung either by the wind or the repair car coming down the wire. The car got these wires vibrating and they struck me, and I remember no more." There was also some evidence that the wires of the electric company were not properly insulated. The above constituted the principal facts in the case on which the court held that it was for the jury to determine whether the injured person was guilty of contributory negligence, saying, "The plaintiff in this case was in the exercise of a duty that required him to ascend and descend the distributing pole. The electric company owed him a clear, legal duty to have its wires so placed and insulated as to permit him to perform his work without injury."

*Ziehn vs. United Electric Light & Power Company of Baltimore, 64 Atlantic, 62.*

### NEGLIGENCE—INJURIES FROM ELECTRICITY FROM SAGGING WIRES.

In an electric street railway case the facts were that across certain vacant property owned by one Hubinger, the company had strung certain heavily charged wires. The

wires in general were insulated. One Connell, a boy 14 years of age, was playing on this unenclosed place, and in some way came in contact with the company's wire where it had been allowed to sag, and where the insulation had been worn off, apparently by being in contact with the trees. The boy was instantly killed. On these facts the supreme court of Iowa made the following statement of law with reference to the liability of the company: "There was evidence that persons were in the habit of going across Hubinger's property near the place where defendant allowed its wire to sag in such a way that the safety of persons was imperiled. We do not think that the question that such persons were, as to Hubinger, trespassers on the one hand, or were rightfully on Hubinger's premises on the other, was conclusive as to defendant's liability. The controlling consideration in determining defendant's liability is whether defendant was reasonably chargeable with knowledge that persons who were likely to come in contact with its dangerous wires might, in the exercise of reasonable care, have avoided such danger." There was some evidence that defendant knew of the condition of the wire, and the court said that the matter was therefore for the jury to determine as to the negligence of the company.

*Connell v. Keokuk Electric Railway & Power Company, 109 N. W., 177.*

#### SPECIFIC PERFORMANCE OF VERBAL CONTRACT TO FURNISH TELEPHONE SERVICE.

An Illinois case is authority for the following rule of law with reference to the above proposition: "A verbal contract to furnish service at a specified rate which is within the state of frauds will not be sufficiently enforced, notwithstanding it appears, that in consideration of such agreement, the complainant had rendered services and had made a contribution in connection with the establishment of the telephone system."

*Quinn v. Stark County Telephone Company, 122 Ill. App., 133.*

#### DOES AN ELECTRICIAN ASSUME THE RISKS OF ELECTRIC CURRENTS FROM CROSSING WIRES?

The answer to this question is suggested by a recent case decided in the Illinois courts. An engineer was in charge of certain machinery in an electrical plant and was killed by the shock of a powerful current of electricity conveyed into his place of employment over certain wires which were not intended to carry any current. The electricity which caused his death came over these wires through their crossing outside the building with heavily charged wires. The question of law arose whether such a condition was one ordinary, usual and incident to such employments. The court held that it was not; that the engineer did not assume such risks.

*Belvidere Gas & Electric Company v. Boyer, 122 Ill. App., 166.*

#### FOREMAN PAID TO NOTIFY LINEMAN OF THE TIME ELECTRICITY WAS TURNED ON—LIABILITY THEREFOR.

An interesting case decided by the court of appeals of Kentucky, in which the following named company was the defendant, sets forth the law so clearly on this proposition as to warrant the quotation of a considerable portion of the opinion. "Lafe Carmine was a lineman in the employ of the East Tennessee Telephone Company. It has a telephone pole about 45 feet high on one of the streets of Paris, Kentucky. On this pole, in addition to the telephone wires, were those of the Paris Electric Light Company, which carried 1,100 volts of electricity. Shortly after four o'clock in the afternoon of September 30, 1902, Carmine was sent up the pole by his foreman to do some work. He was then directed by the foreman to take up a wire of the electric light company, which was hanging down, and had caused trouble to

the telephone and telegraph wires the night before. The electric light company had no power upon its wires during the day. It had been turning the power on about five o'clock in the afternoon. A day or two before the trouble the electric light company notified the telephone company that thereafter the power would be turned on about four o'clock. When Carmine took hold of the wire that was hanging down the power had not been turned on. While he was coiling it up to get it out of the way the power was turned on and he received a shock which threw him to the ground and from which he sustained permanent injuries. He sued both companies and recovered judgment against the telephone company for \$1,500. From this judgment it appeals. Carmine testified that he had no notice that the electric light power would be turned on before five o'clock and his statements as to what occurred between him and the foreman are confirmed by several other witnesses. The foreman testified that he told him to be careful, that the electric light power would soon be turned on, and his statement is confirmed by other witnesses. The evidence is pretty evenly balanced and we are not prepared to say that the jury were not warranted in accepting Carmine's version of what occurred. But, waiving this, in view of the fact that it was after four o'clock and that the foreman knew that the electric light power was to be turned on about five o'clock, his own version of what he said to Carmine shows that he was guilty of gross negligence in the premises, for he should, knowing the danger, have explicitly warned Carmine, and not left him in uncertainty, as his own statement shows he did. He could not but know that there would be danger in handling this broken wire after the electric power was turned on, and he knew that it was liable to be turned on at any second. We cannot, therefore, disturb the verdict upon the facts. The plaintiff had a right to sue jointly the electric light company and the telephone company." See *Cumberland Telephone Company v. Ware's Admr., 115 Ky., 581.*

*East Tennessee Telephone Company v. Carmine, 93 S. W., 703.*

#### CONDEMNATION PROCEEDINGS IN NEW YORK—SUFFICIENCY OF PETITION.

Some time ago the Bell Telephone Company of Buffalo sought to condemn certain property in this state for the purpose of erecting certain lines of poles and wires. The petition asked for authority to do certain acts, ending with a request for "the right to trim such trees as may be necessary to protect said line from interference; with the right to attach the necessary wires and cables thereto; said poles to be located at the places indicated in the annexed map, which is here referred to and made part of this petition." Certain owners of property along which the line was to run objected to the proceeding, particularly for the reason that the petition did not set forth the extent to which the company desired to trim the trees. The condemnation statute provides that the petition shall contain "a specific description of the property to be condemned." The court of appeals said that this statement of the company with reference to the trimming of trees was not sufficiently explicit. From this decision it is clear that in New York petitions for the right by condemnation proceedings to trim trees or lay out new lines of telephone must explicitly state the proposed work to be done with such clearness as to leave no doubt of the extent of the proposed acts.

*Bell Telephone Company of Buffalo v. Parker et al, 79 N. E., 1008.*

The telephone is not the lazy man's friend; it is the friend and most valuable aid of the busy business man. Its use is not to save work altogether, but to facilitate it, and its value in this respect in any community depends on the number of people using it.

# IOWA INDEPENDENT CONVENTION

*Three Days Meeting of State Association Held at Sioux City, March 19, 20 and 21.*

By W. H. Graffis

THE eleventh annual convention of the Iowa Independent Telephone Association was held at the Garretson Hotel, Sioux City, on March 19, 20 and 21, 1907, and proved eminently successful in every particular. The convention was called to order Tuesday afternoon, March 19, by President P. C. Holdoegel, who appointed as a committee on credentials Chas. G. Cockerill, of Sioux City; O. A. Repass, of Dallas Center, and C. A. Peterson, of Manchester. A committee to audit the accounts

results that it is the purpose of this organization to attain, but for lack of results accomplished as compared to the opportunities that have been presented to the association during the past year. A year ago we launched our association under a new constitution, with district organizations to form, sub-districts to organize and county captains to appoint; with the entire machinery of the association to be placed upon a new working basis; with the opportunity to push our organization into every corner of the state, and through the corners into every county. This work, as you men will know in looking it over, has required time to get the organization moving, has required effort on the part of men in every section of the state,



Delegates to the Iowa Independent Telephone Convention at Sioux City, Iowa, March 19, 20 and 21, 1907. J. B. Hoge, P. C. Holdoegel and George T. Hewes Seated in the Foreground.

of the secretary and treasurer was also named, consisting of J. S. Bellamy, of Knoxville; J. C. Thorne, of Fairfield, and S. S. Lichty, of Vinton.

President Holdoegel then made his annual address to the convention, which follows:

Gentlemen of the Convention:—Under the existing circumstances, with the opportunities that have been presented us for work during the last year, it would seem that the president's address might be likened unto a cat's tail—long and fur to the end. It is desired by the president, however, that it might be like a rat's tail—smooth, tapering, and coming to a point. But under the existing conditions, owing to the condition of the president's voice and throat this afternoon, and the program that follows, I think you will find it possibly closely resembling a rabbit's tail—merely a suggestion.

We might appear before you this afternoon somewhat in the spirit of apology—not for lack of interest in the work of the association nor for lack of enthusiasm in the desire to achieve the

and has required a great deal of application on the part of the different members of the association. We wish we might report today that every corner of the state has been fully covered by the work of the association. We are glad that we are able to report that most of the corners of this state have been reached, that the membership has been increased, and that enthusiasm has been worked into the organization, and that we believe our members are now ready to begin the work in the interest of the Independent Telephone Association of Iowa.

A year ago we found ourselves confronting a condition that we had not met prior to that time, in the supreme activity of the monopoly against which it is our organization's purpose to work. Never, I believe, in the history of Iowa, have the opposition been so active as during the past year, and I believe that there has been no time during that year when they have been so active as at the present time. We found in portions of the state not only the effect of money thrown into their campaigns, not only the effect of cut rates in the towns and cities, not only the effect of superior toll line connections, but we found the effect of skilled solicitors and organizers working among the Independents and among the farm-

ing communities, attempting to persuade those who were previously connected with the Independents, or who were about to connect with Independent lines, to affiliate themselves with and strengthen the position of the Iowa Bell telephone company. Perhaps you may not all be aware of the efforts that have been put forth in the interest of that company, but I assure you that those who have been in touch with this work realize that there has been a supreme effort on the part of the opposition, and more especially in and about the commercial centers, where their own interests have been most imperiled. They found at the beginning of this year a new activity among the Independents. They found an activity that was extending the exchanges, that was improving the Independents' toll line service, that was cutting into their toll line receipts, and an organization confronting them that, as they saw it, it was necessary to meet with a supreme effort. And, as previously stated, I believe that at this time there is greater activity than there has been at any time in the year past on the part of the opposition, to create dissension among the Independents—more especially around those centers that have been recently captured by the Independents, or at least in which we have gained a fighting show.

There are yet remaining in Iowa two county seats not reached by Independent lines. A year or two ago there were many places not reached by them. With proper management of this association's affairs, with the proper spirit of enthusiasm, and with investment backing it, if necessary, we believe that within a short time the Independents may reach every town in the state of Iowa; and we trust that this may be accomplished by your organization during the coming year. I believe the effect of this supreme effort on the part of our opposition has been to create a renewed vigor in the work among ourselves. I believe there are those in this association who were not, prior to this year, awake to the possibilities of work in our organization and to the possibilities of the results that may be accomplished by a united effort. We send our boys to college, and

the first thing they desire to do is to get into the athletic field. A boy goes into the base-ball nine, and he may be an expert twirler of the sphere, he may be graceful behind the bat and a master of the stick; and yet the first thing he finds is that without the support of the other eight members of the team, or unless he is supporting the eight members of the team, his work is of very small account. You put him upon the gridiron, and he finds that when he picks up the pigskin and starts out with it for a run, unless he has the support of the remainder of the eleven his effort is futile. And it is our hope that if there is no other result accomplished in this convention, we may go out with the fact thoroughly impressed upon our minds that it is necessary in the Independent telephone association to do vigorous, hearty team work. The results of this work have been shown in the last year in many localities, and if we can create an enthusiasm in this convention that will carry with it a united action in the counties where that united action is necessary—carry with it the support of not only those counties' particular companies, but of every surrounding company, and, if necessary, the support of this entire association—this convention to-day will not

have met in vain.

During the last year we have accomplished some work. We have organized the districts, as previously stated and we have increased the membership; we have aimed to champion the cause of Independent telephony everywhere, not limiting it to the state of Iowa, but giving our support to the International Independent Telephone Association. We have built up one institution that is bringing about large results in our toll service. I refer to the Independent telephone clearing house. While the clearing house is an entirely separate organization, though composed of stockholders who are holders in Independent telephone plants, yet it has worked these Independent toll line holders into such a community of action that it is now possible, throughout the larger part of the state, for the public to ask for telephone service and receive it in such a manner as was not possible prior to the organization of this institution. Two years ago, when a gentleman stepped into the telephone office in Sioux City and asked for a connection with Des Moines, it was impossible to obtain that connection. It might possibly be put through, provided the lines

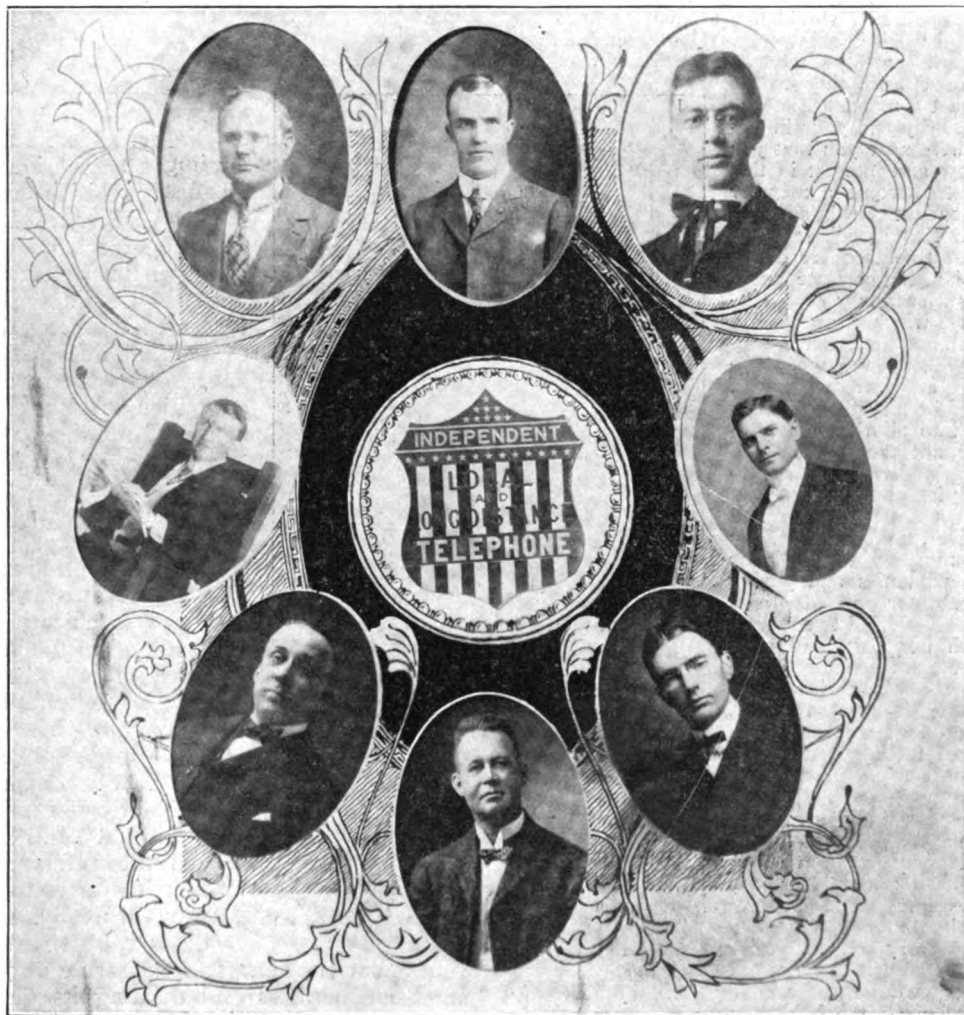
down the road were not loaded at that time with their owners' business, but if those lines were busy or were carrying a load of business, those owners said: "It must take my business first, because I do not get anything, or I do not know what I will get, from the business that comes from other lines." Under the clearing house they are now relieved of that uncertainty, and know that when another company's message is handled over their wires they will receive their just compensation.

There have been letters published from different parts of the state, showing the effect of the clearing house on toll line business, and those of us who have studied this matter believe that the clearing house and the principles underlying it are largely responsible for the increased toll facilities and for the growth of telephone business. It simply brings about the principle of a square deal in handling toll line business. The association, I am glad to say, has stood by this institution. It

is not a part of the association, but our members have supported it in such a manner that it has been able to bring about these results.

This year the association has provided funds such as have not been provided before. It has put into the field a state agent, who has been available at all times and in all places in cases of dissension and difficulty, and he will submit to you during this convention a report of his work. I desire to speak somewhat of the results of this work. It has been my personal opportunity to be on the field with Mr. Hollis in some of his warmest fights, and I am frank to say that I am personally sure—and the owners of the Independent lines where he was at work have given us definite assurance—that without his assistance the results might have been very different and disastrous to the Independent movement.

While we have accomplished much during the last year, it is evident that we have yet more before us. It is desired that we shall have a closer and more complete organization. We wish we might reach into every county with a close organization that will include every owner of Independent telephone lines and exchanges within this state. May it not be so? Is our purpose wholly a financial one?



Members of the Iowa Independent Telephone Clearing House.  
 P. C. Holdoegel. C. C. Deering, President. J. M. Plaister, Secretary  
 Charles G. Cockerill. E. H. Martin.  
 J. C. Thorne. George T. Hewes, Manager. F. C. Musson.



I beg of you to consider the fact that only a few years ago it was impossible for the rural communities to have telephones. The Independent movement has made it possible for us to get them in our homes and for the farmers to have them in their farm houses; and this has been wholly through the efforts of those interested in Independent telephony. Is this effort worth while? May I ask you what is more worth while than to bring these conveniences to the outposts of our rural communities and enable them to receive benefits such as they might not have received had it not been for the Independent interests?

We desire during the next year to increase our membership. The finances of the association have been somewhat limited, even under our assessment plan, because of the fact that there were a large number of companies in the state that have not been members, who have not been paying their assessments, and who have never paid their initiation fee. May we not during the coming year bring these companies into the association? May we not have the benefit of their help? May we not give them the benefit of our help, and present a solid front in the interests of the cause which it is our purpose to champion? I would like to impress upon you the necessity of individual work in this cause. Have you not those near you, operating Independent lines, who are not members of this association and are not contributing to its support? Kindly take just a moment to think of your immediate community and your immediate district. Who is there near you that you can individually interview and interest in this association, and induce to become a member of it? If all the Independent telephone companies of Iowa were in this association and paying their pro rata assessments, there would be no difficulty about keeping a state agent in the field and keeping a secretary or assistant secretary on a salary, which is one of the necessities of this association in order to accomplish its greatest good. There would be no difficulty in having a publicity bureau through which we would be able to carry our campaign of education into all the communities of the state. May not the members of this association make an individual effort to increase this membership?

When we talk of our assessments we find that just across the river, in Nebraska, we have an association coming up with all the Independent telephone companies and paying an assessment of ten cents per unit. In Iowa during the last year we have levied two assessments of one cent each per unit, and have been trying with the receipts from those to carry on the work of the association as it might best be done. I am frank to tell you, as I did in the opening, that we have been hampered in the work of the association for lack of funds. By a supreme effort we have been able to keep our state agent in the field, we have been able to do something in the line of publicity, we have been able to carry on the work of the association after a fashion; but in no such manner as it might have been carried on, or with the results that might have been attained had we had at our command the funds necessary to carry on the work which the officers of the association deemed advisable. Whomsoever you may place in authority for the next year, I would like to bespeak for them the united effort of this association, a united support in the line of assessment, and a united line of work for the increase of membership, in order that there may be a larger amount of money available to carry on the work of the association. If the members already in this association would step up as a unit and pay an assessment equal to half that paid by our sister state across the river, the association would be in a much better working condition.

I would like to impress another point upon the members, and that is the desirability of close organization and hard work in our district association. I believe the salvation of Independent telephony in Iowa lies in the closer organization and the effective work of our district associations. It is impossible for a state organization to have its fingers on the movements of our arch-enemy in every locality of the state, but it is possible through the district organizations for the different presidents and captains to be clearly in touch with such matters; and then, with funds sufficient to support a central office bureau of information and general correspondence, it would be possible to bring the united influence of this association to bear upon any corner of the state when it might be desired.

As I promised you in the beginning, gentlemen, this address is very much in the nature of a rabbit's tail—merely a suggestion. I would like to urge upon the members here the solemnity with which we must consider these points if we would desire to have this organization accomplish all that it can accomplish. What we

need most during the next year is: First, close, effective district organization; second, a very much larger membership in the state association; third, a larger fund for carrying on the work of the association; fourth, a larger number of employees of this association. It is almost impossible at the present time, without imposing very heavily upon the time of your secretary, whoever he may be, to carry on the work of the association as it should be carried on. If the secretary's office were to do the work that the president might suggest for it to do, I believe it would require the constant work of a stenographer; and a competent man as an assistant to the secretary would work out most excellent results for this association if he did nothing but look after the organization in the different parts of the state, while a man in this location might perhaps as well be a technical man, who might be of assistance in other ways.

The papers of F. McNally of Carroll on the subject, "Is it Advisable to Appoint a State Toll Line Inspector?" and of W. J. Stanton, Waterloo, on "The Necessary Standardization of Clearing House Toll Lines and Equipment," being on allied topics, were discussed together. J. H. Shoemaker, of Waterloo, advocated the appointment of a toll line inspector, it being his view that such a person would be able speedily to settle disagreements between different companies as to the location of the trouble on the line which caused poor service.

Roy Walker, of Des Moines, opposed such appointment, declaring that a state toll line inspector would be a supernumerary, and that the engineering forces of the companies doing the most of the toll line business should be able and willing to make the necessary examination to discover the location of the cause of the faulty service. In regard to standardization, Mr. Walker said that the root of the whole matter was to be found in the establishment of a unit of talking efficiency. He moved the appointment of a committee by the president whose duty it shall be to prepare a standard specification of all materials to be used and a standard plan of construction detail. At the suggestion of Mr. Stanton, a specification of circuit construction was included in the motion. H. A. Douglas spoke in favor of the motion. J. S. Bellamy, of Knoxville, urged caution in proceeding in the matter without full consideration, and moved the reference of Mr. Walker's motion to a committee consisting of Messrs. McNally, Stanton, Walker and Douglas, who should report to the convention at its next session a rule for the appointment of such a committee and defining its duties. Mr. Bellamy's motion carried.

Mr. Bellamy moved the appointment by the president of a committee of three, not members of the clearing house, to co-operate with the traffic committee of that organization and report to the convention a rule governing the message rate and the commissions to be paid to local exchanges. The motion carried, and the president appointed as such committee: E. E. England, of Mt. Pleasant; C. A. Hollis, of Hudson, and Harold L. Beyer, of Grinnell.

Upon motion of J. H. Shoemaker the president appointed a committee consisting of Messrs. Shoemaker, E. H. Martin, of Webster City, and H. A. Douglas, of Cedar Rapids, to prepare an amendment to Article VII of the constitution providing for the reinstatement of members of the association who have lapsed in the payment of dues and assessments, upon the payment of all such delinquent accounts. The report of the committee embodying such amendment was adopted by the convention upon presentation later in the session.

A special executive session was held on Tuesday even-

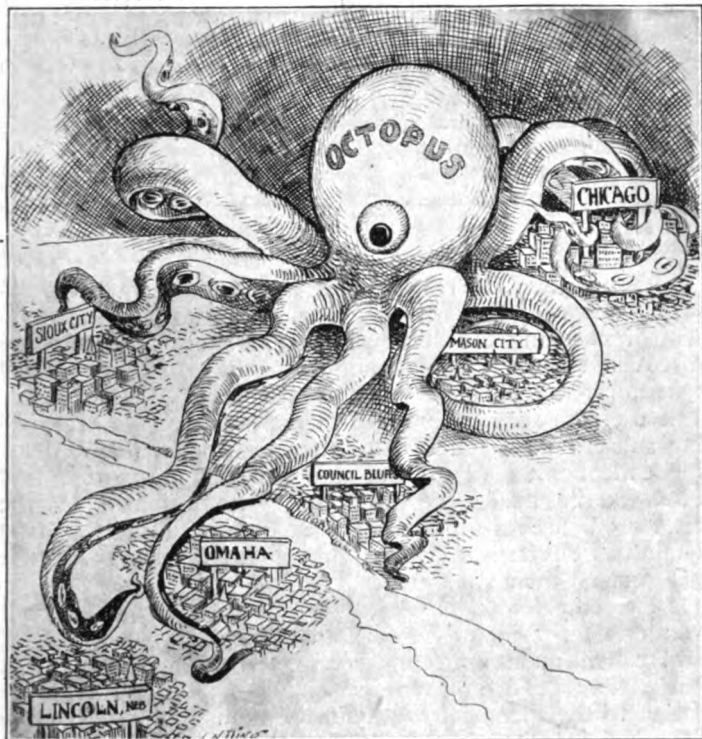


Howard S. Baker, President and General Manager of the Sioux City Telephone Company and Chairman of Committee on Arrangements for Iowa Convention.

ing, at which the legislative committee of the association made its report, and an informal discussion of pending legislation was had.

WEDNESDAY SESSION.

At the opening of the Wednesday morning session Mayor W. G. Sears, of Sioux City, welcomed the delegates in a characteristic address. The remainder of the time before



The Octopus Releasing Its Grasp—One of the Pictures in the Iowa Convention Lecture, "A Fight with An Octopus."

the noon adjournment was taken up by an experience meeting. R. J. Hart, of Minneapolis, presented some figures covering the growth of the Tri-State Telephone Company, and also gave an interesting account of the work of the Independents in North Dakota. R. E. Mattison, manager of the Telephone Traffic Association of Nebraska, outlined the work accomplished in that state, not the least important item of which is the compiling and printing of a state telephone directory. Judge C. B. Kennedy, president of the South Dakota association, opened his remarks with a highly complimentary reference to the state of Iowa, its people and their accomplishments, but when he admitted that he had been reared in Iowa the secret was out. Judge Kennedy gave a most interesting account of the struggles of the Independents in South Dakota, and the absolute necessity of their entering into a contract with the Northwestern Bell in order to obtain toll service to the east, owing to the peculiar conditions of the local lines. He made a strong plea for recognition as an Independent, notwithstanding the apparent inconsistency of such a business arrangement, and declared that the Independents of South Dakota were no less loyal to the cause because of having secured an outlet for toll business in the only way afforded them.

State Agent Hollis, of Iowa, presented his report for the past year. During the period of his incumbency he stated that he had met ninety-eight companies, some of them several times. He reports each day to the president, who is thus in constant touch with him. His earnest endeavor is to promote the "square deal" between the companies with whom he works. In regard to toll service, he stated it to be his belief that the principal difficulty lay in not having enough circuits, and that no No. 10 copper lines should be connected between any towns less than fifty miles distant—at least, he said, No. 9 iron wire will do the work just as well at less expense.

President James B. Hoge, of the International Independent Telephone Association, delivered an address on the work of the association in which he outlined the progress of Independent telephony over the country, showing a most encouraging growth and development in all directions. The committee appointed to act with the traffic committee of the clearing house on the matter of toll rates in Iowa presented its report in the form of the following resolution:

"Resolved, That no change in toll rates be made at the present time, and that the president be and he is hereby authorized and instructed to appoint a permanent committee of five to investigate and further the matter of rates, with full power to act in the making or changing of the same."

The motion to adopt the resolution was discussed quite fully by J. S. Bellamy and others, and was finally carried.

Wednesday afternoon was devoted chiefly to the discussion of questions pertaining to the farmers' companies. C. A. Hollis, state agent of the association, presided at the president's request. Dr. E. W. Haradon, of Jesup, Iowa, opened the discussion, calling attention to the change in the public's impression of the farmer, as shown by the work of the cartoonists. Formerly the Iowa farmer was pictured as long, lank, lean and hungry looking, with one suspender, long hair and whiskers, a straw in his mouth and hayseed in his hair; while to-day he appears to be a very robust, fine looking individual, driving a fine team of horses which a city man would be proud to own. This change of public opinion, said Dr. Haradon, applies equally to the farmers' telephone companies. He urged upon the farmers' companies the need of system in the management of their business. It is important to have a good manager, and a cheap trouble man is a very poor investment. Every dollar spent in advertising will bring in ten in business—not before eight o'clock to-morrow morning, but surprisingly soon.

W. M. Crownover, of Hudson, spoke on the topic: "Should all Independent Companies, Mutual or Commercial, Co-operate, and Why?" No doubt was left in the minds of Mr. Crownover's auditors as to his position in this matter. Telephone service is not valued by the number of miles of wire available, he pointed out, but by the number of patrons in the immediate vicinity of each other



Automatic Switchboard of the Sioux City (Iowa) Telephone Company.

who have the same switching connections. Without cooperation we would be dependent upon a monopoly for our service.

The topic, "Is the Fair Exchange Plan, as used by the Black Hawk Association, More Profitable to the Farmers' Company than Free Exchange, in Point of Service, Finance and Otherwise?" was handled by Dr. G. A. Evenson, of Finchford. Fair exchange is equal or proportionate division of tolls for messages transmitted over two or more

companies' lines between or among said companies. Free exchange is talking from one exchange to another without paying a direct toll, although an indirect toll is paid in the form of assessments which are made to meet expenses. Every telephone company must have an income, and the same expenses are incurred whether operating under the so-called "free" exchange or under the fair exchange plan. A well-equipped exchange, which is always possible under the fair exchange plan, without the necessity of begging for money from its patrons, will give the best satisfaction in the long run, and those who have had experience with both plans have no hesitancy in urging upon any Independent company, large or small, the superiority of fair exchange.

C. G. Blasier, of Greene, presented a paper on "Better Toll-Line Service," in which he advocated the discontinuance of all grounded toll lines and the substitution of copper circuits, with an increased number in congested districts. Various questions of interest to the farmers were propounded by the chairman and discussed informally, to the pleasure and edification of those present.

President Holdoegel then resumed the chair and called for the report of the committee on standardization of toll lines and equipment. Chairman Baker presented the report, which recommended the appointment by the president of a standing committee of three on standardization of equipment, whose duties shall be to compile an intelligent and practical set of rules, adopting as a basis such standard authorities as they may consider proper; said committee to be empowered to publish the same in book form, at the expense of the association, to be sold to members of the association or other interested companies at not to exceed fifty per cent above cost; all of said work to be under the supervision of the executive committee. Upon motion the report was adopted. President Holdoegel later announced as such committee: Roy Walker, of Des Moines; W. J. Stanton, of Waterloo, and H. A. Douglas, of Cedar Rapids.

#### THURSDAY SESSION.

President Holdoegel called the convention to order at 10:30 o'clock Thursday morning. S. S. Lichty, of Vinton, presented the report of the auditing committee, which was approved. President Holdoegel stated it was the desire of the executive committee to hear the sentiment of the association as to the advisability of continuing State Agent Hollis in the field for another year. Mr. Hollis modestly endeavored to retire from the room during the discussion, but was compelled to remain. Some few questions were put to him as to the nature of his work by members unfamiliar with it, but the expression of a number of those with whom he had come in contact during the year was unanimous in favor of his retention. This was crystallized into a motion by S. S. Lichty, authorizing the executive committee to re-employ Mr. Hollis and such additional help as they may seem desirable, which was carried unanimously.

George T. Hewes, manager of the Iowa clearing house, presented his report for the first year's work of that organization, making the following remarkable showing of increase in amount of business cleared up to October, 1906:

	Increase.
April over March (the first month cleared).....	246%
May over March .....	316%
June over March .....	352%
July over March .....	475%
August over March .....	496%
September over March .....	555%
October over March .....	644%

Up to the completion of the pro-rating of the October business the number of employes had not been increased, having in mind the greatest efficiency at a minimum cost. It is now found that it will be more economical to increase the number and shorten the time consumed in completing

reports to the several companies, which will reduce the cost of clearance to each. Forty-three companies have signed contracts with the clearing house, and thirty-three have reported details concerning their several systems as follows:

Population of the cities and towns whose exchanges and toll stations are reached directly by lines of the clearing house, not including population within the limits owned by the New State Telephone Company.....	767,549
Independent telephones, including rural telephones controlled by members of the clearing house (same exception as above) .....	135,685
Bell telephones in the same territory covered by clearing house lines .....	25,865
Number of miles of wire (air line distance), shown on clearing house Map No. 9:	
Copper .....	3,300
Iron metallic .....	8,862
Grounded .....	1,796
	<hr/>
	13,958

Various other interesting data were presented in the report. Some of the advantages of the clearing-house system of checking toll accounts are as follows: Errors are discovered quickly and brought to the attention of the operators, which tends to increase care on their part. These errors are also brought to the notice of the originating subscribers so quickly that there is little trouble in making collections. All toll accounts are kept up to date and bills can be made out promptly. The purchase by the clearing house of standard forms of accounting in large quantities effects a saving to the companies of at least fifty per cent on their stationery.

President Holdoegel announced the presence in the convention of President Taggart, of the Missouri association, and called upon him for greetings from Missouri. Mr. Taggart responded briefly, extending a most cordial invitation to the members to attend the annual meeting of the Missouri association, to be held at the Coates House, Kansas City, on May 8th and 9th. President Holdoegel then called H. A. Douglas, of Cedar Rapids, to the chair. Mr. England read a paper on "Independent Long Distance," in which he treated most interestingly the history and progress of that service. Adjournment for luncheon was then taken.

The afternoon session opened with the reading of a paper entitled "Hints on Management of Traffic," written by Roy Walker, manager of the Mutual Telephone Company, Des Moines, which was filled with pertinent suggestions. Dr. E. W. Haradon, of Jesup, moved that the secretary be instructed to mail to each company in good standing in the association credentials ten days prior to any meeting, and that he be authorized, thirty days prior to any meeting, to mail an invitation to any Independent telephone company; and such credential or invitation shall be presented at the opening of the meeting to secure tickets of admission. The motion was seconded by J. H. Shoemaker, of Waterloo, and carried.

President Holdoegel stated that in the absence of instructions to that effect he had appointed a committee to draft resolutions; consisting of H. A. Douglas, of Cedar Rapids; Will M. Traer, of Vinton, and R. A. Walker, of Des Moines, and called upon that committee for its report. Mr. Douglas, as chairman, offered the following resolution:

"Whereas it is the sense of this convention that the success of this meeting has been largely due to the efficient efforts of the members of the program committee the persevering attention of the local members and the city of Sioux City and more largely to the untiring tact and good fellowship shown by the chairman of the entertainment committee Mr. Howard S. Baker and his able assistant Mr. C. H. Smith chairman of the program committee; also to Mr. J. H. Shoemaker who so masterfully handled the stereopticon lecture and to the initiative of Mr. George T. Hewes in preparing and operating the excellent views. We cannot commend too highly the original and marked ability of Mr. E. H. Martin as a master entertainer and ever willing worker in the cause we represent. Therefore, be it

Resolved: That the hearty thanks of this convention be and are hereby extended to these gentlemen individually and collectively and that these resolutions be entered on record."

Upon motion of Mr. England the resolution was adopted by a rising vote. J. H. Shoemaker, of Waterloo, moved that P. C. Holdoegel, as President; C. C. Deering, as secretary and treasurer, and J. S. Bellamy, J. C. Thorne, E. H. Martin and George N. Bandy, composing the present executive committee, be the unanimous nominees of this convention for the ensuing year. The motion was seconded by a representative from each of the five districts of the state, was put to a vote by Mr. England, vice-president of the southeastern district, and carried by a rising vote. President Holdoegel, in a neat speech, thanked the association for the support given him, modestly attributing the success of the work for the past year to the energy and enthusiasm displayed by the individual members rather than to the labors of the officers themselves. Secretary Deering also spoke briefly, reiterating the remarks of President Holdoegel in his opening address with regard to the importance of individual work in securing a larger membership in the association.

J. M. Plaister, of Fort Dodge, moved that in view of the unqualified success of the experiment of amending the constitution to allow holding the annual meetings wherever desirable, instead of at Des Moines permanently, the next meeting be held at Cedar Rapids. Mr. Bellamy, in seconding the motion, aroused considerable mirth by the statement that he and Roy Walker had come to Sioux City bearing invitation to the convention from the Commercial Club, the mayor, city council, the Boosters' Club, of Des Moines, to meet in that city next year, but as everybody in the room, including Mr. Walker, was wearing Cedar Rapids badges, it appeared that the Des Moines representatives were attending their own funerals, and they might as well keep the invitations for next year. The motion was carried by a rising vote, receiving, as President Holdoegel put it, the largest majority ever known.

W. H. Barker, of Sanborn, moved that each member act as a committee to solicit all neighboring persons and companies that are not members of the association and should become members, and that the secretary notify each member of the companies which should be solicited, the members to make report to the secretary as to their success. The motion was seconded by S. S. Lichty and was carried. District delegates to the International Telephone Association convention were announced as follows: Southeastern, J. S. Bellamy, Knoxville; northeastern, C. A. Peterson, Manchester; central, to be elected at the April meeting; southwestern, F. S. Musson; northwestern, to be elected. Upon motion, the matter of choosing two delegates at large was left to the executive committee.

D. M. Griswold, of Des Moines, moved that the association sanction the work of State Agent Hollis in promoting the "square deal" on "fair exchange" plan in preference to free service. The motion carried.

A vote of thanks was by rising vote extended to President Holdoegel and Secretary Deering for their faithful and efficient work during the past year.

The order of vice-presidents of the association, who by the constitution are presidents of the various district associations, was determined as follows: 1st district, E. E. England, southeastern; 2nd, O. E. Répass, central; 3rd, C. A. Peterson, northeastern; 4th, H. A. Kinney, southwestern; 5th, Dr. Graves, northwestern.

President Holdoegel brought up the matter of the advisability of the incorporation of the association, and upon motion of Mr. England the executive committee was authorized to take steps to have the association incorporated under the laws of Iowa as a corporation for pecuniary profit; shares of stock to be fixed at \$5.00 each, one of which shall be issued to each member in good standing.

The convention then adjourned.

While Des Moines had previously established a high standard as an entertainer of telephone conventions, Sioux City clearly demonstrated, on March 19, 20 and 21 that there were other cities in Iowa equally capable and willing. The attendance and enthusiasm at this, the latest of the many successful Iowa meetings, were fully up to the standard, and the interest was well sustained throughout. So well did Sioux City demonstrate the fact that there are other hospitable cities in Iowa besides Des Moines that it was voted unanimously to hold the next convention at Cedar Rapids. A large share of credit for the entertainment provided at Sioux City is due to Mr. Howard S. Baker, president of the Sioux City Telephone Company; and chairman of the committee on arrangements.

Another feature of the Sioux City convention which went a long way toward proving that Iowa is not only the banner state of the Union in point of telephone progress, but is truly loyal to Independent interests, was shown by the fact that not only the Bell interests, but its subsidiaries and emissaries from the Kellogg company, were barred from the floor of the convention and prohibited from enjoying the privileges of the Hotel Garretson where the convention was held. Her sister states would do well to emulate Iowa's splendid example in this respect. Another feature of the convention, deserving of more than passing notice was the entertainment given at the opera house on the evening of March 20. At this entertainment J. H. Shoemaker, of Waterloo, delivered an entertaining lecture, founded on Paul Latzke's "Fight With an Octopus," and profusely illustrated with stereopticon views, most of which were reproduced from the pictures in the book. Other entertaining numbers included a Swedish dialect talk, and several whistling solos by Edward H. Martin, of Webster City.

The convention closed Thursday evening, March 21, with an enjoyable banquet at the Mondamin Hotel, at which E. W. Caldwell was toastmaster. Toasts were responded to as follows:

"Development of Telephony in Sioux City and Trade Territory"—Charles A. Dickson, Sioux City.

"Blue Points and Blue Prints"—James Shoemaker, Waterloo Exchange.

"Live Wires"—J. U. Sammis, LeMars Telephone Company.

"The Commercial Traveler"—J. J. Nate, Chicago.

"Telephone Girls"—Judge C. B. Kennedy, Canton, S. D.

"The Successful Exchange"—L. N. Hertz, Lincoln, Neb.

The menu for this occasion was very uniquely set forth in terms closely corresponding to telephone specifications. Everything was harmonious and strictly Independent, even the ice cream being moulded and colored in exact representation of the shield.

#### MARRIED BY TELEPHONE.

Southern newspapers have been making considerable to do over a wedding ceremony performed over the telephone. The minister lived in Jacksonville, Tex., and he was called up from out of town and requested to come forthwith for the purpose of marrying a couple. He had just returned from conducting a funeral in the country and did not feel like making the trip, so he notified the couple of his inability to go. The young people were determined to get married and finally succeeded in persuading the minister to marry them by telephone. A license was read to the minister by a third party, after which each contracting party was connected by telephone with the minister and each obligated separately. "Join your right hands," said the minister, and then after a few words the ceremony was closed with, "I pronounce you man and wife." "What do I owe you?" inquired the bridegroom. "Just send up what you think is right," replied the preacher.



# DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

825,587. Anchor. Cook. This is an anchor for guy wires, and comprises an auger adapted to be bored into the earth and having lateral extension plates so geared that they may be spread apart after the auger is at its proper depth. Patent assigned to Frank B. Cook.

830,391. Electrothermal Device. White. In an insulated casing is secured a flexible metallic diaphragm having connection with the line directly at one point and indirectly at another through a heat coil confined in a separate chamber of the casing so that upon an abnormal current the heat generated by the coil flexes the diaphragm so that it contacts with a ground terminal. Patent assigned to Frank B. Cook.

839,919. Cable Clamp. Cook. This clamp comprises a pair of jaws having alternately arranged teeth facing each other so that they engage the cables and imbed themselves therein when the bolts tighten up. Patent unassigned.

841,849. Electrothermal Protector. Cook. A pair of metallic spring members, each being provided with a projecting point to hold a heat producing member in circuit with the metallic members and in juxtaposed relation with a grounding spring. Patent unassigned.

842,301. Insulating Ring and Bracket. Cook. A sheet metal bracket is formed in shape of a channel iron with an insulating ring at right angles to the channel and a piece of hard rubber conformed to the ring is arranged so as to insulate the inner portion of each side thereof. Patent unassigned.

842,449. Transmitter Front. Weiss. Transmitter front may be made of a casting, it may be made up into several parts and fastened together, but the cheapest way to put up a front is to punch it out of a single piece of metal, which is the object of the present invention. It will be observed that the metal has been bent inward so as to form supporting lugs for the dampening-springs and the bridge supporting the microphone movement. Patent assigned to the Kellogg Switchboard & Supply Company.

842,628. Substation Protector. Cook. Mounted on an insulating base is a fuse tube removably engaged its terminals and in series with one terminal of a lightning arrester and a self-soldering thermal sneak current protector. Patent unassigned.

842,738. Fuse Mount. White. This is a fuse tube of the enclosed type which is provided with suitable terminals adapted to engage rigid contact members and to have its terminals forced into engagement with the contact members by a spring bearing laterally against one of the terminals. The other contact member overlies the carbon block lightning arrester and assists in holding it in place. Patent assigned to Frank B. Cook.

843,930. Non-Arcing Muffled Fuse. Cook. This is an enclosed fuse in which the fuse member and a string of asbestos fiber are squeezed through the tube side by side so as to fill the same and whereby the fuse member is imbedded in the asbestos. When the fuse member is fused the asbestos expands, takes up the gases and fills the space normally occupied by the fuse wire. Patent unassigned.

844,506. Telephone Trunking System. Dunbar. When the outgoing end of the trunk is plugged in to the jack of the called line a self-locking relay at the end of the other end of the trunk is energized. This relay energizes a ringing signal which is continuous until the ringing key is pressed for signaling the wanted subscriber. Patent assigned to the Kellogg Switchboard & Supply Company.

844,635. Carbon Ball Transmitter. Turner and John-

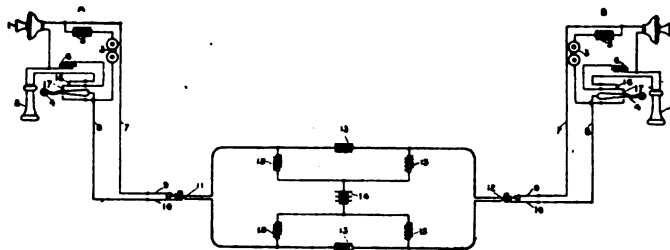
son. The inventor claims that the size of the balls which are extremely small prevents what is known as "cracking" or "frying," the balls being two to five-tenths of a millimeter in diameter. Patent assigned by mesne assignments to General Acoustic Company.

844,722. Receiver Support. Heisch. The transmitter is supported by a frame which has projecting therefrom an arm adapted to be adjustably regulated and having at its end an attachment for securing the receiver so that it may be placed against the users ear when his mouth is at the proper speaking distance from the transmitter. Patent unassigned.

844,839. Telephone Attachment. Whitehorne. This device is for attracting the attention of a subscriber with whom there has already been some conversation. The apparatus consists of a relay which operates a reed sounding bellows and is controlled by the switch-hook of the calling subscriber. Patent assigned to Howard C. Bailey of Philadelphia, Pa.

844,949. Sanitary Mouthpiece Guard. MacGill. The transmitter is provided with a holder in which there is secured a roll of paper suitably antiseptized and so arranged that it may be pulled down and torn off as desired. Patent unassigned.

845,056. Telephone System. Corwin. The transmitter at each substation is included directly in the line and choke coils are so arranged in the circuit as to force the telephone



current through the receiver. The hook is arranged in the transmitter circuit so that the receiver circuit is completed last. Patent unassigned.

845,062. Telephone Transmitter. Dempsey. The carbon button of this instrument is not operated directly from the diaphragm but through a series of levers indirectly connected therewith. As distinguished from the ordinary transmitters in use the inward movement of the diaphragm instead of inducing a pressure on the carbon granules reduces. Patent assigned three-tenths to William B. Beckman of Fayetteville, Arkansas; three-tenths to Harry T. Rodgers, and one-tenth to Madelene Dempsey, both of Chicago.

845,077. Telephone Trunking System. Goldrick. At the incoming end of the trunk a ringing signal is provided which is actuated when connection is established with the called line. This signal is rendered inoperative by a relay when the called subscriber responds. Patent assigned to the Kellogg Switchboard & Supply Company.

845,157. Composite Telephonic and Telegraphic Circuits. Yorke. The telegraph stations which are terminals of the line conductors have bridges leading to the telephone stations. A source of steady supply is included at the sub-telephone stations and the bridges include condensers of such capacity as to exclude telegraph currents. Earth branches are connected to the bridges between the condensers and the telephone stations and are also provided

with condensers. This avoids any disturbing of the telephone instrument. Patent assigned to the American Telegraph & Telephone Company.

845,282. Telephonic Current Reinforcer or Repeater System. Warth. The main line circuit is complete through without repeating or induction coils included therein and is provided with repeater apparatus. An induction coil is included in a bridge across the line and the repeater apparatus is connected inductively therewith. The transmitting elements and receiving elements being in series with a divided primary. Patent unassigned.

845,328. Party-Line Lockout. Boone. In this system, which is a lockout system, there is ordinarily no potential difference between the terminal of the incoming station and the ground. If, however, a subscriber removes his receiver a circuit is completed with the main line wires and when the operator at central plugs in magnets at the other substations are energized thus locking out all other parties on that line. Patent assigned to the Peru Common Battery Lockout Telephone Company, of Peru, Indiana.

845,452. Telephone Trunking System. Dunbar. A differentially wound supervisory signaling device responsive to current in only one side of the line is included in the trunk circuit so that when an excess current is flowing through one side, as for instance when a connection is established at the outgoing end, the signal is operative. When the called subscriber responds both coils of the signaling device are neutralized and the signal rendered inoperative. Patent assigned to the Kellogg Switchboard & Supply Company.

845,533. Telephone System. Dean. One of the strands of the cord circuit has a portion common to a plurality of cord circuits and forms means for completing a testing circuit. A relay which is operated when the line is completed for conversational purposes cuts out the common portion of said strand and closes a locking circuit around itself so that the common portion is cut out during the connection. Patent assigned to the Kellogg Switchboard & Supply Company.

845,546. Telephone Magnet. Harrison and Haslett. This is a receiver magnet having the permanent magnet thereof formed in two semi-circular members connected together to form a ring. The pole pieces form the connecting means and are inclined toward each other. Patent unassigned.

845,796. Multiplex Telephony. Lattig & Goodrum. In this invention the two trunk lines are combined to form a third trunk or phantom circuit. The ordinary trunks and the phantom trunks are so balanced, the inventor claims, that hardly any difference can be detected and there is no loudness or noise. This result is obtained by taking a tap off each side of the trunk line at each end uniting the corresponding pairs with suitably wound coil and connecting up each pair as one conductor to a contact of the jack. Patent unassigned.

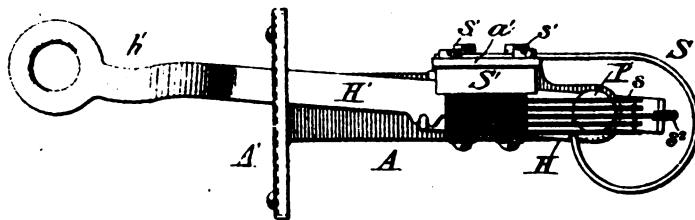
845,848. Electrical-Switch. Brackett. This is a switch-hook for wall sets and comprises a frame having an escutcheon plate, a pivot for the switchhook and a lateral shelf for supporting the switch contacts. These contacts are carried by a metal block and the block and contacts form a unit which may be detached and replaced for different types of systems without changing or disturbing any of the other parts. Patent assigned to the Dean Electric Company.

846,068. Acousticon. Turner and Johnson. This is a device for use in lecture rooms or the like for deaf persons, and comprises a series of acousticon transmitters arranged around a triangular frame so that voice waves from any part of the room will be communicated thereto. Patent assigned by mesne assignments to General Acoustic Company.

846,114. Electrical Winding. Lattig & Goodrum. The object of this invention is to reduce the capacity of double wound coils and other pieces of apparatus wherein the conductors are closely associated and exposed to opposite potentials. This is obtained by reversing one conductor or

body with relation to the other, so that instead of points between which there is a maximum drop being brought together, those having the minimum drop will be so associated. Patent unassigned.

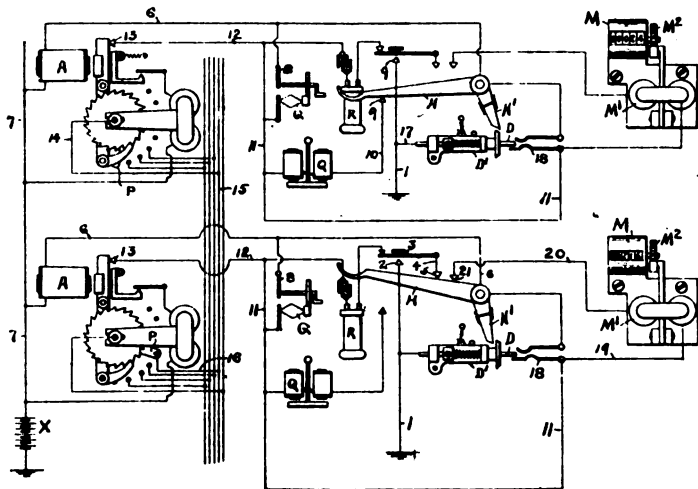
846,120. Electrical Switch. Manson. In this device a stub lever is removably pivoted to the base and is held in engagement with its pivotal point by its actuating spring.



The stub controls the set of springs and is operated by the hook lever which is made so as to removably engage the pivot and the stub lever. Patent assigned to the Dean Electric Company.

846,327. Calling Device for Telephone Exchanges. Lundquist. This is a sender for substations and is controlled by the switch-hook. A contact making device is arranged to be operated each time the hook is depressed, and there is a slipping connection so arranged between the contact device and the hook that the hook may be depressed at a greater speed than the movement of the contact member. Patent unassigned.

846,328. Registering Device for Telephone Exchanges. Lundquist. In this system there is included an automatic exchange having switching mechanism which may be operated by a subscriber at his local station so as to complete



connections with any other station and each station is provided with a registering device that is operated in response to a reply from the called station. Patent unassigned.

846,381. Telephone Exchange. Anderson. Each substation is provided with a magnet which is operated in the act of sending a signal. The subscriber in sending a signal closes the circuit of a similar magnet at central which completes a local circuit, included in which is the drop, the armature of which cuts out the battery which energizes the magnets of other substations. Patent assigned to John Anderson, of Salina, Kansas.

846,394. Telephone System. C. G. and E. J. Burke. When the subscriber initiates his call the line signal magnet closes a circuit at central which causes the line lamp to flash at intervals. The disconnect signal is different, although the same lamp is used and is characterized by a steady glow. Patent assigned, one-half to John Q. A. Whittemore, of Boston, Mass.

846,413. Telephone System. Kitsee. In this system the inventor has endeavored to reduce the size of the switchboard to its smallest compass. The jacks being only about

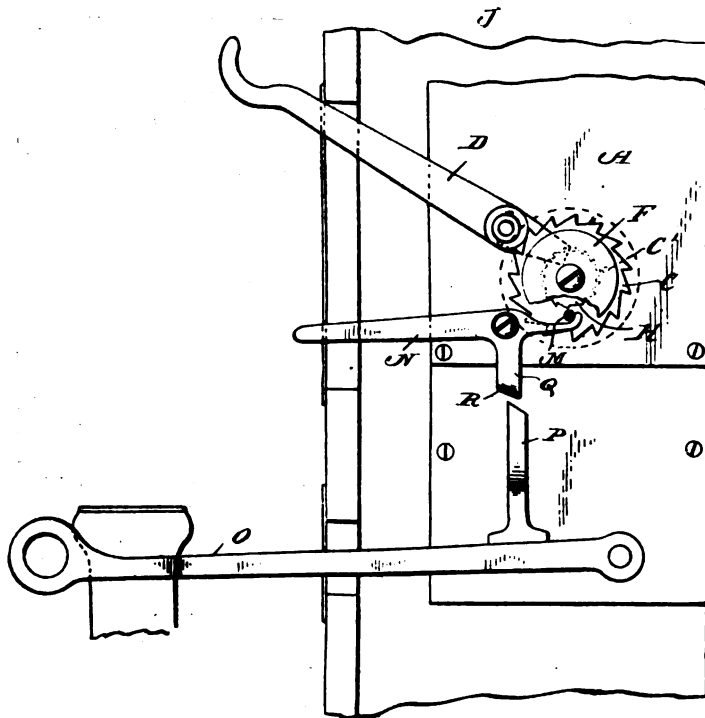
three-eighths of an inch wide and having only one line wire leading thereto. The plugs are also very small and also only have one line wire. The substation bells are grounded but the talking circuit is metallic. Patent unassigned.

846,479. Telephone. Koltonski. This is a house or intercommunicating system wherein push buttons for completing the circuits to the different substations are used. When a button is pressed ringing current is put upon the line and the talking circuit is completed when the button is released. The button may be returned to normal by pressing another button or by hanging up the receiver. Patent assigned to the Electric Gas Lighting Company of Boston, Mass.

846,557. Telephone Trunking System. Dunbar. In systems of this type the trunk relay has heretofore been of high resistance so that sufficient current cannot flow through it to operate the supervisory relay in the calling cord and to render the associated supervisory signal inoperative. In the present system the same results are obtained by means of a low wound trunk relay connected with one side of the trunk at its incoming end and with the ground, so that when the cord circuit is connected with the outgoing end of the trunk, the current finds no path over the metallic circuit and therefore the supervisory signal is not rendered inoperative until the subscriber responds. Patent assigned to the Kellogg Switchboard and Supply Company.

846,729. Fire Alarm System. Connor. In this system a plurality of circuits having repeating mechanism comprising a drum and contact plates thereon terminate in a central office upon fingers arranged over the drum so that upon rotation it will merge all of the circuits into a single common circuit so that signals may be sounded at a number of points. Upon further turning of the drum the circuits are again made individual. Patent unassigned.

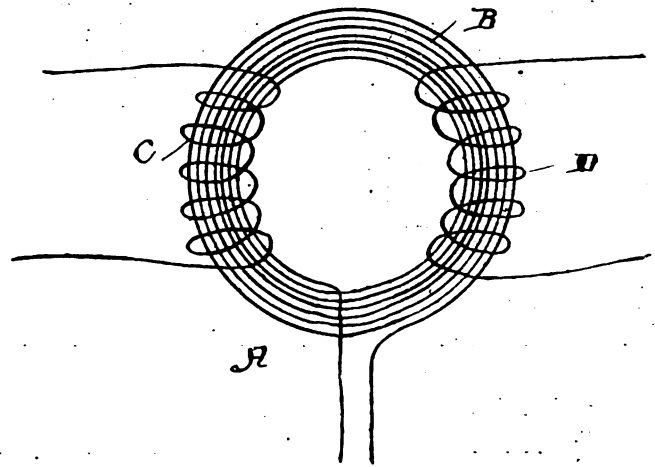
846,827. Telephone Service Apparatus. Couch. This is a release mechanism for make and break senders, and comprises a make and break device and a locking device so associated therewith and with the switch-hook that the



locking device is not operated upon the rise of the switch-hook but is operated upon the fall of the switch-hook or the depression thereof, so as to release the make and break device. Patent assigned to the Superior Automatic Telephone Company.

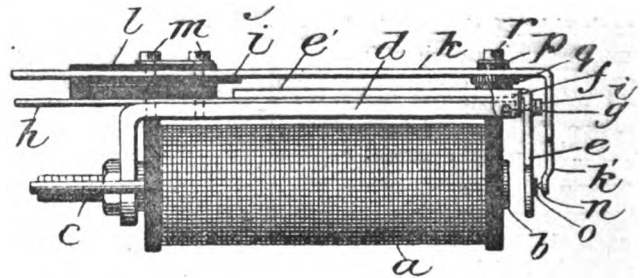
846,889. Telephone System. Andriano. Each station of this system has a switching device containing terminals for the line of every station excepting its own and a primary circuit including a battery and the primary winding of an induction coil. The substations are also provided with a ringing circuit including a ringing key and a movable switch piece operating to connect the ringing key in circuit with the line of any selected station, also a circuit connecting device between the primary circuit and the winding which operates when the ringing circuit is closed by actuating the ringing key to disconnect the primary circuit from its battery and from the line of its own station, and to establish when the ringing circuit is broken a connection between the primary circuit and the switch-piece. Patent assigned to Direct Line General Telephone Company.

847,008. Converter. Kitsee. Electric transformers or converters are generally made up with an iron core which is surrounded by the primary and secondary windings of the transformer. This invention, while it employs the iron core, calls for its being formed up by a continuous piece of



insulated wire. It is stated that a secondary current may be obtained from the wire forming the core and that various adjustments between the primary and secondary windings may be obtained through inserting different resistances in the circuit of the iron wire core winding. Patent unassigned.

847,197. Relay. Manson. The feature of this invention lies in the particular construction of the spring contacts as disposed towards the armature, and also in the wide air



gap provided between the pole piece of the magnet and armature. This for the purpose of rendering the relay insensitive to small currents while not interfering greatly when local circuit currents are applied to the relay. Patent assigned to Dean Electric Company.

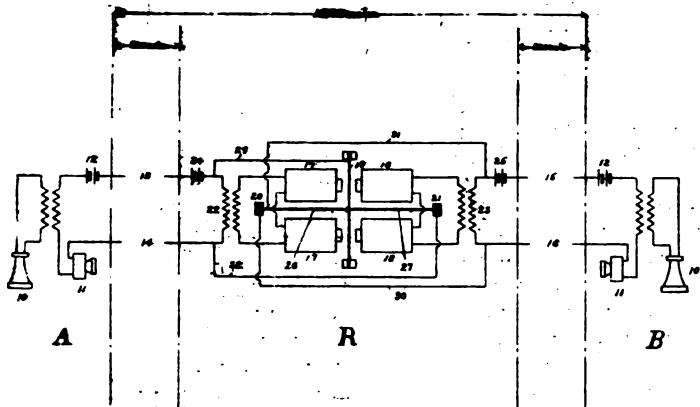
847,283. Telephony. Fisher. This is a selective system with each station provided with a selecting wheel operated by a polarized magnet responding only to impulses of a particular direction so that the wheel is turned to close the normally open contacts of the opposite direction. Patent assigned one-half to Geo. H. Duke, of Hotchkiss, Colo.

847,372. Lightning Arrester. Rolfe. This invention provides for a substance to be inserted between the car-

bons of a lightning arrester which will automatically close the circuit to be closed should the temperature between the carbons rise to a considerable degree. The substance possessing the quality of reducing its resistance upon being heated, and again automatically returning to normally high resistance requirements upon cooling. Patent assigned to Rolfe Electric Company.

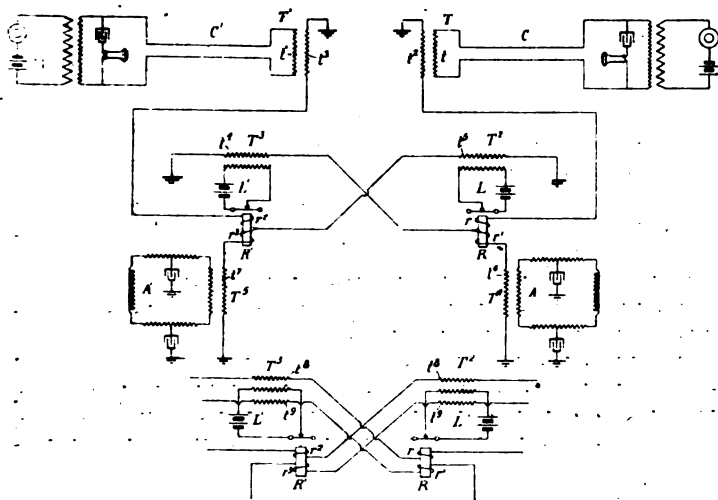
847,461. Telephone Call Meter. Bradshaw. When the telephone user subscribes for a telephone in which he is entitled to a certain number of calls, or for which he is to pay for every call originating at his station, there is some satisfaction in having a register installed at his station so that he may observe at any time the total number of calls made. This invention provides an arrangement through which the subscriber's station may be equipped with a meter and at the same time permit of a call being registered only when the telephone user is present, and in such a manner that the operator at the central office also is informed whether a call has been properly recorded. Patent unassigned.

847,656. Telephone Relay. Dickert. This is another relay of the type in which the "talk back" habit of most forms of telephone repeaters is claimed to have been over-



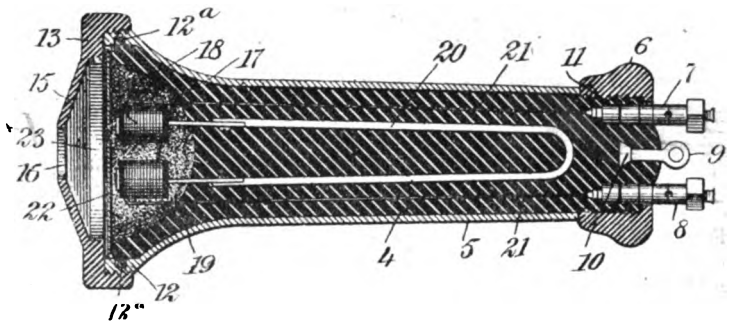
come by using the same diaphragm for both of the repeating relays. Patent unassigned.

847,777. Telephonic Repeating Circuit and Apparatus. F. E. DeF. D'Humy. It is a well known fact that the telephone repeaters in which the secondary circuit is reinforced by current generated at the repeating station causes the



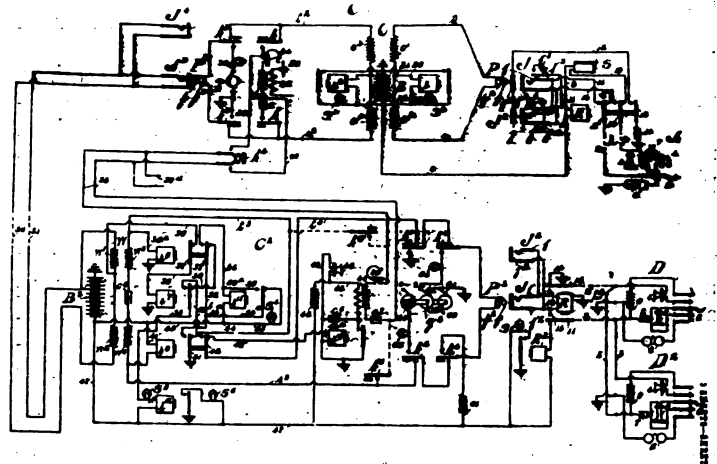
setting up of a reciprocating action. In other words, "say something" to the primary side of the repeater and the current induced in the secondary side "talks back" and sets up the well known "howl." This invention is directed at overcoming the defect above mentioned by neutralizing the effects of the secondary current on the primary circuit. This is accomplished by the use of differentially wound relays. Patent unassigned.

847,842. Telephone Receiver. Steinberger. This is a telephone receiver in which the magnet system is imbedded in the solid material forming the containing case with the modification that the outside of the material forming the



body of the receiver is covered with a metal shell. The binding post and the supporting screw are likewise imbedded in the material. Patent unassigned.

847,984. Telephone Trunking System. Dunbar. When it becomes necessary to render an inter-connecting service between telephone exchanges giving service to telephones of different character, say, local battery and common bat-



tery, special requirements are called for in connection with the trunking circuits. The present invention is directed at providing such a system. Patent assigned to the Kellogg Switchboard & Supply Company.

## TELEPHONES IN TWO COUNTRIES.

Naturally, it would be expected that more telephones would be in use in this country than in England, still as between 7,107,385 in the United States on New Year's day and 410,000 in England at the same time the disparity is rather surprising. The difference, too, is clearly not due to America's being the bigger country, for New York City, with half London's area, and a much smaller population, has more than twice as many telephones, while the gain is, at a five-fold greater rate. In the older country, the government manages a large share of the telephone business; Perhaps this is the reason it lags; or perhaps the individual Englishman is slow to take hold of it.

Independent telephone men have reason to be proud of the showing made by many rural exchanges, and to be glad indeed that the Bell has generally left the farmers' lines to Independent enterprise. Recently the directors of the Western Farmers' Telephone Company held a meeting at Eastman, Wisconsin, at which three shares of the company were sold for \$56.50. Three years ago shares in the company sold for as low as fifty cents. Needless to say, the investors in this rural company think that Independent telephony pays.



# MICHIGAN TELEPHONE CONVENTION

*Independent Association Held Its Tenth Annual Meeting at Coldwater, March 7-8*

By H. S. Cranfield

**M**EMBERS of the Michigan Independent Telephone Association held their tenth annual convention at Coldwater, Michigan, March 7 and 8, and both in point of attendance and interest manifested the two-day session was the most successful meeting held by the organization during the decade of its existence. The 1907 convention demonstrated that the Michigan Independents are in first-class condition, enterprising and alert, and ready to seize the opportunities for still greater prosperity and development in the future.

All the leading Independent telephone men of the state were present, as were a number of prominent factors in the movement from other states, and all derived much benefit from the gathering. The reports from the principal companies of Michigan were most encouraging and had the effect of stimulating the enthusiasm of every member of the association.

The convention met at the Armory, Thursday, March 7, at 2 p. m. A feature of the opening session was an address of welcome to the delegates by George E. Kleindinst, mayor of Coldwater, who was an operator in the local telephone exchange some years ago. Mayor Kleindinst assured the delegates and visitors that the keys of the city were at their disposal, and he proceeded in his remarks to trace the growth of the Independent telephone movement. He had nothing but praise to express for the leaders in the fight against telephone monopoly, and concluded with a handsome compliment to the Southern Michigan Telephone (Independent) Company, which has just constructed a fine new exchange at Coldwater.

A happy response to the mayor's welcome was made by E. B. Fisher, of Grand Rapids, the president of the Michigan Independent Telephone Association. President Fisher's annual address followed, and contained a review of conditions in the state which showed the movement in Michigan to be in an exceptionally healthy condition.

William Robinson, of Muskegon, the treasurer of the association, then offered his annual report, which showed a cash balance of \$140 in the treasury. J. B. Ware, of Grand Rapids, the secretary, submitted his official annual report which was unusually interesting. The following papers were read at the Thursday session:

"Improving Toll Line Service," H. T. Clough, manager Owosso exchange.

"State Traffic Association," W. S. Vivian, manager, Grand Rapids.

"Telephone Patrons," Fred C. Hughes, manager Lansing exchange.

"Getting Business," C. H. Hood, contract department, Home Telephone Company, Detroit.

"Manitoba Experiences," N. F. Wing, president Farmers' Telephone Company, Jackson.

"State Managers' Association," F. V. Newman, manager exchange at Grand Rapids.

"Michigan's Thumb," H. A. Price, general manager Saginaw Valley Telephone Company, Bay City.

An adjournment was then taken until evening when the convention again met and listened to reports from companies, which were the feature of the second session. Some of the companies submitted written statements while others were verbal reports, but in every case the facts laid before the delegates told the same story of prosperity and progress for the Independent telephone movement of Michigan.

For instance, the Citizens' Telephone Company of Grand Rapids reported over 27,000 telephones in its system, owned by it in its more than 80 exchanges, besides nearly 4,000 miles of modern toll circuits. It has paid 38 quarterly cash dividends of 2 per cent, making the exceedingly good record of nine and one-half years of 8 per cent dividends annually. Its largest exchange is at Grand Rapids, with over 8,500 telephones, while the Bell has only about 3,500 in that city. The population of the city is 100,000.

Another interesting report was that made by W. B. Woodbury, general manager of the Home Telephone Company, Detroit, who reported that his company put 1,200,000 feet of underground in last fall, and will begin work again as soon as the frost is out of the ground. Poles for distribution have been placed, and a large quantity of cable has been drawn in during the winter. It is expected that the cable system for the main exchange will be completed by the time the exchange is finished. The building is already erected as far as the second story and will be finished in May. It is expected to begin service about September 1, 1907, and to give commercial service in October, or at the latest in November next. The verified contracts already signed number 10,174, as reported by C. H. Wood in his article on "Getting Business." Mr. Woodbury outlined the plan of developing other exchanges and the long-distance business in southeastern Michigan. The recent organization of the Inter-State Telephone and Telegraph Company, with \$15,000,000 capital, was for the purpose of carrying out the plans named, and ample capital has already been secured.

F. M. Howard, auditor of the Saginaw Valley Telephone Company, reported for that company, which operates about 4,500 telephones in the Saginaw valley and upwards of 1,500 in the section known as "the thumb." In his paper on "Michigan's Thumb" General Manager Price had described the development in that territory and showed that while the Bell company has not a single exchange, the Independent company, with the three small companies, has about 2,000 telephones in the fifteen exchanges, and all are connected by good toll lines. Mr. Howard furnished information as to the amended franchise at Saginaw recently secured through the efforts of C. O. Trask, which has a satisfactory "sliding scale" of rates, and was passed by unanimous vote of the council after months of campaigning upon the problem, and with the hearty approval of the citizens generally.

This assures the modernization of the Saginaw exchange and without loss of time. Already \$100,000 in cash for this work of extension has been secured.

Speaking for the Adrian company, W. O. Hunt reported 1,500 telephones, and 17 per cent in dividends last year. He also stated that the free service of the Bell company, so many years in force in Adrian, was discontinued last January, and with material results for the Independent company.

General Manager King, of Ann Arbor, reported that the Home company, with 1,796 telephones in Ann Arbor, Ypsilanti and Dexter, all made a splendid gain during the past year. He described the very satisfactory installation and working of four police telephones in public places with 12-inch gongs, and stated that the council had unanimously voted to increase the number. He also reported having 70 University of Michigan professors as subscribers to the

Home Telephone Company, the great majority having been secured during the past few months by reason of the popularity of the company's excellent service. The outlook is most satisfactory.

The report of General Manager Melchers, of the Union Telephone Company, Alma, showed 7,000 telephones. The company has paid 8 per cent dividends annually for eight years. Satisfactory growth has been experienced, and excellent prospects for a continuance of these healthy conditions seem assured.

President A. C. Himebaugh, of Burr Oak, of the Southern Michigan Telephone Company, reported having completed a large amount of long-distance and exchange work in southern Michigan during the past year, and has even larger improvements planned for the present year. The recently finished exchange in Coldwater is as complete and modern as any plant in the United States. It is all cable construction—the first in the state. Mr. Himebaugh stated that during the five weeks the plant has been operated not one case of trouble has been reported. The very high standard of construction in the Coldwater exchange, the recent making of contract relations between Mr. Himebaugh's company and the Adrian Telephone Company for long-distance development, and the building of an exchange in Hudson, insures for southern Michigan modern and adequate development for Independent telephone interests, and this is sure to come with great rapidity. Mr. Himebaugh hopes to build Three Rivers, and possibly Kalamazoo, during the year.

Many other interesting reports were made as to growth and conditions of companies throughout the state. While complete statistics are not yet compiled, the indications are that Michigan has 100,000 Independent telephones now in service.

Mr. J. B. Ware reported that but 2.76 per cent of the stock of the Michigan State Telephone (Bell) Company was owned in the state, and this is held by 76 different persons.

### FRIDAY SESSION.

The convention met at 9:30 a. m., Friday, and the first number on the program was an address by J. B. Hoge, of Cleveland, president of the International Independent Telephone Association, who spoke on the work and aims of the organization. Frank L. Beam, president of the Ohio Independent Telephone Association, responded to a call for "Neighborly Greetings" from distinguished visitors. Mr. Beam gave an interesting account of the Ohio situation and submitted figures of telephone growth in the Buckeye state which surprised many of his auditors. He said that in 1896 Cleveland had but 6,500 telephones and that now there are more than 45,000 in that city—more, in fact, than there was in the entire state of Ohio in 1896. Mr. Beam said that last year the number of Independent telephones in Ohio was increased 22,000, and that the indications this year will see that record eclipsed.

Following Mr. Beam, papers were read as follows:

"Our Duty to the International Association," C. E. Tarte, general manager Citizens' Telephone Company, Grand Rapids.

"Encroachments," J. E. Hisey, president Laingsburg Telephone Company.

"Our Rural Friends," A. B. Fishback, manager Livingston Home Telephone Company, Howell.

"Important Lessons in Rural Service," Thomas Bromley, Jr., general manager Lake Shore Telephone Company, Hart.

"Conditions in the Northwest," Hon. J. B. Ware, Grand Rapids.

An unusually interesting address on "Chicago Connections" was delivered by Theodore Thorward, president of the Home Telephone Company, of South Bend, Indiana, explaining the present activity in building the long-distance

lines in Chicago, and the rapid development of the exchange in his city this year. The obtaining of the long-distance connection with Chicago is of utmost importance to southern Michigan, and the assurances given by Mr. Thorward make certain the development of southwestern Michigan this year, including Kalamazoo, Dowagiac, Benton Harbor and St. Joseph. General Manager C. E. Tarte, of the Citizens' Telephone Company, Grand Rapids, announced that arrangements had been completed between the Citizens' company and the one managed by Mr. Thorward for Chicago connections, and that the toll lines between Grand Rapids and South Bend will be built this spring.

The convention concluded with a banquet at the Southern Michigan Hotel, which was attended by 150 members of the association.

The officers elected for the ensuing year are: President, E. B. Fisher, secretary Citizens' Telephone Company, Grand Rapids; secretary, W. S. Vivian, Grand Rapids, manager of the State Traffic Association; treasure, A. C. Himebaugh, Burr Oak, president Southern Michigan Telephone Company. Mr. Vivian's selection as secretary is most fortunate, as his constant and active relation to each of the operating companies in the state through the clearing house or traffic association, will enable him to obtain accurate data with great economy of time and effort.

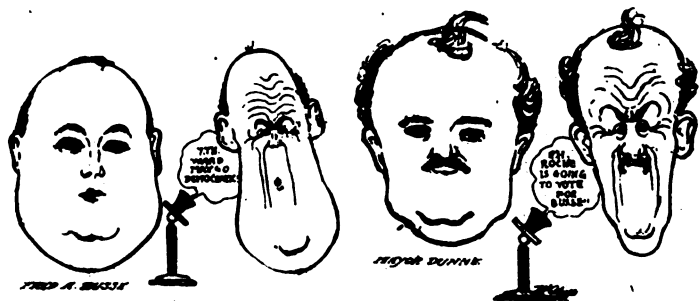
Following are the delegates named to represent the Michigan association at the International convention in Chicago in June: Delegates—J. B. Ware, Grand Rapids; W. B. Woodbury, Detroit; A. C. Himebaugh, Burr Oak; W. J. Melchers, Alma; C. E. Tarte, Grand Rapids. Alternates—R. B. McPherson, Howell; R. C. Smith, Homer; C. R. King, Ann Arbor; W. A. Young, Benzonia; H. A. Price, Bay City.

President Fisher appointed a legislative committee consisting of W. B. Woodbury, Detroit, Home Telephone Company; R. B. McPherson, Howell, Livingston Home Telephone Company; R. D. Graham, Grand Rapids, Citizens' Telephone Company; W. B. Melchers, Alma, Union Telephone Company; Thos. Bromley, Jr., Hart, Lake Shore Telephone Company.

As provided by the constitution the executive committee will be announced by the president at a later date.

### THE TELEPHONE FACE.

The Chicago Examiner is responsible for the cartoon which appears herewith, and shows the normal expression of the two rival aspirants for the Chicago mayoralty, and the "telephone face" when advised over telephone that



things were not going as desired. Just how many people are getting the telephone face is not known, but if it has the same effect on everyone as upon Messrs. Dunne and Busse, the inventor of the telephone will have much to answer for.

A telephone transmitter has been installed in the M. E. church at Mt. Carmel, Illinois, and it receives the full force of the sermons delivered by the pastor, the Rev. Mr. Knight. All members of the church who have telephones in their homes can hear the sermons. The innovation was made for the benefit of members who are not able to attend church.

# ADVERTISING LONG DISTANCE LINES

*A Strong Argument Urging the Importance of Independent Companies Exploiting Their Toll Service.*

By W. J. Stadelman

THE installing of telephone booths and pay stations is the first move Independent companies should make in order to inform the public of the fact that they have long distance lines and connections, and I do not believe there is any other improvement channel that money could be put into which would produce as great results as these two things. Their initial cost is not very much, and the convenience they prove to the public and to the telephone company is a matter of vital importance. It saves subscribers from being bothered by people using their private telephones for public use, saves the telephone company from unpleasant disputes with patrons over charges supposed to be collected, and obviates many other difficulties which are sure to arise. All of this, however, is not the real benefit that the telephone company is to derive—it is the money that long distance pay stations are capable of earning—and if you will figure the cost of installation of a long distance booth with the installation cost of a subscriber's line, and the relative revenue produced, you will find that the long distance pay stations are the paying investment.

I call to mind a small exchange operating in a town of 5,000 inhabitants that made an experiment by putting in a pay station in the railroad depot with a five cent charge for local connections and the regular charge for long distance connections. On account of the seeming uncertainty of the experiment a cheap booth was purchased, the entire equipment, including booth, pay station, telephone, line equipment and work costing less than \$60. The first month of its operation it earned \$5.20 and it is now yielding \$130 a year. So much for a \$60 investment. The experiment made such a good showing that the company decided to place booths and pay stations in all of the prominent public places in the town, which included not only one hotel and one drug store, but all of the hotels, all of the drug stores, and even the hallway of the city building. This company later placed a street sign near the railway station for the use of the hackmen, as they made this particular place their stand, and I have been not only told, but have been shown, that each one of these long distance pay station is a large revenue producing line for the money invested. This same company has now given orders that an effort shall be made to place long distance pay stations in all of the towns where it has exchanges. You must bear in mind the fact that the town I speak of has only 5,000 inhabitants. If this be true of a town of this size, the same rule will apply to any city of greater population. The relative increase will be larger in comparison with the increased population from the fact, as we all know well, that the number of conversations or the amount of business done over a telephone in the cities increases at a greater rate with the relative increase of subscribers.

Now, as to the psychological advertising of the words "long distance." You must understand that the establishment of long distance pay stations is not all that is required in order to get the money. You must be very active in your advertising. Let the people know that such pay stations have been placed for their convenience, and in doing this you must be careful to advertise in such a way as to get results. The term "long distance" has been sadly neglected by the Independent telephone companies throughout the country, to such an extent, in fact, that it is al-

most unknown among them, and so thoroughly has the word been used and applied by the Bell company that it is now considered a part of the monopoly's system. The mere mention of "long distance" almost seems to convey the idea that it is the exclusive property of the Bell company and in no way belongs to the Independents. This circumstance or condition has not been altogether brought about by the shrewdness of our opponents, but from the mere fact that we as Independents have not been sufficiently active in its use. We have resorted to the use of the words "Local," "Home," "People's," etc., to such an extent that they carry with their application just what they imply—a local or a home concern—and so strongly has this been fixed in the minds of the public that when the word Independent is seen it means to the long distance user nothing more nor less than a local company which covers only their immediate territory and has no significance or connection whatever with "long distance."

We as Independents are directly responsible, and in order to change this condition of affairs we must start at the bottom. Don't allow your operators to receive a long distance call under consideration without the subscriber making use of the term "long distance," and, if a call is received by your local operator, have her refer the subscriber to the long distance operator. I refer to this condition for small exchanges. Should your plant not be large enough to employ an exclusive long distance operator, or have a long distance board, then instruct the girl that operates the section with the long distance line to receive all outgoing messages as "long distance," and, if you only have one operator, call her your long distance operator, thereby compelling the public to connect this term in some way with your system. I speak of this in particular for the benefit of those who have been using the word "toll" instead of "long distance," for I have found several companies which are doing this very thing.

Do away entirely with the use of the word "local." This is not only meant for the small operator, but the large one as well. Its very use is not only dangerous but ruinous, for the Bell telephone company is using every effort to fasten it upon you in such a manner that it will be almost impossible to shake it off, and the longer we keep quiet and do not protect ourselves by discouraging its connection with us the more telling will be the effect.

Now, in order to change this condition, there must be a united advertising effort put forth by all of the Independent companies, fixing in the minds of the public the idea that the word "long distance" belongs to the Independents as well as to the Bell. As soon as this is done the sooner the results will be felt. There is no doubt that there will always be two telephone companies which are doing long distance work, just the same as the Postal and the Western Union Telegraph companies. Some of you may claim that the lack of advertising the word "long distance" does not exist in your territory. This was a case with some of my friends in Ohio. They claimed that they were getting more of the long distance business than their opponents. Let us see. I will cite you several cases which came to my notice in the very hot-bed of Independent telephony, where there is more Independent advertising done than in any one place that I know of. I refer to Cleveland territory.

I happened to be at Akron, and, stopping at the Empire

Hotel, and noticing only one telephone on the desk—an automatic—I asked the clerk if that was the only telephone that he had in his place of business. He immediately informed me that they had the "long distance" telephone, to which I was shown. After going to the place and finding that the instrument belonged to the Bell, I came back to the desk, and as the clerk was gone I asked the elevator boy for the telephone with which I could talk to Cleveland. Again was I shown to the supposed long distance Bell. I then asked if I could use the Independent automatic, and was informed that I could, which I did with good results. Had I not been familiar with conditions the Bell telephone company would in this case have received the money.

Calling on the secretary of one of the largest rubber concerns in Akron, I found two telephones on his desk and asked why he kept the two instruments there. I was told that one was the long distance and one was the local, meaning, of course, Bell and Independent. The latter has far more local subscribers and better long distance connections in this immediate territory, still this business concern never uses the Independent lines for its long distance service. The result is that the Independent company gets only the monthly rental for its telephone, which is \$3.00, or \$36.00 per year, while the Bell company receives the monthly rental of \$3.00 with an additional \$20.00 for long distance service, or a yearly income from this one telephone of \$276.00. Does this seem like a fair and equitable division when the comparative service is in favor of the Independents? Doesn't it stand to reason that something should be done when conditions such as these exist? There seems to be no doubt that the lack of advertising is responsible.

Another instance was found at the Hollenden Hotel at Cleveland. Here the Independents have a very prominent space for their long distance pay station, fitted up with handsome walnut furniture, and they should naturally receive the larger percentage of the business, but such is not the case, for the Bell company has seen fit to hang directly over the Independent operator's desk an attractively framed blue enamel Bell sign, with the words "Use Bell Pay Station" and a large white hand pointing to the booth, which is around the corner and in an out of the way place. However, the willing patron, in walking up to the Independent desk, has his attention diverted by the Bell sign, and unconsciously passes the Independent station, walks over to the Bell station and gives it his money. This same condition exists at the Colonial Hotel. The Independents there have again by far the better location, the Bell pay station being behind the elevator and entirely out of sight of the general public, but all the signs around the office desk point to, or say something about, the use of the Bell long distance lines. Upon making inquiry at this particular station as to the relative amount of business done, I found that the Bell people have an average of eighty-five local calls per day and do about \$8 long distance business, while the Independents have only forty-five local calls and do about \$3.50 long distance business. This condition is not reasonable, because, as I have stated before, the Independents in this territory have far better local and long distance service, and should get the greater amount of business, especially as the Independents have the immediate territory well supplied and practically all covered with long distance lines. Besides, seventy per cent of the long distance business is done under a thirty cent rate, and therefore the Independents should receive the greater amount of the long distance traffic.

Upon leaving Cleveland you will notice at the passenger station a very large railroad sign which displays the words "Show your tickets before entering the gate." This sign is about thirty feet long, and directly under it is another sign about twenty-eight feet long, which reads, "Use Bell Pay Station," with a hand pointing to its location. In cases of this nature it is very hard for the Independents to get

prominent advertising space at the hands of the railroads, for there seems to be a disposition on the part of these corporations to favor the Bell telephone company. It only goes to show, however, how extremely active the Bell people are in taking advantage of any and all conditions in order to get their signs and advertising in conspicuous places.

I have cited you Cleveland and surrounding territory, as I stated before, on account of the seemingly thorough manner in which the Independents have advertised, and how especially alert the Bell people have been to the situation, and I wanted to show by this that no matter how active and progressive we are in our advertising the Bell people display two signs where we display one.

At Washington, D. C., you will find an altogether different situation. The street urchins and hotel attaches hardly know where a telephone pay station is located, there are very few signs, and the advertising is noticeably scarce. This condition always exists in towns or cities where there is no competition. There is no reason for the Bell people to spend their money in advertising in such cities, and, besides, there is no incentive to give good service to the public except where they are compelled to. In Boston, for instance, since the granting of an Independent franchise, the Bell is becoming very active, and has many clever advertising men on the ground fixing permanent, attractive long distance signs and stations in all of the public places. By the time the Independents are installed the general public will be educated to understand that, even though there is competition, the new Independent company will be only a local concern, and will have no long distance lines. With this argument the Bell telephone company keeps its instruments in all places of business, and uses every effort to instill into the minds of the people that the Bell is the only company able to give long distance service. The Bell agents discourage and scoff at the idea of the Independents even making an attempt at such service, and in this manner the word "long distance" is again fixed in the public mind as being the exclusive property of the Bell telephone company.

Then there is St. Louis, with its good, strong, Independent telephone company, the Kinloch. Its pay station sign at the Union railroad station reads as follows: "Connections with Sedalia, Jefferson City, Nevada, Kansas City, Joplin, Terre Haute, Indianapolis, Louisville and intermediate points." The Bell company's sign reads: "Long distance service to all points in the United States and Canada." Can you grasp what this kind of expensive advertising means to the long distance user who is not thoroughly familiar with the telephone situation? It simply means that the Bell company, by its far-reaching, misleading, but thorough advertising, is capable of getting the money, and I believe the method of advertising, adopted by the Kinloch company is costing that concern many dollars every day. Why not copy after the Bell and say "Long Distance Lines Everywhere"? Then you would get an even break with the Bell. You would at least get an inquiry for the long distance calls. Let your operator state whether you have these connections or not. Don't advertise certain points. It is misleading and fails to get results.

Another seemingly gross mistake by the Independents is the fact that after they have closeted themselves as boards of directors and devised ways and means of building good, long distance, Nos. 8 and 10 copper lines, making connections with the important points in their territory, they then neglect to mention it to anyone, not excepting their own employes. A case of this kind was brought to my attention by Mr. Parmele, a pioneer Independent telephone man of Plattsmouth, Nebraska. As he was returning from the coast he stepped off his train at Grand Island in order to telephone home that the train was late. Upon going across the street to the hotel he found that he wouldn't have time to put in his long distance call, so he left instructions with



the proprietor, requesting him to use the Independent lines from Grand Island to Plattsmouth. The hotel proprietor said that the Independents had no connection that far. Mr. Parmele immediately informed him that the Independents had a good copper long distance line and it had been built more than a year. The proprietor was very much surprised, as he had been in the habit of using the telephone frequently between Grand Island and Plattsmouth, a distance of about 150 miles, and in all cases had given his money to the Bell company.

Cases of this character are so frequent, and have come to my personal notice so often, that I could go on indefinitely describing them. In fact, I do not know of a single instance in which an Independent company has exhausted all its resources to inform subscribers and the general public of the fact that it has long distance connections.

I would suggest that in cases where new long distance lines are built, closing up gaps, new territory is covered, or even where long distance lines are now built, that a bulletin be gotten out immediately, showing the number of new connections and giving all information relative to the same. You should then see that every one of the employes of the telephone company, including the office boy, groundmen, linemen, operators, board of directors, president, and all, is given a copy; also a list of your connecting stations and their attaches, all of your subscribers, not excepting even those on the farmer lines. Put notices in the local papers and keep standing advertising there if necessary. In this manner you will get before the public the fact that you are at least accomplishing something.

A condition due to systematic advertising was forcibly brought to my notice the other day at Waco, Texas. Mr. J. B. Earle, president of the Texas association, in his speech of acceptance, made the statement that during the year 1906 he had not expended a dollar for the building of any new lines or circuits, but had given his entire time and attention to advertising those that he had already constructed, and that at the end of the year he was agreeably surprised to find that his long distance business had been increased fifty-five and one-half per cent. With this fine showing I do not believe it possible for any of us to spend our money in any better way.

While in Chicago a short time ago, arranging to get out an order of about 1,000 signs, and thinking this quite a large purchase at one time, I was surprised to learn that

at that time a firm was putting in an order for 50,000 at the average price of \$1.00 each. I expressed my surprise, and was then informed that there was nothing very startling about that order, as the firm was then working on an order of 75,000. So great did the figures seem to me that I was afraid to ask any further questions. These, however, were not telephone sign orders, but it only goes to show that the manufacturer, the jobber, and retail man, and, in fact any one who has the goods to offer, does not hesitate to advertise. Stop and think of some of the advertising that has been done by manufacturers of certain lines of articles. If you were told to bring home a certain kind of scrubbing soap, and had forgotten the brand, upon entering the store to make your purchase, and if you could think of no other name, the word "Sapolio" would surely flash into your mind. The same will apply to any other article which has been persistently brought to your notice by what is known as "psychological advertising." Now, if we as Independents can produce this same effect with the word "long distance," fixing it permanently upon the minds of the public, showing that the word belongs to us as well as to the Bell, we can pay more dividends by accomplishing this than in any other manner. In the past sixty days I have traveled through seventeen states, making the principal cities where in the Independents are strong and seemingly active. I have made inquiries of 211 attaches of the various hotel in these cities as to where their long distance booth was, and in every instance was shown a Bell station. I have tried my best in all this time to find someone to show me an Independent booth, but have failed in every instance. This is certainly a deplorable condition, especially if we expect to make money out of our long distance lines, which we have been so active in financing and constructing. By omitting the word "local" entirely from all of our advertising, substituting in all instances the word "long distance," and making it the dominating feature above even "Independent," we would accomplish the desired results. The day of sympathy in the telephone field has long since passed; it has now resolved itself into a purely business proposition of dollars and cents. If this line of thought on advertising, as I have above stated, were thoroughly and systematically carried out I will venture to say that the long distance business of all of the Independent companies throughout the United States would be increased at least twenty-five per cent with absolutely no expenditure for additional equipment.



## THE TELEPHONE IN HAWAII

*Unique Line Constructed Into the Mighty Crater of the Volcano  
Kilauea*

By George C. Cobden



From Hawaii, which is one of Uncle Sam's first insular possessions in the Pacific ocean, comes interesting information as to the extension of telephone development. Builders of telephone lines have climbed mountains, penetrated forests, delved in mines and gone beneath the surface of the water, but a hotel proprietor in Hawaii has eclipsed all such records. His name is George Lycurgus, and he has built a telephone line from his hotel down into the mighty crater of the Kilauea volcano. Fiction writers have, in imagination, constructed telephone lines to the planet Mars, and scribblers of verse have sung of telephoning to heaven and the "other place," but Landlord Lycurgus is the first actually to build a line to the nether region, which is well represented by the great volcano.

The distance from the Kilauea Volcano House to the crater is about two and a half miles. The telephone line runs to the entrance of the crater and then dips down and across the floor of the fearsome place to the very brink of what is known as "the pit of fire," which is called "Halemaumau" in the Hawaiian tongue. In this way communication is established between the outside world and the fiery pit which, the natives say, is the dwelling place of Mme. Pele, the Hawaiian goddess of fire.

In the crater flames, smoke and fiery lava are constantly in activity. Tourists who visit this scene will welcome the opportunity to telephone their friends at the hotel and know that, while their own surroundings are grim and fearful, the outside world is still beautiful and bright. The

volcano telephcne, so to speak, will relieve the feeling of dread and horror which strikes those viewing the eruption that so vividly suggests the pit 'bf Sheol.

Kilauea volcano is a scenic wonder that attracts visitors from all over the world to Hawaii. It is the largest known living volcano. In shape, it is a depression in the mountain side, 4,000 feet above sea level, though some geologists believe it was originally a separate peak whose identity was lost when lava from Mauna Loa filled the valley between.

Its extreme width is 1.95 miles; length, 2.93 miles; circumference, 7.85 miles; area, 4.14 square miles. The crater floor is 900 feet below the rim.

For many years Kilauea's periods of activity have been spasmodic; but even in its most quiescent mood there has always been sufficient heat at the surface of the lava floor



The Crater of Kilauea Near Honolulu.

to instantaneously ignite inflammable materials, while dense volumes of sulphur vapor constantly ascend from its active chimney, Halemaumau.

The center of activity is reached by a trail and is about 3 miles from the Volcano House, located on the crater's rim. All along the road are odd and irregular lava formations, small caves and cones sending forth vapor incessantly. The broad stretch of lava resembles quickly hardened pitch or coal tar and the varied colors and shapes are full of interest.

Honolulu, the principal city and harbor of the island, is the half-way house for travelers between America and the Orient and receives thousands of tourists every year.

Scores of people have recently returned to Honolulu with interesting stories of their experience at the lava flow on the island, but without exception the most original experience related was that of F. W. Klebahn and E. M. Campbell, two prominent business men of Honolulu. They visited the flow at a point about 5,000 feet above sea level. They made the mistake of not providing themselves with warm clothing and heavy blankets. Of course with a telephone line in operation between the hotel and the volcano such mistakes could easily be rectified, as a message would have enabled the hotel attaches to send on the supplies necessary for the comfort of the tourists.

However, they were invited to occupy part of a tent near the flow and they gladly accepted. But the tent afforded little resistance to the chill of the mountain air. Neither man seemed able to get warm, and for hours they lay in actual misery from the cold. Finally Klebahn decided upon a very novel method of overcoming the lack of heat-generating garments by making the lava-flow and there to try to go to sleep. The top of the flow proved but a hard bed, with the multitude of coke-like clinkers of lava, but it was warm. Underneath this outer covering of a-a lava was an inner stream of pahoehoe lava, a hot molten mass of fluid that gave forth heat in quantity to have satisfied the coldest blooded person.

This very novel place of slumber did not travel quite so fast as a folding bed, but it kept moving steadily and irresistibly toward the sea, for when the pair awoke in the bed at daybreak they found that the lava had moved fully 50 feet toward the ocean during the time of their slumber, leaving their clothes hanging on a tree behind them.

Although the lava flows from the higher slopes of Mauna Loa have subsided, there is continued activity at Kilauea. The inner pit of Halemaumau is beginning to fill up rap-

idly. Some weeks ago it was measured by a surveyor and found to be about 600 feet in depth. Since that time the boiling, seething lava in the mighty cauldron has filled up several hundred feet. Some persons believe that the pit will fill entirely to a level with the floor of the outer crater of Kilauea.

Reports from the other side of Hawaii, where the big lava flows occurred this month, indicate the source of one flow was about five to six miles down from the top. The source of the first flow appeared to be at an elevation of about 7,000 feet. At that point the lava was leaving the side of the mountain in vast quantities of liquid mass.

Honolulu is to have an Independent telephone system. The United States Congress has ratified the franchise granted the Standard Telephone Company, Limited, by the Hawaii legislature, and work will begin at once to furnish the islands with a modern telephone service.

The company is capitalized for \$500,000, with the following officers and directors: Guy Owens, president; D. P. R. Isenberg, vice-president; Harry Armitage, treasurer; H. E. Murray, secretary; I. C. Carter, auditor.

A franchise was granted to the Standard Telephone Company, Limited, by the legislature of Hawaii April 26, 1905, and pursuant to the organic act was duly ratified by the United States Congress in 1906.

The franchise covers the entire island of Oahu, the second island in point of size, which is forty-six miles long by twenty-six miles broad, with an area of 600 square miles and a population of 75,000.

The telephone installation will consist of 1,000 residence telephones; 300 business telephones (direct line); and 200 rural telephones (party line). The class of construction includes eight miles underground in the business section, sixty miles aerial cables, in residence section, and one hundred miles pole line, No. 12 copper, in the rural districts.

An automatic system will be used within the city, and the best lock-out system on the market for the rural service.

The Standard company will have its own building, absolutely fire-proof, of reinforced concrete and steel construction, and will be located in the business parts of the city. The Standard Telephone Company, Limited, was incorporated in February, 1901, and like many Independent companies had a hard siege in securing a franchise.

Its president, Mr. Owens, was for many years engaged



Honolulu, as Seen from the Harbor.

in electrical construction work in Chicago, and went to the islands in 1897, and installed the entire electric lighting and telephone systems in five of the largest sugar plantations. In 1902 he became connected with the Standard company, and in conjunction with an associate attempted to get a bill through the legislature of Hawaii in the spring of 1903. The influence claimed by the associate failed to materialize, and the attempt failed. He did not forget the old saying, "If you want a thing done well, do it yourself," however, so by careful planning and proper tact the franchise passed by a large majority in April, 1905. President Owens has control of the present stock issued, and it is expected that construction work will be pushed rapidly.

A large force of skilled men in all the necessary branches will be secured from the United States. Mr. Roy Owens, superintendent of the automatic department of the Citizens' Telephone Company of Columbus, Ohio, is a brother of Mr. Guy Owens, and will soon join him in Honolulu.

**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done. TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

Copyrighted, 1907, by The Telephony Publishing Company. All rights reserved.

# Telephony

With which is incorporated The Telephone Magazine.  
Published on the first of every month by

THE TELEPHONY PUBLISHING COMPANY  
301-306 Manhattan Bldg., Chicago, Ill.

H. B. McMeal	President
E. M. McMeal	Vice-President
H. D. Fargo	Secretary and Treasurer
W. H. Graffis	Advertising Manager
H. A. Downey	Subscription Manager

Edited by H. B. McMeal and H. D. Fargo

VOL. XIII.	TELEPHONY	No. 4.
VOL. XXIX.	THE TELEPHONE MAGAZINE	No. 4.

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each. In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

Entered at the Chicago Post Office as second class mail matter.

## EDITORIAL DEPARTMENT

*THE TELEPHONE STORY OF MICHIGAN.*

WE WANT to call the attention of our readers to the "Telephone Story of Michigan," which is given the place of honor in this issue. The story is told from an historical standpoint by J. B. Ware, and will be found of interest to telephone men throughout the country and of especial interest to Independents of the Wolverine state. Mr. Ware is particularly well qualified to tell the story of Michigan, having devoted the past twelve years entirely to telephone work. He not only had the active business management of the largest Independent company in the state, but the first large one in the country. He was a marked factor in organizing the scattered companies in Michigan into a state association and was its president until he removed to Buffalo, where he devoted his time to the development of western New York. At the Philadelphia convention he was elected secretary of the National association. He appeared before the Parliament committee at Ottawa in 1905 and devoted two months of last year to the service of the Province of Manitoba in a campaign for public ownership of telephones, which won out by a decisive majority. Mr. Ware has long been known as a loyal Independent and his history is interwoven in the story of his state.

*ADVERTISE LONG DISTANCE LINES.*

IN this age of business strife and competition it matters little how good may be the thing you have to sell if you make no effort to bring it into public notice and attract the attention of those who are in the market to buy. The same rule applies to dry goods, steam engines, hair tonic, mining stock or telephone service. If you want people to buy your commodity it is necessary to let them know about it, and convince them that it is just what they need. Our Nebraska friend, Mr. W. J. Stadelman, says that Independent telephone companies all over the country are woefully negligent in advertising their long distance lines, and in this issue of TELEPHONY sounds a warning that deserves

not only a careful perusal but immediate attention in a practical way. He has been surprised to find in many localities that the Independent companies are not taking advantage of their long distance facilities simply because of a failure to let the public know what they are able to furnish. Mr. Stadelman does not deal in glittering generalities either, but gives specific cases in which Independents who should be enjoying the cream of the long distance business are overshadowed by the Bell owing to the latter's more aggressive policy in advertising its facilities. There is food for thought in this presentation of facts, and not thought alone but prompt corrective action.

There can be no argument against the case as made out by Mr. Stadelman. The merchant or manufacturer having a superior article who sat listlessly down and permitted a competitor to seize all the trade through sheer lack of enterprise in displaying his wares would be considered a poor excuse for a business man. His commercial finish would not be hard to foresee. Independent telephone men should hasten to profit by the lesson outlined, and see to it that the Bell does not outdo them in the way of advertising their long distance connections. There is deep significance in the very fact that the monopoly is straining every nerve to keep its long distance signs where they will obscure those of the Independent companies. The Bell has long asserted that its toll connections gave it a great advantage over the Independent lines. In fact, as the Independent movement has developed, that has been about the only argument left the Bell to prove its alleged supremacy. Now that the Independents are challenging the trust on that same issue the Bell seeks to make up its losses by a more vigorous exploitation of its long distance facilities. By persistent advertising, the use of effective signs and tricks of all sorts the Bell is striving to maintain the idea that it has the only long distance service worth mentioning.

Independent telephone men are enterprising and resourceful. If they were not they would not be where they are to-day, considering the foe they have fought and the tactics

### TABLE OF CONTENTS

The Telephone Story of Michigan.....	J. B. Ware	211-225	Telephone Cartoons.....	F. R. Morgan	253
Wire Chief's Desk Equipment.....	H. P. Clausen	226-228	Questions and Answers.....	J. C. Kelsey	254-256
Getting Business .....	C. H. Hood	229-230	Texas Convention.....	E. F. Gray	256-258
Decisions Affecting Telephony.....	G. W. Hand	230-231	Official Bulletin Number 9.....	J. B. Hoge	258-259
Iowa Independents Convention.....	W. H. Graffis	232-237	Use of Curves in Telephony.....	Einar Brofos	261-262
Digest of Telephone Patents.....	E. E. Clement	238-241	Wisconsin Independents Meet.....	E. M. McMeal	262-263
Michigan Telephone Convention.....	H. S. Cranfield	242-243	Manufacturers' Department.....	W. H. Graffis	264-274
Advertising Long Distance Lines.....	W. J. Stadelman	244-246	Pole Material .....	H. S. Stout	275-276
The Telephone in Hawaii.....	G. C. Cobden	246-247	Uncle Billy's View of the Telephone.....	R. B. Buchanan	277
Editorial Mention.....	H. B. McMeal and H. D. Fargo	248-252	In the Rural Districts.....	O. H. Brandenburg	278

that foe has adopted to stifle competition. By alert and judicious advertising the Independent long distance service can be pushed to the front and insured the public patronage to which it is justly entitled. The Independent companies having long distance lines should not hide their light under a bushel, but take advantage of their opportunity to contest the Bell for business in a field where it is making a last stand. Let the Independent long distance lines show the same enterprise and industry in seeking business that have characterized the movement as a whole and the Bell will have to take a back seat in the territory referred to by Mr. Stadelman. There is no gainsaying the argument: "It pays to advertise."

#### THE KELLOGG AGAIN.

FROM an Independent telephone man in Missouri TELEPHONY has received the following letter:

Please pardon us for asking you to give us a direct answer but we would be glad to know if the Kellogg Switchboard & Supply Company is connected with the Bell people, or is that concern with the Independents now?

As a subscriber the writer of the above letter is entitled to a frank answer from TELEPHONY. Being from Missouri, too, it is natural that he should insist on being shown the facts plainly. The answer to the query, then, is this: The Kellogg Switchboard & Supply Company is a Bell-controlled concern. Despite its efforts to conceal its connections, it is known—and *well known*—that the Kellogg company is an adjunct of the Bell monopoly and hence has no right to a dollar's worth of business from an Independent company. No Independent should patronize the Kellogg Switchboard & Supply Company, for the excellent reason that the money so expended would soon find its way into the Bell treasury and be used to fight the Independent movement wherever the battle is fiercest. As frequently pointed out in these pages, TELEPHONY deems it of vital importance for Independents to ignore the bids of the Kellogg concern for Independent patronage. Give Independent trade to Independent manufacturers, instead of furnishing the enemy with the ammunition with which to fight you.

TELEPHONY has urged the necessity so often that it might seem rather strange that a subscriber should be doubtful on the subject, but an incident which occurred at the Texas convention recently may account for this uncertainty on the part of the Missouri inquirer. In the report of the Texas convention, found on another page of this issue, the following paragraph will be noticed:

Upon motion of Mr. Emmer Mr. Stadelman was invited to discuss the matter of telephone magazines accepting Kellogg advertising. Mr. Stadelman expressed it as his belief that under the postal regulations, magazines were compelled to accept legitimate advertising at the regular rates charged other advertisers. Mr. Smith of the Transmitter was present and said the statement was correct, and, contrary to his wishes in the matter, the next issue of the Transmitter would contain Kellogg advertising.

Unintentionally, no doubt, Mr. Stadelman gave the wrong impression in intimating that telephone magazines are compelled to accept advertising offered at regular rates. Not being in the publishing business, he might be excused for the error, but the same allowance can hardly be made for Mr. Smith. There is nothing in the postal regulations or any other rule or law, written or unwritten, that compels a publisher to accept advertising he conscientiously believes should be excluded from his journal. For that reason some of the large popular weeklies and monthlies refuse whisky and patent medicine advertisements. It is their policy to bar such advertising, and no power can compel them to accept it. If there were, such advertising would be in these particular publications, for "money is no object" with the purveyors of those commodities.

Another convincing proof that no publication is obliged to accept any and all advertising is the fact that TELEPHONY does not contain the advertisements of the Kellogg Switch-

board & Supply Company. It is hardly necessary to explain that the reason for excluding the Kellogg advertising is the same reason why Independent telephone men should not buy apparatus and supplies from that concern, namely, because it is a Bell company. TELEPHONY knows that the advancement of the Kellogg company means, in a corresponding degree, the advancement of the Bell monopoly, and declines to be a party to it even though it might increase the earnings of this publication. As an advocate of the Independent movement TELEPHONY does not feel that it can conscientiously accept Kellogg advertising. There is nothing in the postal regulations bearing on the subject and the Kellogg concern, so long as it is controlled by the Bell monopoly, must find another medium for advertising its goods. The Kellogg Switchboard & Supply Company has repeatedly tried to secure space in TELEPHONY'S columns, but without success. So long as this journal advises Independent men to beware of the Kellogg-Bell wares it feels that consistency demands its own adherence to the same policy.

So, then, notwithstanding the statements of Mr. Stadelman and Mr. Smith at the Texas convention, it will be seen that there is no way for the Kellogg concern to force its advertising on telephone journals that are averse to cooperating with a Bell company. If the telephone magazines really desire to bar the Kellogg company they only need to follow TELEPHONY'S example and say "No."

At the annual convention of the International Independent Telephone Association in Chicago last June, the following resolution relating to the Kellogg situation was adopted:

"It is known that the Kellogg Switchboard & Supply Company of Chicago is owned by the Bell officials; therefore

"Be it Resolved, That this association recommend that its members and all Independent telephone companies and individuals refrain from purchasing apparatus from such company; providing, that those now using the Kellogg equipment may continue to purchase additions and extensions without prejudice.

"And Be it Further Resolved, That in the event of the Kellogg Switchboard & Supply Company again passing into the control of Independent people, that this resolution will be void and of no effect."

The meaning of that resolution, of course, is that it is folly for Independents to pay their money to a company that is controlled by the Bell monopoly. The same argument has been made repeatedly in these columns, and our Missouri friend, and all other Independent men, are hereby advised again that the embargo is still in effect. Nothing has occurred since last June to change the complexion of the Kellogg situation. The company is still under Bell control and therefore is entitled to no support from Independent sources.

#### TELEPHONE; DON'T WRITE.

MORE and more every day the telephone is taking the place of writing letters in the transaction of business. No doubt there will always be more or less correspondence in business life—especially in cases where records in black and white are necessary—but the practice of doing business by telephone is widening constantly. It is not improbable, too, that the time will come when telephone conversations will be recorded as an ordinary incident of the exchange of messages, and then the letter will have no advantage at all over the telephone communication. That letter-writing has many disadvantages compared to telephoning is daily shown by the fact that business men utilize the telephone scores of times a day when they formerly resorted to the slower process of correspondence.

In a recent issue of the Commercial Handbook, an English publication devoted to business methods and systems, the following paragraph appeared:

"A careful calculation of all the various items of expense that enter into a business letter, including postage,



stationery, time in dictating, time of typewriting, etc., shows that the average cost of a business letter is about ten cents. The average cost of a telephone call, message and reply or acknowledgment complete, is two cents or less."

The inference is that the telephone is destined to play a more important part in commercial life and that letter-writing is likely to decline in a corresponding degree.

"Really this correspondence is getting beyond all bounds. Something must be done to keep it down." This complaint is often heard from the manager or the head of a department when he finds himself confronted by a huge pile of letters for signature. Much of it is trivial stuff, too, acknowledging receipt of communications for instance, "as a matter of courtesy," and because it is "business-like."

The question then occurs: Is it business-like in these strenuous times to dictate a letter, have it typewritten, copied, addressed, stamped and posted in order to assure your correspondent that you have received his letter? He knows you have in all probability received it and if he does not get the reply he wants in a reasonable time will remind you of it, just the same as he would if you had acknowledged it. The probability is, too, if the matter is particularly urgent he will remind you of it by telephone, thus saving time and money and learning promptly how the matter stands.

Of course the point is often made that one needs to have the proposition in writing as a matter of record. At the same time in every stock exchange, on every board of trade and at every big market thousands of important transactions are completed daily by "word of mouth," and rarely does one hear of a dispute over the terms. Big deals in stocks, grain and cotton are made by telephone. There is no time to do it by letter. The telephone is rapidly encroaching on the field which in the old days was monopolized by pen and ink and later by the typewriter. As a time-saver the telephone is unequalled.

#### THE STORY OF THE STATES.

**A**DHERING, as it does, to the plain facts relative to the development of the Independent telephone movement, TELEPHONY'S series, "The Story of the States" could not be otherwise than gratifying to the reader interested in the success of that movement. No matter how simply it was told, the story of the rise and growth of Independent telephony in all parts of the United States is of necessity a narrative of triumphant progress, for all over the Union the people have set their stamp of approval on the enterprises which aim to do away with a hard-handed monopoly and establish another source of supply for that greatest of modern inventions—the telephone.

It is with a natural pride that TELEPHONY reports that the series of articles dealing with the Independent movement in the various states has aroused new interest in telephone affairs and elicited sincere commendation from telephone men themselves. Three states have been covered—Illinois, Indiana and Ohio. The responses from these three commonwealths prove conclusively that Independent telephone men appreciate the publicity given their successful struggles for recognition and their wonderful achievements in this important line of commercial and financial activity. And with it all, the fact should be borne in mind that all this they have accomplished in the short space of little more than a decade. When one realizes that, comparatively speaking, it was but yesterday that the Independent movement was born, the results are nothing short of marvelous. What is more to the purpose, too, when it is also realized that the future offers prospects of greater success even more brilliant than those that have encouraged the pioneers in the movement in the past, one is impelled to believe that the day is not far distant when these achievements even will seem insignificant and commonplace indeed. However, this publication will always be more than willing to revise its

history of the states and to report the phenomenal Independent growth in order to keep pace with the development of this young giant of enterprise. After all, the showing at the present day is startling enough for all acquainted with its sturdy battle against a cruel and unscrupulous monopoly like the Bell octopus.

In this issue TELEPHONY tells the story of Independent telephony in Michigan. As announced at the beginning of the series it is our purpose to cover a state every month. In May Iowa will be selected and in the June number the state of Wisconsin will be covered.

In telling the story of Illinois, Indiana, Ohio and Michigan, TELEPHONY has given the latest authentic statistics showing the number of Independent exchanges, number of subscribers, miles of toll lines, capitalization, illustrations of the principal exchange buildings and manufacturing plants which supply the Independent operating field, and portraits of leading telephone men in the state, as well as a history of the state organization and of the progress of the movement in that state.

To collect this data is no small task, and TELEPHONY wishes earnestly to request Independent telephone men in all the states to co-operate in making this series complete and up-to-date by sending in all information bearing on the movement in their respective localities. By so doing they will not only insure their state receiving its just due, but they will aid the movement generally, for it is plain that the more truthful publicity given the Independent telephone movement the more encouraged its friends and supporters all over the country will become, the more pride will they take in their undertaking and the greater will be the general success of the entire industry. For that reason TELEPHONY invites and urges Independents to forward data as soon as possible relating to their companies, photographs of exchange buildings owned by operating companies and all general information they may possess which would aid in preparation of "The Story of the States" and making the series complete so far as their own locality is concerned.

The recital of well won battles inspires confidence and courage in others, and therefore "The Story of the States" should have an influence for good throughout the field. It gratifies those who have passed through the fire to know that their efforts are appreciated and imbues all others with an enthusiasm that carries them on to success. Letters received from all parts of the field furnish convincing proof that this series is bearing fruit. It is in line with TELEPHONY'S general plan to assist the Independent movement to the utmost, and it is a cause for genuine gratification to feel that these efforts are recognized and yielding the results desired.

In closing, however, TELEPHONY again urges the co-operation of Independents in supplying the information required to make "The Story of the States" complete.

Remember, if you want your own state properly represented the least you can do is to supply the information about the development of your own particular locality.

#### RETARDING TELEPHONE GROWTH.

**E**XCEPTING in localities where the Independents are pressing it hard for business, the Bell companies are not trying to extend telephone service. In several cities the companies which pay tribute to the trust are reducing their construction forces and discharging many employes, including solicitors, line builders, etc. The Bell gives as a reason the phenomenal rise in the price of copper, affirming that it is more profitable to be contented with the telephone subscribers it now has than to seek new patrons and incur the expense of making additional connections. In Peoria, Illinois, for instance, the Central Union Telephone Company recently discharged twenty men, and reduced its construction and maintenance departments materially. When asked for an explanation a representative of the company

frankly said that copper had gone up 300 per cent, and made the construction of new lines too expensive. It is said the Bell management has been pursuing the same policy throughout the country with the exception of the Pacific coast, where the reconstruction of San Francisco has increased the demand for this kind of labor.

This is a characteristic of all trust methods. It is in line with the Bell policy from the inception of the telephone business, and proves conclusively the statement oft-repeated that the Bell has never done anything to popularize the telephone if possible to avoid it and especially if an outlay of money and a temporary reduction of profits were entailed. The Independents have always argued that so long as the Bell had a monopoly, and there was no competition of any description, the development of the telephone was slow and due solely to the natural growth of the country. The take-all-and-give-as-little-as-possible policy of the Bell apparently is in force as strong as ever. If the people want more telephones the Bell is making them wait until the copper market is right—that is, unless some active Independent company is in the vicinity ready to take advantage of the Bell's dog-in-the-manger line of action. Incidents like that reported from Peoria show that the Bell is the same old grab-all octopus and is pursuing the same old tactics in ignoring the public's rights.

#### SUB-LICENSEE BORROWING.

THE issuance of new stock has been a prominent feature of the Bell monopoly's course of activity of late. It is estimated that seven of the subsidiary companies of the American Telephone and Telegraph Company have recently authorized the issuance of new stock to an aggregate of \$20,924,166, of which all but \$811,200 will have to be paid for by subscribing stockholders before the expiration of 1907. The share of the present company in this financing will be \$8,503,000. In the case of five of the seven companies the new stock was authorized after the opening of the new year, while with the other two, the Southern New England and the New York and New Jersey, the authorization was made so late in December as to bring the payment dates entirely within the current year.

#### MAINE INDEPENDENTS ORGANIZE.

THE Independent telephone movement has received a decided impetus in New England by the organization of a state association in Maine. In all of the New England states the opposition to the Bell monopoly has met with increased encouragement from the general public since the Boston franchise was granted to the Independents, and the prospects are excellent that a closely knit group of associations will be in operation in the near future.

In response to a letter sent out by M. E. Crow, of Houlton, the Independent men of Maine met at Lewiston on Wednesday, March 20, and formed the Maine Independent Telephone Association, and elected the following officers: F. E. Ebersole, president; W. H. Lurvey, vice-president; H. S. Russ, treasurer; M. E. Crow, secretary. C. P. Chandler, F. L. Ames and Dr. Brehaut were selected as members of the executive committee. Considering the previous attempts at organization the meeting was a decided success, and, besides those present, a large number who were unable to be present expressed themselves as very favorable to the association by writing letters agreeing to join the organization.

The State of Maine has more Independent telephones than the New England (Bell) company, taking into consideration the Independent companies that are under contract with the New England companies, and as soon as the association has time to interview these companies that are so under contract, it is believed that they will withdraw from the New England company and give their support to the Independent movement.

The following were present at the meeting: H. S. Russ, Mt. Vernon; Elmer E. Daicey, Lewiston; W. H. Parsons, Livermore Falls; B. N. Lewis, Lisbon Falls; A. M. Fogg, East Hebron; E. A. Ebersole, Portland, Maine; J. S. Wells, Providence, R. I.; H. S. Hartford, Standish; G. R. Armstrong, Farmington; D. R. Smith, Bethel; W. H. Lurvey, West Paris; F. E. Ebersole, Portland, and M. E. Crow, Houlton, Maine.

#### THIS IS DIFFERENT.

THE Bell company makes a great stir when it is successful in purchasing some Independent system—a great hubbub is raised in Boston, and the news is spread broadcast that the Independent movement is going to the "bow wows." The Bell press bureau works overtime and sends out its paid stories to all points of the United States. The same story goes out when any Independent company goes out of business, which, by the way, rarely happens. The following item from a Lawrence, Ohio, newspaper is just now going the rounds:

#### TELEPHONE COMPANY QUITS.

The Lawrence Telephone Company is now a thing of the past, and passed out of history very quietly and without a struggle. The ending was so quiet that it has not become generally known that the Lawrence company is no more.

The decline had been gradual, until it breathed its last. The switchboard ceased operations, and the work of tearing down and packing up the switchboard began.

The work was in charge of Mr. Hall of St. Louis. The cables and wires were torn down and sold for junk. We are informed that some of the equipment was shipped to Indianapolis.

To show the falsity of this Bell press bureau item we append a letter from Mr. R. A. Knapp, general manager of the Home Telephone Company of Ironton, Ohio. Mr. Knapp says:

"The enclosed clipping regarding the Lawrence Telephone Company, which has belonged to the Bell company for the past two years, is just another case of where the Bell press bureau spreads the report that another Independent company has gone to the wall. These reports are sent out to keep people from going into the Independent telephone business. The Lawrence company has belonged to the Bell for the past two years. The service has been so wretched that all its subscribers have gone over to the regular Bell exchange. Every Independent telephone man should know these facts, so that no one will be misled by this Bell story of another Independent failure."

Mr. Knapp's letter shows this case up in its true light, and TELEPHONY believes that most of the Bell stories of Independent failures would show a similar condition if investigated.

#### BEFORE AND AFTER COMPETITION.

SINCE the Independents obtained a telephone franchise in Boston, all New England is waking up to the fact that the Bell monopoly is not quite omnipotent after all. The demand for telephone competition is spreading over all the New England states, and the Bell licensees in that section are threatened with the rude shock of realizing that they must reckon with the sentiment which is constantly growing among the people in favor of competition. The situation at Providence, Rhode Island, is dealt with on another page in this issue of TELEPHONY. The Boston victory is still fresh in the public mind. Throughout Connecticut where the Southern New England (Bell) Telephone Company has held sway so long, the demand for Independent competition is developing more strongly every day. Hartford, New Haven, Bridgeport and other cities are becoming aroused to the fact that they have been oppressed by the Bell trust is far too long, and the crusade for Independent franchises that will bring relief is in full blast.

No stronger argument in favor of competition in the telephone field has been made than that found in a state-

ment issued by Robert P. Lyon, of Hartford, in connection with a letter he has written to Morris F. Tyler, president of the Southern New England (Bell) Telephone Company. In this letter Mr. Lyon convicts the trust's licensee corporation of stifling legislation designed to afford the public relief from an arbitrary and oppressive monopoly. The statement in question shows the cost of telephone service before and after competition in nineteen cities throughout the United States, from Portland, Maine, to Los Angeles, California. In every instance the statistics prove the truth of the contention that competition not only has reduced rates, but has brought about better service and increased the number of subscribers.

But let the statement tell its own eloquent story. It follows:

UNDER MONOPOLY. Figures Taken Just Before Competition. Business Rate, Private Line.			UNDER COMPETITION. January, 1907. Business Rate, Private Line.			
19 Cities.	Bell Co. Rate Unlimi'd	No. Bell Co. 'Phones.	Bell Co. Rate Now.	Independent Co. Unlimi'd	Both 'Phones Cost.	Total 'Phones
Albany.....	\$96.00	3,500	\$48.00 (1200 calls)	\$48.00	\$96.00	11,300
Cleveland....	125.00	4,200	54.00 (1200 "	72.00	126.00	50,162
Columbus....	84.00	1,800	54.00 (unlimited)	40.00	94.00	19,246
Dayton.....	72.00	2,000	54.00 "	40.00	94.00	13,300
Fall River...	120.00	900	66.00 "	36.00	102.00	4,700
Grand Rapids	115.00	1,471	30.00 "	36.00	66.00	11,673
Indianapolis..	74.00	2,300	54.00 "	40.00	94.00	19,973
Kansas City..	96.00	9,800	48.00 (960 calls)	54.00	102.00	36,500
Lincoln, Neb.	84.00	2,000	48.00 (unlimited)	36.00	84.00	7,541
Los Angeles..	96.00	10,000	(uncertain) "	48.00	96.00	48,079
Louisville...	96.00	3,200	42.00*(unlimited)	48.00	90.00	17,050
Minneapolis and St. Paul	120.00	4,800	60.00 (1200 calls)	48.00	108.00	42,494
New Bedford	120.00	815	66.00 (unlimited)	36.00	102.00	4,600
Portland, Me.	84.00	2,500	42.00 (840 calls)	42.00	84.00	6,950
Rochester...	94.00	1,700	48.00 (1200 calls)	48.00	96.00	17,800
Syracuse.....	96.00	1,600	60.00 (unlimited)	48.00	108.00	11,850
Toledo.....	72.00	2,500	54.00 "	48.00	102.00	15,000
Trenton.....	100.00	2,000	60.00 "	36.00	96.00	9,000
Wilmington..	97.50	750	72.00 "	36.00	108.00	11,000

\* Two party presumably, although in fact these lines are individual, unlimited

By adopting the latest telephone apparatus the Independents have forced the Bell in these cities to make improvements in its system and show the public more consideration than it ever has before. "Competition is the life of trade," and the above statistics prove it.

#### OHIO TELEPHONE CONVENTION.

As the April issue of TELEPHONY goes to press the annual convention of the Ohio Independent Telephone Association is in progress at Columbus. The convention, which opened at the Hotel Hartman, March 28, promised to be one of the most successful ever held in the Buckeye State, and that is saying much, as the association, led by Mr. Frank L. Beam, has always had helpful and enthusiastic meetings. The list of delegates includes the best known Independent telephone men of Ohio, and the program is especially interesting.

A full report of the Ohio convention will be found in the May issue of TELEPHONY.

#### THE NEWS BY TELEPHONE.

As a general thing the telephone service in the United States is much superior to that obtained in Europe. but once in awhile the old world adopts a new idea even before it is tried in America. For instance, Budapest, the capital of Hungary, has the only newspaper in the world which telephones instead of printing its news. Free of cost this journal, which is called the Hirmondo, installs a telephone in the subscriber's house or flat, and from its central office the news is announced by a clear-speaking elocutionist, who precedes each item with a general call. It is an all-day service, beginning at nine in the morning, when the correct time is sent to all the subscribers. The program of public events, meetings and the like for the day is announced and at regular intervals the movement of prices

on the stock exchange. At 12 o'clock the news of the day at home and abroad is telephoned to subscribers in a distinct and succinct narrative. To while away the post-luncheon hour the subscriber may take up his receiver and listen to the recital of an original and complete short story by an accomplished raconteur. From 4:30 to 6:30 subscribers are in electrophonic connection with the musical performance of the famous Houved military band. From 7 until 11, on five nights in the week, the subscriber, sitting in his own house, may enjoy the music and singing of the Grand Opera House. On the other two evenings in the week he commands the performance of the Gypsy band at Budapest's leading cafe. The cost of the complete service, including all extra attractions, is not quite one dollar per month.

#### THE TELEPHONE IN HOTELS.

An illustration of how rapidly a new device may come into general use is shown in the enormous growth of the telephone as adapted for hotel purposes, says the Hotel Monthly. It is only about ten years since the first hotel adopted the telephone-in-every-room idea. It was a daring innovation, and for three or four years doubts were gravely expressed as to the efficiency of telephone service. In the year of 1900 the use of the hotel telephone may be visibly expressed in the first accompanying illustration, which will indicate very few hotels with this service. In 1901 they came into more general use, and the growth is expressed in the second illustration. In 1903 the number of hotels using the telephone had practically doubled over the previous year, and its relative use is expressed in the third illustration. Now the growth of the telephone comes in with leaps and bounds,

and in 1904 we find its use as expressed in the fourth illustration. Now we are coming to its very general use in hotels large and small throughout America, and in 1905 we find its relative importance expressed in the fifth illustration. The growth continued at an enormous rate, until in 1906, a majority of all the hotels rated as first class, and a very large number of hotels rated as second class are equipped with a telephone in every room, telephone exchange in the hotel office with both local and toll connections. The growth in the six years since 1900 is expressed in the sixth illustration.

In this year of 1907 the editor has visited a hotel equipped with more than one thousand telephones, and there are dozens of hotels that have more than five hundred telephones. The telephone has become the pulse of the hotel, its wires leading to every room, every department, and to the outside world, and bringing the hotel office into verbal communication with every part of the house, thereby relieving the messenger service and expediting the general service to a perfection that was not dreamed of ten years ago. The present status of the telephone in hotels as compared with only seven years ago is shown in the comparison of the first and seventh illustrations.

The body of a small deer hanging from a telephone wire twenty-five feet above the ground and midway between two poles was the strange sight viewed by Supervisor Knowles and William McClaren near North Fork, California. They offer the explanation that the little deer had been picked up by an eagle which, flying away with the carcass, struck the wire in its flight and lost its prize.



## THE TELEPHONE AS PICTURED BY TELEPHONY'S CARTOONIST

### CHOLLY PROPOSES - HIS FRIENDS "RUBBER" ON THE LINE

**7:30**  
HELLO, HELLO, - THIS YOU GWENDOLYN? - HOW IS MY DEAH GIRL - QUITE WELL? SO GLAD - BY THE WAY GWEN - WILL YOU MARRY ME? YES? THANKS, DEAH GIRL, SEE YOU LATER - BYE - BYE.

**7:45**  
HA-HA! CONGRATULATIONS OLD CHAP - I KNEW YOU WERE GOING TO ALL THE TIME!

**7:46**  
ISN'T HE THOUGH!  
OH, CHOLLY YOU LUCKY, LUCKY, BOY!

**7:48**  
YOU DONE NOBLE CHARLES!  
SMACK!!  
I'M NEXT!

**7:49**  
WHAT'S THE MATTER WITH CHOLLY? - HES ALL RIGHT!! HURRAY! HURRAY!

**8:00**  
MERCIFUL HEAVENS! WHAT A FUSS! - I'LL NEVER PROPOSE ON THAT PARTY LINE AGAIN!!

### FLASHES OFF THE WIRE

"HELLO, IS THIS YOU PAT? OI HOIRD THET HINNISSEY LICKED YE LAST NIGHT!"  
"IT'S LUCKY FER YEZ THET YE TOLD ME THET BY TELEPHONE"

F. R. MORGAN

SIMPLE EXPLANATION.  
"SAY CHIMMY HOW DOES DIS TING WORK?"  
AW, IT'S EASY - PUT DAT RUBBER HORN TO YER EAR WID ONE HAND AND TALK WID DE OTHER.

A LIKELY PLACE  
"WHAT CHER GOIN' TUDO WID DE PAIL BILL?"  
"GOIN' TO COP SOME CURRANTS - ONE OF DOSE GUYS SAID WOT DE WIRES WAS FULL OF 'EM!"



# QUESTIONS AND ANSWERS

By J. C. Kelsey

**B**EFORE starting on regular questions, I want to correct a statement made last month. The Keystone Telephone Company maintains a reserve of \$4.00 per year, and in some way I gave the amount as \$4.08 per year. It does not really matter, as the eight cents did not make a great difference in the few results that depended upon it. It is very gratifying to me particularly to find that the second largest Bell company maintains a lesser amount, because at one time I was called upon to demonstrate that such an amount was fair. The Chicago Telephone Company has had twenty-three years of experience, and as yet had no great call for reserves. When its renewal of switchboards took place the old magneto systems were few, and the old magneto material was sent into numerous provinces. In the past twenty-three years the Chicago Telephone Company has had no great reason for calling upon a renewal reserve fund, and I am willing to stake something that their total used and unused reserves have revealed no more than \$3.00 per telephone per year.

All I am after is facts. The Bell interests have howled loudly about depreciation, and reserve for the same. Much of their criticism has been very much deserved, too. A reserve is necessary, and without it a company is no better off than a man who spends all his money. His friends will leave him, and some benevolent county home hands him a hoe "in the good old summer time" and he breaks his formerly unused back over a row of county potatoes.

The public would have welcomed any institution at any price, to get rid of the unspeakable conditions which were common prior to the Independent movement. The public hates monopoly, and so should any man in the telephone business. Were it not for the Independent movement, there would be but few first-class telephone engineers to-day, nor would there be any periodicals. Witness the number of them now. Even the Bell runs a few in self defense, and they are miserable apologies, too. And a man draws more at the end of the month than the maximum \$85 that was formerly supposed to help him raise a family and be loyal to a most contemptible system.

The Independent movement has done all this, but it is not well to stand still. We must push onward in the good fight for better telephone service. All Independent companies need to put aside a reserve for new equipment and rebuilding. It is the practical, sensible thing to do and should be given attention by managers and those looking after the financial side of the operating exchanges.

I have noted with interest the questions and answers relating to phantom circuits, as I have been working some with them myself in connection with toll lines. I first tried the inductive bridge plan with poor success. Then I wound some coils as follows: I took two wires and wound them side by side on an annealed iron core, connected one inside wire and one outside wire together for the middle point and bridged the remaining wires on the toll line, thus making an inductive bridge of about 800 ohms for the toll line, and a non-inductive circuit for the phantom, according to my theories.

This gave a good talking circuit and was all right until any one of the three circuits was connected to a line that had more or less of a ground, when the whole system was thrown out of balance. This is poor practice for toll lines, so I then tried the repeating coil scheme. The only trouble we have with this is in ringing through two repeating coils, and this is so uncertain that we have had to discontinue the use of the phantoms until we find a way to obviate the difficulty. I have tried both the regular repeating coil

and those with the four wires wound together, with the same results. We use a pole changer. I see that some of the Morse circuits use two repeating coils in the circuit in the same manner. Do the power ringing machines ring through them all right? If so, is it due to the speed or the form of the wave? Could you show the form of the wave after the pole changer current passed through the first repeating coil and after it passed through the second one? Would it alter the wave form so as to help or hinder if a condenser was bridged across during ringing as with the Warner pole changer? Would a repeating coil with a ring core be better to ring through? Is the trouble owing to low efficiency of the repeating coils or, as one telephone man suggests, is it owing to some static effect in the coils? It seems strange that it will ring through at times, but cannot be relied upon. I have made a relay to bridge across the switchboard side of the coil, which throws ringing current on the line side of the coil when the operator rings on the line, but do not like to add complications. I would appreciate a reply if you can offer any suggestions.—H. T. D., Ohio.

The same old story about phantom circuits. Once a man criticized me for saying that duplexing was practically impossible, and offered to show me. But he never showed me, and he does not dare to. I have seen the devices made by this man fail, and I repeat that duplexing is at best uncertain. It can be done nicely in cables, but of the average overhead line, beware. The inductive bridge plan is worked fairly well by some people. But it stands to reason that any connection with a line, in a grounded condition, will make all the lines more or less troublesome.

The repeating coil scheme is all right, if your lines fit the condition. The great trouble is ringing, but if the coils are properly designed, you should have no trouble. Power machines usually ring well, because the pressure is not pulled down, when others are using the machine. Possibly your generator is overloaded at times, and gives you the impression that the repeating coils were to blame. The wave form is not changed by going through a repeater, except that the area of the wave is less. You lose energy passing through two coils. A condenser would tend to flatten the wave out. A repeating coil with a ring core is best for ringing purposes. Possibly your trouble is more due to low efficiency coils. There is certainly no static effect which would make your conditions variable. The only variable condition is the source of ringing current.

Your idea of ringing by the first repeater is a good one. The process is usually simple, and whatever complications you find should be offset by the increased certainty of ringing. I repeat, the telephone world has not yet found a cheap and serviceable duplexer. I am waiting to be shown.

How is one to manage it with magneto party line circuits, where a grounded line is connected with a metallic selective one, in order that the alternating ring-off current does not ring the several party bells on the selective circuit? You would greatly oblige me by giving full particulars.—B. B., Iowa.

A low resistance clearing out drop, 350 ohms. or even 100 ohms., would help to serve your purpose, and would not seriously interfere with your transmission.

Reading in Kempster B. Miller's "American Telephone Practice" I came across the statement that the old Morse telegraph relay answered the purpose very well in telephony in places where space was not limited. Does this mean that the Morse relay, or any other, can be used to help out the current of the line, by working a local station circuit just as in telegraphy, and if not, what does the relay do in telephony?

How far can one safely figure on getting good telephone service over a ground line—that is, with a single wire and ground—supposing that there are no opposing influences at all, such as trolley, or other high-voltage lines—the only possible interference being

the telephone line would have to cross a railroad track with two telegraph systems, having about twelve to fifteen wires apiece? How far would you expect to ring and talk over a ground line with not more than six or eight telephones on the line—line to be carefully built, with No. 12 BB galvanized wire and having large ground plates (copper) at both terminal stations and ground rods at intermediate stations, using 1,600-ohm bridging telephones, four-bar generators and standard transmitters and receivers? Can the telephones be made to transmit and receive more satisfactorily by using more battery, and is there any way of applying extra current with risk of overheating transmitters?

Is there any way of fixing a receiver so it will speak loudly enough to be heard all over the room or by several people and dispensing with the necessity of holding it to the ear? Is there any device on the market that does this and what's the price?

Suppose a ground line is built so as to circle around and finally bring the end back to the starting point—would it be possible to use it as a full metallic line just as if the wires had been strung right along on the same poles all the way from one terminus to another, or would the impossibility of transposing the opposite sides of line make it impossible to use the line like full metallic? The length of the line would be 94 to 100 miles and the railroad telegraph lines would be crossed twice in all.

One of our lines is four miles, one is twenty-eight miles and we will soon build one twenty-five miles, but eighteen miles of the third line will be over barb-wire fence. Are there any testing instruments that, being kept in central office, would enable us to tell when a circuit was broken and how far from the office? Are the operations and calculations simple enough for a man of ordinary education to carry out, without the use of higher mathematics? What is the cost of cheapest reliable equipment of this kind?

What would you think of the possibility of getting satisfactory service over a twenty-five-mile line, eighteen miles of it being barb wire and balance pole line of No. 12 galvanized BB wire? The eighteen miles is on a railroad right of way fence, very solidly built; ties for posts. Our climate is dry; when it rains, it rains and gets through, but there is little moist, drizzly weather, not over thirty days a year, and after rain it dries up quickly. How would it work to insulate the barb-wire by painting a strip, two or three inches wide, right across the post, in path of wire, with some heavy oil? Dry wood is an insulator and so is oil. The oil would keep water or moisture from gathering or standing near wire or staple and would also keep the wood touched by wire and staple dry; and I don't see why the scheme wouldn't be an unqualified success, unless the oil should allow the alkali dust blown by the wind to stick to the oiled strip and make a crust that would be a conductor, but even then the alkali crust would only extend to the edge of the oiled area and the dry surface beyond the oil would insulate it and in rainy weather the crust would wash right off.

The books say series and bridging telephones won't work together, but we have two eighty-ohm series and three 1,600-ohm bridging working first-class, both ringing and talking, through a little Western Union style switchboard. Is this because we have so few instruments on the line?

How close together can we put our line wires on poles without danger of cross talk? We put insulators nine inches apart on poles, but the sag lets them come within four inches, in center of span.—C. W. G., New Mexico.

ANSWER: The word relay in telephone practice does not mean exactly what it does in telegraphy. When one speaks of relays, one is reminded of something being passed on, refreshed and strong for new action. Something like a relay race, where four athletes each take turns in running a mile. Or in telegraph practice, the contacts of a relay or magnet close, and thereby close another circuit. For instance, a Chicago operator depresses a key. A relay at Cleveland is operated which closes the Cleveland-Buffalo circuit, which has a relay, which in its turn closes the Buffalo-New York circuit. So that the New York operator gets the dots and dashes of the Chicago operator directly. A through circuit is too long for the size of the wire being permissible.

The telephone common battery circuit first used a lamp directly in the main circuit, so that the battery flowed through the line, lamp and telephone. As each circuit has different resistance, it became necessary to use an electromagnet, and use its contacts to light a lamp when operated. In other words, the electromagnet relays the signal into the exchange.

There are some grounded lines giving service over 300 miles of iron wire. No interference would come from the crossing of the telegraph lines. You should ring and talk over the line you describe, with seven or eight subscribers,

very nicely, for at least a hundred miles. Telephones could be made to talk better with more battery, but you are limited by the heating of the transmitter. All battery has to go through the transmitter, so, you see, you can't apply extra current.

There is a loud speaking telephone, called the Aukophone, but it has disappeared from the market as far as I know. The telephones are not usable on ordinary circuits, and as a rule are made by some amateur who knows not the elementary rule of telephone engineering. I think you are destined to hold the receiver tight to your ear.

If you built your wire in a circle, and joined the ends, it would make no difference to your bridged telephones. You could use a metallic line just as well. You could transpose in the same old way, but, of course, the proper wires should be joined. Such a looped line would help matters considerably, because your telephones would have two individual wires acting in parallel, and would halve the line resistance.

As far as testing instruments are concerned, I don't believe it would pay you to buy many testing devices for your system. You could get a Leeds and Northrup bridge, called No. 2, I think, for \$100, which would enable you to make tests of all kinds. I have never seen the need of any higher mathematics anywhere. At one time I thought I might, and loaded up. But I loaded to no purpose.

Your service over the lines should be all right. The oil might help matters, but as a rule rain has no evil effect. I know of a fence line which gave good service for seven years. For crossings they buried a piece of No. 14 Okonite and it lasted through it all.

The books mean well regarding combined use of series and bridging telephones. If you crowd your game, you will find the books are right.

If your lines are all grounded, cross talk will creep in, whether your wires are nine inches apart or nine feet. Cross talk can happen between lines one mile apart, under test conditions. Way down there in Texas I believe you are on the right track. Try the fence posts. Try the oil. Let us know about it. The way for the rank and file to learn is to hear from such people as C. W. G.

How much more current output is there in a five-bar generator over a four-bar generator, both being the same make and type? Is there any advantage with a five-bar generator?—W. H. G., Michigan.

ANSWER: The output of a magneto generator is practically proportioned to the number of bars. Should you get .5 of an ampere from your five-bar you would find that a four-bar will give practically .4.

There is no advantage of a five-bar over the four-bar, except when one wants to have thirty subscribers on a line. The five-bar will maintain its terminal pressure better than a four-bar. The ratio of three-bar, four-bar and five-bar sets are about even.

Can you tell us how to get rid of cross talk on country (rural) grounded lines? We run about twenty-five miles on a six-pin cross arm, metallic on the pole pins and a grounded line on the second and fifth pins and the cross talk jumps from one grounded line to the other. We have a water pipe ground at central, seven-foot rod at the telephones, all 1,000-ohm bridging ringers come in to central on 100-foot No. 14 O K paired and twisted cable.

How can you connect a grounded line on to a metallic line? That is, we have a station that has the metallic and they want to be able to switch over on the farmers' line (grounded line) and have two ways of coming to central.—R. F. B., North Dakota.

ANSWER: You cannot get rid of cross talk on grounded country lines unless the members agree that only one line shall be used at a time. Nature never intended the earth to be used, because nature does not usually allow persons to get something for nothing. It's a poor game to tackle.

To properly connect your metallic line to the grounded lines, you should use a "ring through" repeating coil, one

of those large-sized coils with lots of iron and many turns of wire.

What is the brown looking sediment that collects on the crow-foot zincs of my gravity batteries? It doesn't seem to me that this action should take place. If not, what can I do to prevent it?

Should the copper elements of these cells be cleaned of the "copery" substance which accumulates on it? Is there a book published that is devoted entirely to the care of primary cells? I have several books on the subject of telephony, but they only describe the different kinds of primary cells and give little or no information about caring for them.—G. F. D., Iowa.

**ANSWER:** That brown looking sediment is due to the copper terminal. Simply clean the cells occasionally. I don't think you need worry as long as the cells are doing their work properly.

I do not know of any books entirely devoted to the subject of wet batteries. Books are usually so full of general

matter that they usually have no space to tell a man some special thing he wants to know.

This is my last appearance with Questions and Answers. For fifty-one issues I have been before the readers of TELEPHONY, and I regard them as my own particular friends.

I have always been after the truth, for truth alone will give lasting benefits to the Independent cause. Monopoly signifies darkness and ignorance and death. Competition signifies light and knowledge and life. This is why Independent telephony is succeeding because it embraces what is dear to the intelligent mind.

I wish I could undertake fifty-one issues more, but I am compelled to give more time to other things, and am pleased to inform my readers that Henry P. Clausen will handle the query columns in the future. Mr. Clausen needs no introduction, and TELEPHONY is to be congratulated in securing him as technical editor.



## TEXAS CONVENTION

*Telephone Men of the Lone Star State Hold a Successful Meeting at Fort Worth.*

By E. F. Gray



**T**HE third annual convention of the Texas Independent Telephone Association was held at Fort Worth, Texas, February 21 and 22, 1907, and was well attended. The association was called to order at 10 o'clock a. m. by the president, Mr. J. C. Casler, of Fort Worth, who appointed Charles F. Speed to act as assistant secretary. The roll was called and responded to by representatives of the companies in attendance.

Representatives of the following manufacturing companies were also present: Wesco Supply Company, Fort Worth and St. Louis; North Electric Company, Cleveland and Dallas; Hopson Electric Company, Dallas; Central Telephone & Electric Company, St. Louis and Dallas; National Lumber Company, Texarkana; Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y.; Dean Electric Company, Elyria, O., and Kansas City, Mo.; Woods Electric Company, Houston; Zinc Oil Pole Company, Texarkana; Frank B. Cook, Chicago; Standard Underground Cable Company, St. Louis.

The International Independent Telephone Association was represented by W. J. Stadelman, of Sioux City, Iowa.

President Casler appointed the following committees:

**Nomination**—W. P. Johnson, Corsicana; C. W. Roberts, Abilene; E. M. Chamberlin, Greenville, and C. W. Emmer, Beaumont.

**Ways and Means**—J. B. Earle, Waco; C. F. Speed, Texarkana; A. A. Marrs, Dallas; H. H. Davenport, Hillsboro.

**Constitution and By-Laws**—C. C. Conroy, Beaumont; H. S. Mosley, Weatherford; C. W. Roberts, Abilene; T. A. Gould, Ennis.

**Auditing**—C. W. Macune, Jr., Sipe Springs; R. Armstrong, Weatherford; A. Smith, Weatherford.

**Legislation**—J. B. Earle, Waco; David Martin, Plano; H. S. Mosley, Weatherford; Sydney L. Samuels, Fort Worth; E. M. Chamberlin, Greenville.

On motion of J. B. Earle, which was seconded by E. M. Chamberlin, President Casler was added to each of the committees appointed. Mr. Earle, as chairman of the legislative committee, was then requested to read the bills now pending before the state legislature, and upon motion of Mr. Emmer, seconded by Mr. Stillwell, the bills were or-

dered mimeographed and a copy presented to each member of the association. Upon motion of Mr. Graham, seconded by Mr. Emmer, the president was instructed to telegraph a special invitation to all members of the association who were not in attendance. Upon motion of Mr. Emmer the meeting adjourned until 1:30 o'clock p. m.

### AFTERNOON SESSION.

The meeting was called to order by the president, who introduced Mayor Harris, who welcomed the delegates in a pleasing speech, and spoke very highly of the service rendered by the Fort Worth Telephone Company. A response was given by Sidney L. Samuels of Fort Worth, who is a member of the association. Mr. Earle, chairman of the ways and means committee, made the following report: "Be it resolved, that the by-laws of this association relating to initiation fee be so amended that the membership fee of members be \$1.00. and the annual dues be two and one-half cents for each telephone, and two and one-half cents for each mile of long distance pole line; that the manufacturers pay on the basis of 500 telephones; and that the association reimburse the delegates with their railroad fare." After considerable discussion, upon motion of Mr. Armstrong the matter was referred until the executive session. President Casler extended an invitation to the association to inspect the Fort Worth Telephone Company's plant. The invitation was accepted and 7 o'clock was set as the hour for visiting the central offices. Swift & Company and Armour & Company sent invitations to members to visit their plants. They were accepted and 8 o'clock Friday morning was set as the hour for starting.

Upon motion of Mr. Conroy, seconded by Mr. Mosley, it was agreed that any member failing to appear at the appointed hour be fined \$1.00. The subsequent records showed that there was a full attendance.

At this point Mr. Thomas Sargent, the new manager at Shreveport, was introduced as a new member of the association. Upon motion, it was agreed that delegates accompanied by their wives be excused from the theater party, invitations to which had been mailed out by the manufacturers.

There was no night session. From 7 o'clock until 8 was

spent in visiting the exchange of the Fort Worth Telephone Company, which was found to be most complete and up-to-date in every respect. At 8 o'clock the delegates formed in double-file and marched to Greenwall's opera house to witness Tim Murphy's rendition of "A Corner in Coffee." At the close of the performance the march was again taken up and the delegates repaired to the Delaware Hotel, where a banquet was served. This banquet, as well as the previous entertainment, was furnished by the manufacturers.

## FRIDAY MORNING SESSION.

The association met at 10:30 o'clock, with President Casler in the chair. After roll call those who were not members retired and the association went into executive session. The question of Mr. Speed's eligibility to sit in the executive session, owing to his connection with a manufacturer, was raised, and upon motion of Mr. Gould, seconded by Mr. Earle, the association unanimously voted to admit Mr. Speed to the session because of his connection with several operating companies. A report of the committee on ways and means was called for and the members submitted the following report: "Be it resolved, That the by-laws of this association, relating to initiation fees, be so amended that the membership fee of members be \$1.00 and the annual dues be two and one-half cents for each telephone, and two and one-half cents for each mile of long distance pole line. No company shall pay less than \$5.00 and any strictly Independent manufacturer shall be admitted to an honorary membership upon paying an annual fee of \$12.50." Upon motion of Mr. Armstrong, seconded by Mr. Chamberlin, the report was adopted as read. Upon motion of Mr. Earle the manufacturers and their representatives were invited to the room to take part in the discussion of legislative matters.

The auditing committee made the following report: "We, the members of the auditing committee, have carefully examined the books of the secretary and treasurer and find that they have been very carefully kept and are correct in every detail."

The report of the secretary and treasurer for the past year was read and adopted.

The committee on legislation was called upon for a report but, being unsatisfactory to the association, the report was deferred until the afternoon session. Upon motion of Mr. Chamberlin the meeting adjourned until 2 p. m.

## FRIDAY AFTERNOON SESSION.

After the meeting was called to order by the president Mr. Earle offered an amendment to the by-laws as follows: "Resolved, That all strictly Independent manufacturers and their representatives be admitted to all meetings of this association except on matters relating to the manufacturers, in which case they shall take no part to the extent of voting." Upon motion of Mr. Stillwell, seconded by Mr. Chamberlin, the amendment was adopted. Upon motion of Mr. Emmer, Mr. Stadelman was invited to discuss the matter of telephone magazines accepting Kellogg advertising. Mr. Stadelman expressed it as his belief that under the postal regulations magazines were compelled to accept legitimate advertising at the regular rates charged other advertisers. Mr. Smith, of the Transmitter, was present, and said the statement was correct, and that contrary to his wishes in the matter the next issue of the Transmitter would contain Kellogg advertising.

Upon motion of Mr. Templeman a committee of three, consisting of Messrs. Earle, Mosley and Templeman, was appointed to draft a new constitution and by-laws, to be presented at the next annual meeting of the association. The committee on constitution and by-laws for this meeting, through its chairman, Mr. Conroy, reported that to the best of his knowledge the proceedings of the meeting were in accord with the constitution and by-laws as they now

stand. The committee was excused by the unanimous vote of all present.

The committee on legislation reported the following resolutions: "Resolved, That we, the Independent Telephone Association of Texas, in convention here assembled, do hereby petition the legislature not to pass the rate bill now pending, assuring that body that the rates allowed are not only too low to admit of reasonable profit, but, we assert, are below the actual cost of operation; and the passage of this bill will be confiscatory to our property and stop all development of the telephone business by both large and small companies over the state. The president is instructed to appoint a committee to attend the next meeting of the committee before whom the bill will be considered and discuss the matter with them."

"Resolved, That the Independent Telephone Association of Texas does hereby beg to submit to the legislature now in session that House Bill No. 24, undertaking to force the connection between our properties and those of the Bell company, we believe would be disastrous. We respectfully submit that this bill would tend to stop further development and would commit the telephone companies to a policy in vogue before the expiration of the Bell patents in 1895. This, we submit, is contrary to our Democratic principles as expressed in our last Democratic convention, as well as all previous conventions condemning monopolies and favoring competition. We beg to call the legislature's attention to the rapid development of the telephone field in the last few years since our home people have undertaken and are building lines in almost all cities and towns in the state, together with the farmer, or rural line business, of which our members have been such extensive builders."

The report was unanimously adopted as read and J. B. Earle was appointed as chairman of the committee to appear before the legislative committee, with the privilege of selecting the remainder of the committee.

The committee on nominations brought in a majority and a minority report. After some discussion, during which it was found that this method of nominating officers was contrary to the constitution, it was agreed that the report be rejected and the committee excused.

Nominations for president were then called for, and the name of J. B. Earle, of Waco, was presented. There being no further nominations, upon motion of Mr. Terry, seconded by Mr. Gould, Mr. Earle was unanimously elected. Mr. Casler vacated the chair in favor of Mr. Earle, who addressed the meeting in a forceful as well as entertaining manner, and he was most enthusiastically received. E. M. Chamberlain, of Greenville, was nominated for first vice president; C. W. Roberts of Abilene, for second vice-president; C. W. Emmer, of Beaumont, for third vice-president, and C. A. Shock, of Sherman, for secretary and treasurer. There being no opposition each was elected in turn to the office for which he was nominated. It was moved by Mr. Emmer and seconded by Mr. Graham that the association approve a common carriers' bill if one could be framed to suit the needs. This motion was laid on the table until the next meeting of the association.

It was moved by Mr. Casler and seconded by Mr. Thomas that the legislative committee go to Austin uninstructed. The motion carried.

Mr. Speed of the Stromberg-Carlson Telephone Manufacturing Company was allowed the floor and stated that he had prepared a negative of all the Independent telephone lines of Texas and that he desired to make the association a present of the same. Mr. Speed was given a special vote of thanks by the association and arrangements were made whereby any person desiring a copy of this map could secure the same by remitting \$1.00 to the secretary and treasurer, C. A. Shock, at Sherman, Texas.



A committee consisting of Messrs. Emmer, Gould and Templeman was appointed to draft suitable resolutions.

W. J. Stadelman, special representative of the International Independent Telephone Association, was called on for an address and responded with an interesting discussion of the value of advertising. He especially urged all Independents to display the shield emblem at all times and in all places.

A special resolution was introduced and passed, adopting the shield in red, white and blue as the emblem for the state association, and Independents were urged to use it freely, especially at all pay stations.

A special vote of thanks was tendered Mr. Stadelman and the International association for the assistance rendered throughout the meeting. Mr. Stadelman responded by stating that he had never attended a meeting in which more interest was taken, and it made him feel as if he would like to be one of the Texas association. By consent of those present, Mr. Stadelman was then made a member of the state association.

Mr. Earle was elected a delegate to the annual convention of the International Independent Telephone Association to be held in Chicago June 4-6, 1907.

Nominations for membership on the executive committee were called for, and the names of J. B. Earle, Waco; T. A.

Gould, Ennis; J. C. Casler, Fort Worth; H. S. Mosley, Weatherford, and W. P. Johnson, Corsicana, were presented. Upon motion of Mr. Templeman these gentlemen were unanimously elected. The time and place for holding the next meeting was left with the executive committee.

The committee on resolutions reported as follows:

"Be it resolved by the Texas Independent Telephone Association that we hereby express our full appreciation of all that has been done to make this the best meeting in the history of the association and especially do we want to thank the mayor and citizens of Fort Worth for their kindly welcome; the Fort Worth Telephone Company and their manager, Mr. Casler, for their many acts of hospitality; the Confederate Veterans, for the use of their room; the newspapers, for the amount of space so generously used to report our meetings; Messrs Swift & Company and Armour & Company for the consideration granted our delegates in showing them through their establishments; the manufacturers and their representatives who contributed so liberally to the entertainment of the delegates and all others who in any way assisted in making our stay in the city so pleasant."

After voting unanimously to adopt the report of the committee, the association adjourned subject to the call of the executive committee.

## OFFICIAL BULLETIN NUMBER NINE

*Issued by the International Independent Telephone Association*

**A**S EXPLAINED in the special bulletin, there is no cause for alarm among the Independent interests of the country, regarding the possible purchase by the Bell of the properties controlled by the United States Independent Telephone Company of Rochester. Should the Bell secure these, it would merely mean a temporary loss to the Independents of only about two-thirds of one per cent of the total number of Independent telephones in use in the United States. Conditions are such that there would be very little difficulty in securing new franchises in all of the places affected by the transaction, and installing Independent exchanges to take the place of those purchased.

In all probability, however, the Bell will be legally restrained from "absorbing" the U. S. I. properties. On February 27, the attorney-general of New York state began action against the Bell on anti-monopoly grounds to prevent the proposed merger. Bell officials admitted, at hearings held on March 7 and March 18, that negotiations were practically completed for the Bell to take over the U. S. I. properties. A temporary injunction has been secured, pending the attorney-general's decision. It is more than probable this injunction will be made permanent, but whatever may be the final outcome of the matter, the Independent interests of the country have no cause for serious alarm.

The convention will be held at the Auditorium Hotel in Chicago June 4, 5 and 6. The committees will meet on June 3. Full details later.

The convention program is being prepared. Officers of affiliated associations are requested to send in names of speakers and candidates for the various committees, so that every section of the country may be properly represented on the program. Suggestions regarding topics to be discussed are also invited from all interested.

Associations should select their delegates and alternates as early as possible, making prompt report of same to this office, so that proper credentials may be issued. Don't put this off till the last moment.

Officers of the various associations are reminded that under the present constitution, the order of business pro-

vides for *written reports* from associations, in response to the roll call. Active work to bring the statistical information for such reports up to date should begin immediately. *It is a matter of vital importance. Don't neglect it.*

The attention of officers of state associations is directed to the stand taken by the International association at the last convention, regarding Bell-owned equipment manufacturing companies, and to the importance of *not permitting such companies to exhibit* at conventions.

The map department has made exceptionally good progress during the past few weeks, due to a more ready response on the part of local companies to requests for map data. We appreciate this, and trust it will continue, in order that a good exhibit of maps can be made at the convention. Remember, you are serving your own interests by making it possible to include your company's lines in our state maps; so if you operate toll lines, send us a sketch of same without delay. Don't make it necessary to write you four or five times for this.

We have had occasion recently to request considerable information of a statistical nature from various companies, and wish to extend our thanks for the alacrity with which our letters, with scarcely an exception, have been answered.

It will be necessary to secure further data of this kind, and we hope for a continuance of this prompt attention to our requests. It saves time, and lessens the expense of the work.

The International and its affiliated associations are maintained for the purpose, among other things, of gathering and disseminating information regarding the Independent movement. Protect your interests, and save yourself work by referring inquiries to association headquarters, where they can be properly investigated.

The importance of local companies displaying the "Shield" at every opportunity, becomes greater with the progress of the movement. It is essential that our emblem be given the widest possible publicity, in order that the public may be fully educated to the extent and unity of the Independent system. In order to get your share of the

business, you should see that the "Shield" is shown at all of your exchanges and pay stations. The association's supply department is maintained to furnish everything in the way of "Shield" advertising to Independent companies at the lowest prices consistent with good quality. Full particulars cheerfully given. Help educate the public to look for the "Shield."

Under a resolution adopted by the executive committee, provision was made for honorary membership in the association at an annual fee of \$25. The following gentlemen have already availed themselves of this privilege, and qualified for such honorary membership:

C. Y. McVey	E. L. Barber	Arnold Kalman
Jas. B. Hoge	W. F. Laubach	Charles West
Chas. S. Norton	C. E. Tarte	G. R. Johnson
C. W. Kline	M. B. Overly	Edwin Matthews
Chas. E. Sumner	Hugo A. Koehler	Jas. S. Brailey, Jr.
W. C. Polk	Joseph J. Heim	A. C. Davis
E. W. Moore	J. G. Splane	A. V. Hageman
Frank H. Woods	Robt. C. Hall	Morris Taylor
Edmund Land	W. J. Stadelman	H. C. Jones
Arthur W. Hoge	Edward A. Faust	J. B. Earle
Frank L. Beam	W. J. Bowron	B. S. Barnard
Chas. C. Deering	H. B. McMeal	F. N. Kondolf
Edw. E. Clement	S. C. Thayer	J. B. Rhodes
O. C. Snider	W. C. Handlan	W. B. Woodbury
Max Koehler	Arthur B. Taylor	E. H. Moulton
Ernest L. Clark	B. G. Hubbell	W. Gilbert Thompson
Theodore Gary	C. E. Wilson	Wm. H. Bryant
W. H. McDonough	P. C. Holdoegel	W. P. Bowman

### THE USUAL BELL SERVICE.

We are indebted to Mr. J. B. Rhodes of Zanesville, O., for the following cartoon which recently appeared in the



Why is it?--Who's to Blame?

Zanesville News. The cartoonist of the News evidently does not think much of the service given by the Bell company.

The date of the Missouri Independent Telephone Convention has been changed to May 9, 10 and 11, and will be held at the Coates House, Kansas City. The Missouri Independents are bending every effort to make this the biggest convention ever held in the state.

### THE PROVIDENCE (R. I.) SITUATION.

The people of Providence, R. I., are making a strong demand for telephone competition so that the Bell monopoly which has held the field so long will be compelled to give good service and increase its installation. The Home Telephone Company is seeking a franchise from the city council, and the prospects are considered good for favorable action as the people are organizing to urge the passage of the ordinance. More than 26,000 citizens have petitioned the council that a franchise be granted to the Home company, while 66 local councils of union labor, representing 24,928 wage earners, have represented to the council that they wished competition in the telephone business. This makes a grand total of nearly 51,000 citizens who have thus far expressed themselves in favor of the contentions of the Home Telephone Company.

Of course the Bell is making a vigorous fight against the new company. The Providence Telephone Company, the Bell sub-licensee, has filed a counter petition purporting to contain 1,000 names, but investigation showed the petition of objectors to be a weak excuse. An examination of that petition showed but 757 names, 65 of which were not in the directory, 51 of which had signed the Home petition, 40 of which had signed their names in two or three different places and 30 denied their signatures or claimed they were tricked into signing by representations that they were signing for the Home Telephone Company.

A review of the Providence telephone situation shows why there is such a strong demand for an Independent company to compete with the Bell. In twenty-six years of monopoly the Providence Telephone (Bell) Company has placed 12,402 telephones in the Providence district, representing about 9,500 subscribers. Providence has about 200,000 population, while the remaining territory included in the district may be conservatively estimated at 30,000. This is only about 56 telephones to the thousand people. It is admitted that a proper number of telephones for this aggregate population would be at least 30,000. Less than five per cent of the people in Providence are telephone subscribers, which is remarkable when it is recalled that in Rochester there are 105 telephones to the thousand people, in Toledo 100, in Cleveland 110, in Kansas City 127, and in Los Angeles 250.

These facts have been laid before the people of Providence, and the point that Independent companies operate in these other cities has convinced them that competition is a good thing. The Bell company at Providence is charging rates considered excessive and prohibitive. The lowest rate charged is \$120 a year for unlimited service and the service is unsatisfactory.

The Home company has secured franchises in other towns in the state and with an entrance into Providence will be equipped for an effective fight against the monopoly. The officers and directors of the Independent company are well-known men of financial standing in the telephone field. The directors are: Theodore M. Brush of Elyria, O.; Howard Hendricson, Albany, N. Y.; Dr. Clarence T. Gardner, William Penn Mather, Bertrand J. Horton and Thomas Z. Lee, all of Providence. The officers are: President, Thomas Z. Lee; vice-president, Dr. Clarence T. Gardner; secretary and treasurer, Theodore M. Brush. With the exception of Mr. Hendricson and Mr. Brush, all these directors are well-known citizens of Providence. Mr. Hendricson is a business man of Albany, N. Y., and is president of the Home Telephone Company of that city. Mr. Brush is a large manufacturer of electric apparatus and is president of several Independent telephone companies. Thomas Z. Lee, president of the Home Telephone Company, is a well-known member of the Rhode Island bar, and a partner in the legal firm of Barney & Lee, with offices in Providence. He was formerly judge of the district court of Woonsocket.

# USE OF CURVES IN TELEPHONY

*A Practical Application of Co-ordinate Geometry*

By Einar Brofos

THE term co-ordinate geometry may appear to many persons very uninviting, as most mathematical terms do, however, some acquaintance with the subject, in most cases, will more than repay the slight study required to acquire the knowledge. The co-ordinate geometry may be said to deal with the relations existing between the horizontal and vertical projections of any point or points of a curve or inclining line.

The position of a point in a plane may be indicated by means of its distance from any two fixed intersecting straight lines in the plane, these distances being measured parallel to the fixed lines. Thus, if  $YY_1$  and  $XX_1$ , Figure 1, are any two fixed intersecting straight lines in the plane  $YOX$ , we may indicate position of the point  $R$  in that plane by giving its distance  $V'R$  from line  $YY_1$ , measured parallel

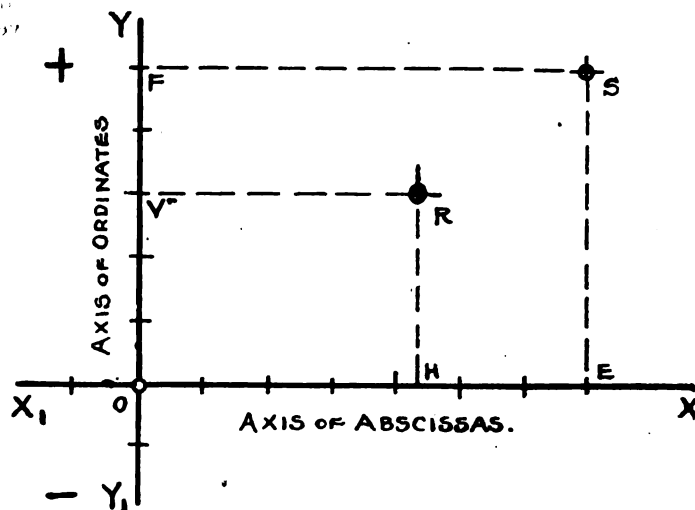


Figure 1—Location of Points in a Plane.

to  $XX_1$  and its distance  $V'H$  from the line  $XX_1$  measured parallel to  $YY_1$ .

The fixed intersecting lines  $YY_1$  and  $XX_1$  are called the axes of co-ordinates. The horizontal axis is called the  $X$  axis, or the axis of abscissas; the other axis is called the  $Y$  axis, or the axis of ordinates. The distance of any point from the axes, measured parallel to the axes, are called the co-ordinates of the point. That co-ordinate of a point which is parallel to the  $X$  axis is called the abscissa of that point. While that co-ordinate which is parallel to the  $Y$  axis is called the ordinate. In giving the co-ordinates of a point we name the abscissa of the point first.

If we say that the co-ordinates of a point,  $S$ , is 7,5, we mean that its abscissa or distance from the  $Y$  axis is seven and its ordinate or distance from the  $X$  axis is five. To locate this point in a plane  $YOX$ , Figure 1, we take any convenient length, for instance one-half inch, for our unit of length, and measure off seven units from the  $Y$  axis towards the right and from the point thus reached, measure off five units from the  $X$  axis parallel to the  $Y$  axis and upwards, hence  $S$  is the point whose co-ordinates are 7, 5.

It is obvious that this method might be utilized in showing the relations which exist between two or even more variable quantities. Thus we see that if we have two columns of figures related by one law or another we may plot one column of figures on the axis of abscissa, and the other on the axis of ordinate. Then through the points of

intersection between the different co-ordinates we may draw a line or curve, which will convey a clearer impression to the mind and from which conclusions can be drawn much more readily than from the two columns of figures.

Paper suitably prepared for the above mentioned pur-

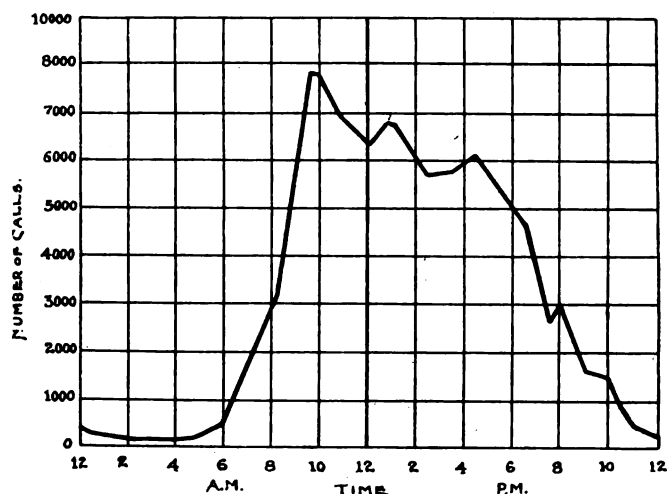


Figure 2—Telephone Traffic Record.

pose may be bought for a very slight amount. This kind of paper, sometimes called "squared paper," is usually divided in the metric system, that is, in millimeter squares, owing to that system being a decimal one.

The great convenience resulting from the use of this system is most appreciated by those who are actually practicing it. For instance, a merchant has in his office a sheet of squared paper with points plotted in a curve, which he adds to day by day, each point showing the price of copper or iron wire, etc., at any date. Now to what use does he put such a curve? 1. At any date he sees what the price was. 2. He sees by the slope of the curve the rate of increase or decrease of the price. 3. If he plots other things

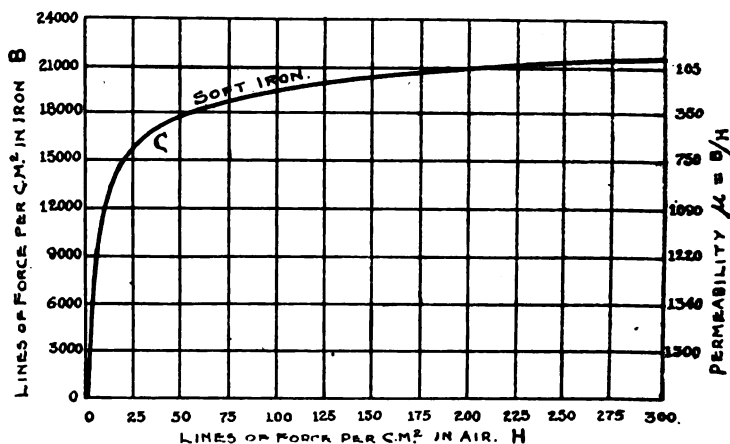


Figure 3—Magnetization and Permeability Curve.

on the same sheet of paper at the same dates, he will note what effects their rise and fall have upon the price of his material. 4. An examination of his curve for the past will enable him to predict with more certainty than a man can do who has no such records.

The writer once read an article upon how the number

of telephones were increasing while the rates were decreasing in the different countries. The figures were many and difficult to follow. However, upon taking and plotting them on a squared paper every result which the author had labored so much to bring out was shown clearly by the curves. Possibly this is the reason why some statistical writers do not publish curves. If they did there would be little need for writing.

Another useful application of the co-ordinate diagrams is when a person is performing certain experiments. When doing this it is generally for the purpose of finding out how one quantity depends upon another. Therefore, when one has two columns of observed numbers and plots them on squared paper, we may: 1. See if the points lie in any regular curve. If so, the simpler the curve the simpler the law which we may expect to find. 2. Correct errors of observation. For if the points lay nearly in a simple regular

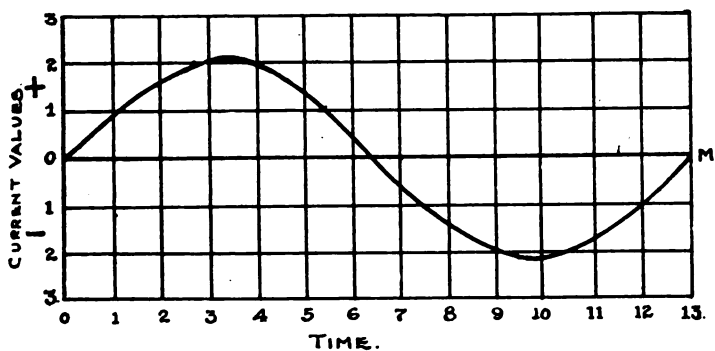


Figure 4—The Alternating Electric Current Curve.

curve and we draw the curve that lies most evenly among the points, then it may be taken as probable that if there were no errors in observation the point would lie exactly in such a curve.

The co-ordinate diagrams may be divided up into several groups or classes. We will now attempt to consider some of the principal ones.

An example of one of the simpler classes, or a curve showing the relations between two varying quantities, is shown by Figure 2. This particular curve, which is called a telephone traffic record, gives us the number of calls at the different hours of the day. Thus the abscissa representing the different hours of the day, while the ordinates represents the number of calls. This curve shows us now that the calls during the night are very few, starting to increase rapidly, however, after 6 a. m., until, when at 9:45 a. m., the

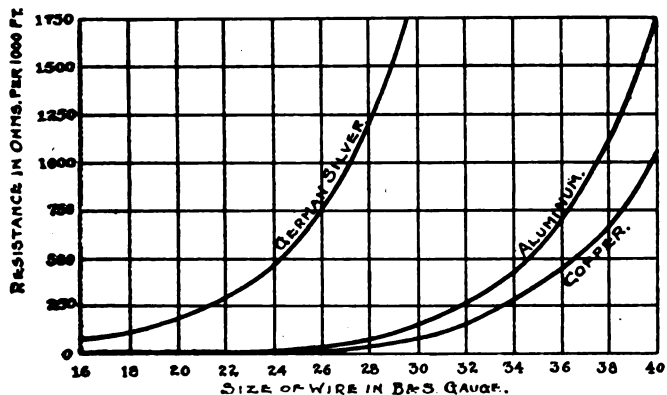


Figure 5—Resistance Curve of Different Kinds of Wire.

number of calls are maximum, reaching 7,750 calls. This rate, as we may see, only lasts until 10 a. m., when the number of calls begins to decrease. However, at 12 m. the calls are again increasing, lasting only until 1 p. m., after which a more or less steady decrease will follow, as shown by the curve. It is readily understood that such a system is of immense value to the traffic manager of an

operating telephone company, as he can by a glance note the different loads on the exchange during the day. It is apparent that instead of plotting hours on the abscissa, we might plot days or minutes, as required. Also, instead of total number of calls, we may, for instance, plot number of calls per line.

Another kind of co-ordinate diagram is one with three varying quantities (shown by Figure 3). This curve gives the relations which exist between the magnetic lines of force per square centimeter in iron ( $B$ ) and air ( $H$ ) and also the permeability  $\mu$  or  $B \div H$ . Here the lines of force in air is plotted on the abscissa, while the lines of force in iron is plotted on the ordinate. The resulting permeability is also plotted on the ordinate and the values are shown on the right hand side of the diagram. After having drawn the curve  $C$  in accordance with previously determined figures, in a manner which has been explained, we may use this curve in different ways, for instance, if the number of lines of force per  $CM^2$  in a coil without iron core is 100. What is the number of lines of force in a coil with the magnetic path filled with iron? This will be equal to the ordinate to the point of intersection between the curve and the abscissa to 100, or 19,500, as shown.

A third class of diagrams are those in which the curve at

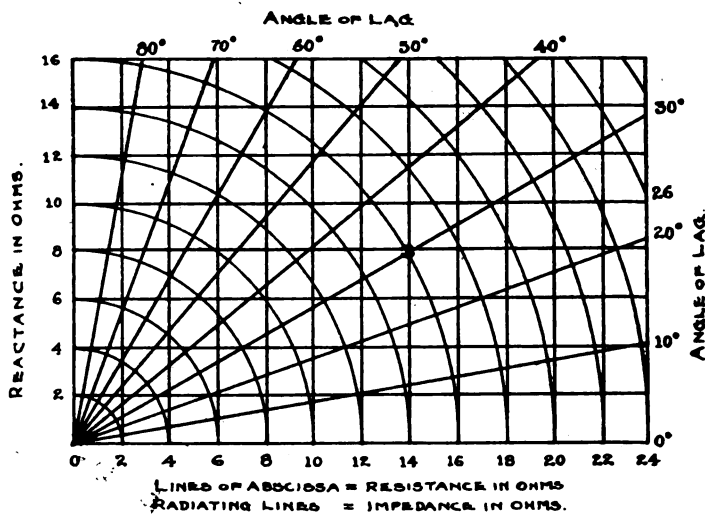


Figure 6—Resistance, Reaction and Impedance Diagram.

a certain stage has zero value, from which it will deviate in a positive or negative direction. An example of a curve of this kind is shown by Figure 4, which represents the instantaneous values of an alternating electric current, of a so-called sine curve form, during the different stages of a cycle. The abscissa  $OM$  represents time, say in seconds, while the positive and negative ordinates represent corresponding current values. From this curve we may readily note that the alternating current starts at zero, increases to maximum positive, then decreases to zero, increases again to maximum negative and decreases to zero, etc. This kind of diagram may also be used for other purposes, as for instance showing the variation in temperature above or below a fixed standard.

The next class of diagram which we will attempt to explain is the kind where several mediums are proportional to the same values, for instance, the resistance per 1,000 feet of copper, German silver and aluminum wire of different sizes. A diagram of this kind is shown by Figure 5, where the abscissa represents size of wire while the ordinates represent corresponding values of resistance. From a diagram of this kind we may see at a glance the relations with respect to resistance which exists between the different kinds of wires. For instance, following the line extending upwards from, say point 20 on the  $X$  axis, until when intersecting the different curves, we may find the different values of resistance by means of the corresponding ordinates.



All of the diagrams in this article explained up to this point consist of permanent curves and depended upon them for giving the relation between the different quantities. However, we will now consider a deviation from this class, namely, a diagram without any permanent curves, the diagram itself giving the relation between the different quantities. An example of this kind is shown by Figure 6, which gives the relations, interconnecting resistance, reactance and resulting impedance and angle of lag. We note that in addition to the lines of co-ordinates, other lines are drawn radiating from point of origin or *O*:

Through the radiating lines, circle lines are drawn with *O* as center, serving the purpose of dividing all the radiating lines into equal lengths. In this diagram the abscissa represents resistance, the ordinates reactance, while the length of the radiating lines represents the resulting impedance. The figures at the end of each circle line give the value of impedance. The last variable in this diagram is the angular displacement of the radiating lines with respect to the axis of abscissa. This displacement, marked in degrees as shown, represents the angle of lag of the current behind the impressed electro-motive force. As an example let us sup-

pose we have a coil of 14 ohms resistance and 8 ohms reactance. What is the resulting impedance and lag? Measure off 14 units to right from *O* on the *X* axis, from the point thus reached measure off 8 units upwards from the *X* axis. The length of the radiating line for this point gives the value of the corresponding impedance, which may be found by the intersecting circle line, which in this case shows 16.1 ohms. The angle of lag shown on the end of the intersected radiating line is 30 degrees. Many other applications of this curve may suggest themselves to the careful reader. As for example, what different resistances and reactances will cause the same angle of lag or, say, impedance, etc.

From what we now have been considering, we may come to the conclusion that co-ordinate geometry, as we have been treating it, is simplicity itself.

However, in conclusion, it may be said that this simplicity does not always prevail, the different mathematical laws which give the relation between the co-ordinates of the different points of a curve belong to the highest mathematical problems and, under the rather dangerous looking term, "calculus."



## WISCONSIN INDEPENDENTS MEET

*Elect Officers and Transact Other Important Business at Adjourned Meeting at Madison, March 7.*

By E. M. McMeal



**T**HE Independent Telephone Association of Wisconsin met in adjourned session in Turner Hall, at Madison, Wisconsin, March 7 and 8, to complete the business left unfinished when the convention adjourned in January. The meeting was called to order by President

connections was appointed, and Mr. Grant of Janesville was elected secretary and treasurer.

Mr. John S. Donald, president of the Second District, reported on the same lines, namely, that this district represented fourteen companies with 27,500 telephones, their



Delegates to the Michigan Independent Telephone Convention. Madison, Wisconsin, March 8, 1907.

Valentine of Janesville at 3:15 p. m. Mr. Mohlenpah, president of the First District, reported a meeting of fifteen companies having been held at Janesville, and representing 700 telephones outside of Racine, in the First District, organized with by-laws similar to those of the Indiana district associations, with some changes. They will continue to work on the map and statistics, a committee on toll line

organization is completed, that their committee on a map of the district had prepared a good map, and, finally, that good feeling prevailed and a large growing interest is shown in favor of Independent lines. The Third District was combined with the Second District and called the Second District.

Mr. E. J. Kneen, president of the Seventh District, re-

ported their organization perfected and that it is enthusiastic and well organized with seven to ten thousand telephones represented in the district.

Captain John M. Baer reported for the Ninth District that a meeting called for February 18 and 19 was adjourned and met on March 12, on account of sickness and business reasons. Captain Baer reported the addition of the Waupaca exchange to the district by purchase by the Appleton company, and that he was preparing a map of the territory in the district.

Mr. E. I. Bates reported for the Tenth District that a meeting had been held at which five companies were represented. By-laws were adopted, and the district permanently organized, 3,025 Independent telephones being represented in the district and conditions much improved; also that they were preparing maps and statistics. Twelve to fifteen companies were reported ready to join the district association.

President Valentine announced the illness of Mr. H. D. Critchfield, and that Mr. Chapin of Milwaukee, a director of the Milwaukee Independent Telephone Company, was present, to represent Mr. Critchfield. Mr. Chapin reported excellent progress by the Milwaukee Independent Telephone Company's preliminary work, and that through the aid of solicitors 5,200 contracts had been obtained for telephone service; that 2,700,000 feet of conduit had been ordered shipped to Milwaukee and that construction would begin as soon as it was physically possible.

Mr. W. J. Stadelman, the traveling secretary of the International Independent Telephone Association of America, was present and addressed the convention.

President Valentine then announced that proposed legislation demanded the attention of this association. Mr. Crowley, Jr., moved that a committee of three be appointed to draft specifications covering the crossing of wires over railroad crossings, the purpose being to govern the members of this association in the construction of such lines, and that this committee be instructed to confer with the other interested persons in the matter and report at 10 o'clock a. m., March 8, which was carried. The president appointed on this committee: Messrs. Crowley, Harper and Teasdale.

Mr. Harper moved a committee be appointed, consisting of one from each district, to meet and arrange a uniform set of district by-laws. The president appointed on this committee, Messrs. Grant, Donald, Schweizer, Crowley and Bates. Mr. Crowley moved that a session be held that evening, commencing at eight o'clock, for the purpose of discussing exclusively proposed legislation now pending, and to accept an invitation from Mr. Harper to a "smoker" afterwards, which was carried.

#### EVENING SESSION.

The meeting was called to order by President Valentine, and the following permanent committee on legislation was appointed by the chair with power to act: Messrs. F. C. Grant, J. C. Harper, Richard Valentine, R. S. Donald and C. H. Schweizer.

It was moved and seconded that Bill No. 205A, regarding the setting of poles; Bill 208A, regarding the granting of franchises, with Bill 506A, regarding the taxing of property not used exclusively for telephone purposes, and Bill 666A, regarding the stringing of wires and cables over private property, all be referred to the legislative committee.

Many other bills were discussed, after which the meeting adjourned to Friday, March 8, at 9:30 a. m.

#### FRIDAY MORNING SESSION.

At eleven o'clock the meeting was called to order by President Valentine. Mr. Schweizer moved that the companies represented at the meeting leave maps and data with the secretary for the use of the Milwaukee company, and

that the Milwaukee company be asked for assurances of their immediate construction of lines.

Mr. Donald reported for the nomination committee as follows: "Your nomination committee respectfully recommends the election of the following-named gentlemen as officers of the association for the ensuing year: President, H. D. Critchfield, Milwaukee; vice-presidents, the presidents of the district associations; secretary, J. C. Crowley, Jr., Superior; treasurer, J. S. Donald, Mt. Horeb. Executive committee: The president and secretary, ex-officio; John M. Baer, Appleton; Richard Valentine, Janesville; J. C. Harper, Madison; Dr. G. N. Hidershide, Arcadia; H. Teasdale, Sparta; Wm. Van Middleworth, Racine; W. P. Hyland, Ashland."

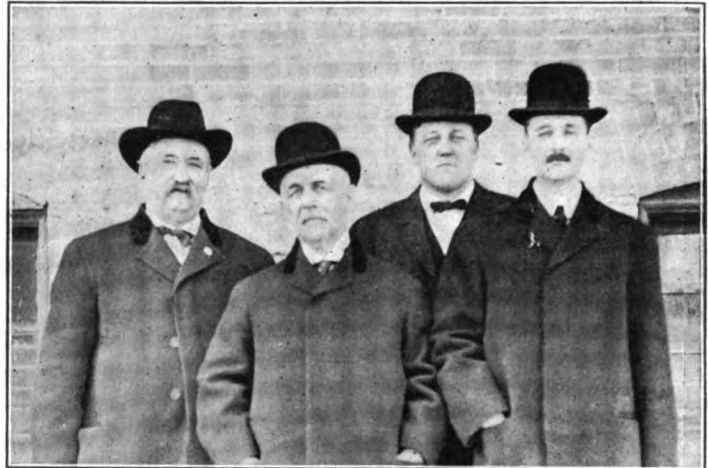
The report was adopted and the above officers elected for the coming year.

Mr. Goodrich reported for the committee on constitution and by-laws, which was appointed in January. The report was adopted and will be printed in book form and mailed to each member of the association as soon as expedient.

The committee on by-laws for district association and uniformity of same also reported. The report was accepted and will also be printed with the by-laws for the state association.

A resolution was adopted amending Article 7 of the said by-laws by adding:

"Any individual member of an Independent operating



Capt. J. M. Barr.                      W. J. Stadelman.  
Richard Valentine.                      W. J. Goodrich.

company may become a member of the association in the same manner as specified above, and by paying a membership fee of one dollar and one dollar per year dues."

It was then moved and carried that an assessment of one cent per unit be assessed against each company.

Mr. W. J. Stanton, of Waterloo, Iowa, superintendent of the Corn Belt Telephone Company, addressed the convention on the subject, "The Iowa Clearing House." Mr. W. F. Goodrich was appointed trustee for the fund specified at the January meeting as an organization fund. Mr. J. J. Nate addressed the convention on the affairs of the United States Independent Telephone Company.

A resolution was presented thanking the retiring president and secretary for the valuable work done by them in faithfully performing their duties, and especially thanking President Valentine for his many years of service in the office of president. The resolution was adopted by a rising vote.

A unanimous vote of thanks was also tendered to Mr. Harper for the faithful work performed by him for the association, and to him and the Madison people for the success of this convention.

Mr. Valentine then responded in closing remarks and the convention adjourned.

# MANUFACTURERS DEPARTMENT

## *NEW FACTORY OF THE CENTURY TELEPHONE CONSTRUCTION CO. AT BUFFALO, N. Y.*

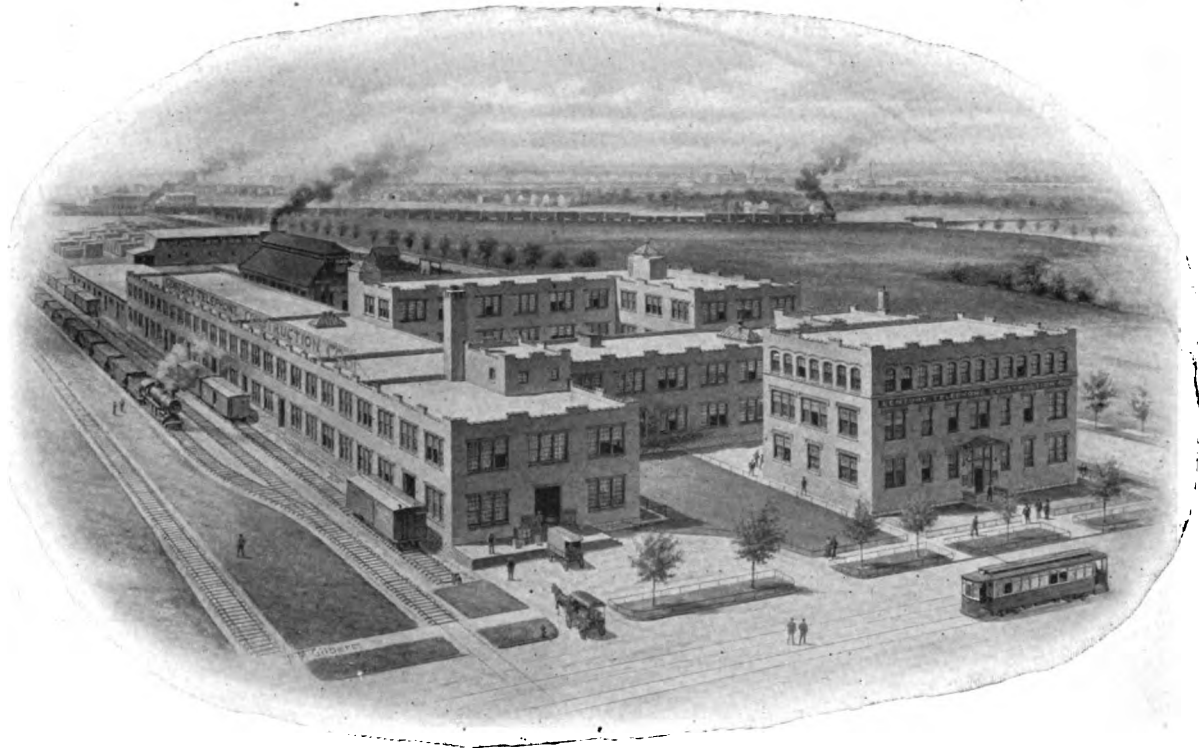
It is said that its handsome new plant will give the Century Telephone Construction Company one of the largest and best equipped telephone manufacturing establishments in the world. Readers of TELEPHONY will remember that the Century Telephone Construction Company's old factory, which was at that time running to its fullest capacity, was destroyed by fire on October 6. Owing to the large number of orders which the firm had on its books unfilled, it was obliged to move quickly in order to avoid expensive delays and inconvenience to its customers. It therefore purchased the stock and equipment of the Williams-Abbott Electric Company, of Cleveland, Ohio, long known as one of the best equipped plants in the country from a mechanical standpoint, and also commenced operation of a temporary

to ship one of its "Unitype" switchboards complete, ready for use every day in the year. The board can be used until January, 1908. The instrument above referred to is a very neat and attractive calendar in the exact shape of a modern switchboard. It is adapted to stand on the desk or writing table, and being printed in imitation oak, it really represents a miniature switchboard which is useful every day in the year.

## *NATIONAL ELECTRICAL SUPPLY CO.*

One of the most important factors in the eastern telephone and electrical field is the National Electrical Supply Company, of Washington, D. C. This concern has for some time past enjoyed a large and growing telephone trade and has been especially noted for its supply of locust pins.

The company is the successor of the old firm of Royce



New Factory of the Century Telephone Construction Company. Buffalo, New York.

factory at Buffalo. It has ever since worked both the Buffalo and Cleveland factories vigorously. The new plant, as shown by the illustration, is a well constructed building, fire-proof throughout and admirably adapted to the purposes to which it will be put, namely, the manufacture of a complete line of magneto and common battery telephone equipment. It is located on Elmwood avenue near Hertel street, Buffalo, N. Y., and may be quickly and conveniently reached via Elmwood electric cars. It is expected that the Century Telephone Construction Company will have operations in full swing in the new factory before May 1. It will continue the manufacture of the Williams-Abbott line, as well as enlarge and broaden its own.

## *SWITCHBOARDS GIVEN AWAY.*

It is seldom that a company gives away a switchboard, but this is what the Sumter Telephone Manufacturing Company, of Sumter, South Carolina, is doing for a limited time only. Upon receipt of a letter from those interested in modern telephone equipment, the company will be pleased

& Marean, who started in the electrical business in Washington in 1870.

The National Electrical Supply Company was organized through the efforts of Mr. E. C. Graham and within one year under his management it was necessary to find larger quarters, owing to the rapidly increasing business.

In January, 1904, the firm moved into a new building put up for its special purposes at 1330 New York avenue, which is its present home.

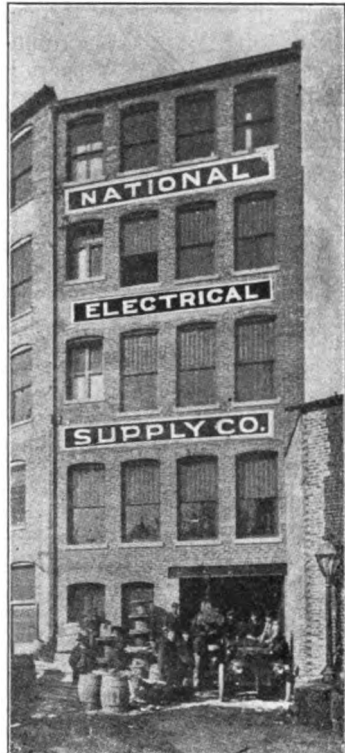
This new building is four stories in height, exclusive of basement; on a twenty-five-foot lot extending 160 feet back to a forty-foot alley in the rear.

A novel arrangement in the rear of the basement, which extends under the entire building, is an arrangement of two large double doors, where all goods are received and shipped, and which permits a wagon to drive into the basement.

An overhead trolley extends from the elevator shaft to a point four feet outside of the back wall, and is used in handling heavy articles from a wagon on to hand trucks or

elevator, by which they can be taken to any part of the building.

The basement is used as a shipping and receiving department and as a storeroom for insulated wires, cables, iron conduit and molding. One million feet or more of insulated



Buildings of the National Electrical Supply Company, Washington, wire, two carloads of steel conduit, one carload of molding and a carload of conduit fittings are stored there.

In addition to the building at 1330 New York avenue the firm has rented a warehouse in the alley adjoining the rear of the building, which is used for the storage of line materials, such as cross-arms, pike poles, pins, brackets,

This first floor is on a level with New York avenue and ten feet above the road level of the alley. In the rear of the first floor are the offices of the bookkeepers and of the secretary of the company, Mr. J. E. Mayfield, who attends to the details of the salesroom.

In the bookkeepers' office is also the office of the treasurer of the company, Mr. H. B. Mirick. The front part of the first floor is the main salesroom of the establishment.

The general offices of the company are on the second floor, and are finished in quartered oak and handsomely furnished. Of the two private offices on this floor one is for



J. E. Mayfield, Secretary. J. L. Townsend, Vice President.

the president, while the other is used as an estimate room for the construction department.

The rear of the second floor is used as a storeroom for the machinery supply department.

The third floor is devoted entirely to a stock room. The sides of this floor and center of same are built up of tiers of shelving in which is kept the open stock of the company. On this floor alone there are more than 25,000 feet of shelving, which are packed full.

On the top floor is the manufacturing and repair shop of the company. The shop is equipped with over twenty of the latest improved machines for manufacturing purposes. The foreign electrical specialty manufacturing department is in charge of Mr. James S. J. Clark and Mr. D. L. Moatz.



E. C. Graham, President.

H. B. Mirick, Treasurer.

bare wire, all sizes and kinds of galvanized bolts, lag screws, braces, anchors and all other such material which is used in the construction of telephone, telegraph, electric light and trolley lines. This warehouse comprises four floors, each being 100 x 25 feet and having a total area of 25,000 square feet.



General Offices National Electrical Supply Company. Washington.

The factories of this department are in Alexandria and Round Hill, Va., and occupy an area almost equal in size to Franklin square, Washington. The yearly output of these two factories amounts to not less than fifty carloads, and the products are sold in all parts of the United States. In addition to manufacturing electrical specialties, this de-



partment takes care of the sales of railroad ties, chestnut poles and complete electrical equipment for overhead electrical lines.

The general electrical supply department is in charge of an officer of the company, assisted by Mr. Charles O. Reed. This department takes care of the general electrical supply business and is the purchaser of all needed electrical supplies. This department has compiled a general electrical supply catalogue containing 600 pages of descriptive and illustrative material, which will be sent on request to those interested. The stock of general electrical supplies is said to be the largest in the south and east, with two exceptions.

The following are officers of the National Electrical Supply Company: Mr. E. C. Graham, president; Mr. H. D. Mirick, vice-president; Mr. T. L. Townsend, second vice-president; Mr. J. E. Mayfield, secretary; Mr. H. B. Mirick, treasurer.

### THE DICTOGRAPH.

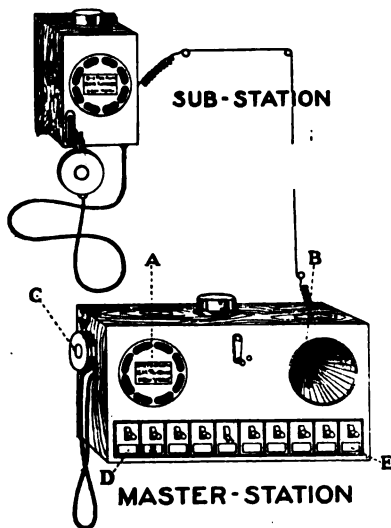
The Dictograph, one of the most interesting of the many new electrical inventions, is said to be the greatest time and labor saving office device ever produced.

It enables the manager or other executive officer of a corporation, bank or any business concern, to direct his subordinates and department managers, dictate his letters, consult his associates on matters requiring absolute secrecy, give general orders and, in short, attend to his daily business without the necessity of leaving his private office or admitting others to same.

The instrument itself consists of a "master station" with any number of "sub-stations." The accompanying cuts will show the general appearance of a Dictograph system.

The sound of the voice enters the receiving instrument shown at *A* and is produced perfectly at the other end of the line (sub-station).

The speaker at the master station does not speak into anything, does not hold anything in his hand or to his ear,



but speaks in an ordinary tone of voice within any distance, from three to fifteen feet away from the Dictograph, the sound concentrating, receiving instrument being as sensitive to sound as the human ear. No set position is necessary for the speaker who may assume the same attitude as if the person with whom he were talking were in the room with him.

The reply from the sub-station is heard coming from *B* where a small cone is inserted in the face of the Dictograph and the voice of the employe is reproduced, it is said, as clearly, and heard as distinctly, as if he were in the room. If, however, absolute secrecy is desired, it is only necessary to turn the switch at *C* and use the ear piece. It is claimed that strict privacy is absolutely assured by the use of the

Dictograph, as there is no possibility of anyone overhearing what is not intended for his ears, inasmuch as there is no central operator required, each connection being entirely separate.

For these reasons when one is talking to a department manager at one sub-station, a person at another sub-station will be unable to hear anything that is said. The line of communication is immediately established by merely pressing a lever corresponding to the name of the person or department one wishes to call and it is not disconnected until one moves the lever back to first position. These levers are shown at *D* and *E* and should one wish to indite



Showing the Dictograph in Use and its Inventor Mr. K. M. Turner.

or speak to more than one department at a time, one has only to press down the required individual levers. Thus one may issue instructions to one entire establishment at one and the same time without moving from one's desk and with the utmost ease and promptness. Any number of rooms located in any part of a building or block may be included in the Dictograph system. It is especially desirable where offices are disconnected or on different floors. The time saved in any large office by the use of the Dictograph can only be appreciated after its installation. To say that it saves one hour per day of "the best man in the office" is a pronounced conservative estimate. This fact alone will appeal to any progressive business man.

In finish and design the Dictograph is an ornament, being made in golden quartered oak or mahogany, highly polished, with full nicked and enameled trimmings and connections. The Dictograph proper, or master station, is very compact, measuring but  $11 \times 5\frac{7}{8} \times 4\frac{1}{4}$  inches, and may be attached to the desk by folding bracket or placed in a permanent position at the rear of the desk. The sub-stations are of the same finish and measure but  $4\frac{3}{4} \times 3\frac{1}{4} \times 2\frac{3}{4}$  inches.

The necessary wiring is so inconspicuous that it does not mar the most elegant interior and is entirely out of the way. The Dictograph is installed upon a rental basis and estimates will be furnished upon request.

The Dictograph is the invention of K. M. Turner, president and general manager of the General Acoustic Company, 1265 Broadway, New York City, to whom all inquiries should be addressed.

### TO FILL ALL ORDERS.

The fire which destroyed one of the factory buildings of the Wire & Telephone Company of America at Rome, New York, on February 23, will in no way interfere with its taking care of the requirements of its trade as heretofore. Owing to the firm's resourcefulness and quick action, provision has been made to make deliveries and to accept new business on all of its products. The fire, which destroyed only the wire-drawing plant, was no sooner under control

than arrangements were being made for the drawing of the firm's wire by other mills. Its representatives were instructed to accept orders and assure customers of deliveries as though they had not had the misfortune of a fire loss. The buildings in which the firm manufactures magnet wire, rubber covered wire and telephone products, were not damaged in the least. The Wire & Telephone Company of America has already made contracts for the erection of a new wire-drawing plant, which will be pushed to the earliest possible completion, and will have a greatly increased capacity.

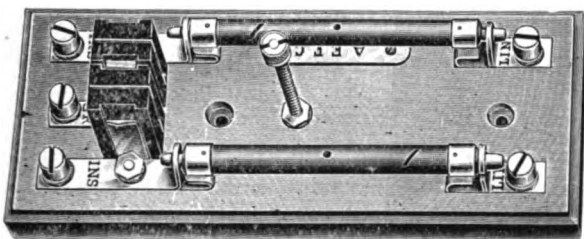
### SPECIAL TELEPHONE WIRE.

The Indiana Steel & Wire Company, of Muncie, Indiana, keeps on increasing its telephone trade. Its excellent policy as regards the manufacture of a superior galvanized wire, designed expressly for telephone use, has served to attract attention generally throughout the telephone field. It is said that the majority of the largest buyers in the telephone field are already patrons of the Indiana Steel & Wire Company, and that this number is being added to from day to day.

It behooves the user of telephone wire to take every precaution against inferior wire, as poor wire means poor service. All of the Indiana Steel & Wire Company's products, it is said, come up to the most rigid specifications, and pass all tests required by the Western Union Telegraph Company and the Bell Telephone Company, as well as the largest Independent concerns. A folder, descriptive of this firm's make of wire and containing some very useful information in regard to the manufacture of wires and its tests, will be mailed free on application.

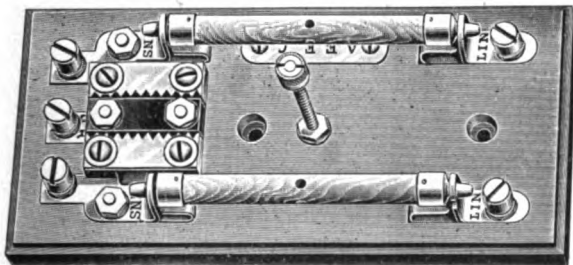
### AMERICAN INDIVIDUAL PROTECTORS IN DEMAND.

The American Electric Fuse Company announces that its sales on approved protectors for subscriber's use have increased about fifty per cent since March 1st. These American protectors have been on the market for only a



No. 990.

little more than six months, but have met with such favor, it is said, at the hands of the trade that orders already received exceed fifty thousand protectors.

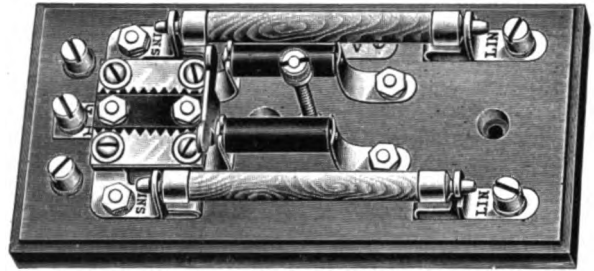


No. 998.

The company has five individual subscriber's protectors which have been approved and listed by the National Fire Underwriters. These are known as numbers 990, 991, 997, 998 and 999. Orders for these protectors have been received from nearly every state in the Union. Samples

will be sent on request to anyone interested in any type illustrated herewith or shown in the company's circular matter.

The American Electric Fuse Company has always enjoyed a large Canadian trade. The firm's latest installa-



No. 999.

tion is for the complete terminal equipment and subscriber's station protectors at Edmonton, Alberta, Canada. This contract was closed after competitive tests extending over several months, made with other types of protectors, it is



Cover for 990, 998 and 999 Protector.

said, and is claimed to be the largest order for protectors to be shipped to Canada placed thus far in 1907.

### AMERICAN PROTECTORS FOR DETROIT.

The Dean Electric Company, after extensive and elaborate tests of various types of switchboard protectors, awarded the contract for Detroit, Michigan, to the American Electric Fuse Company. The new plant for the Home Telephone Company at Detroit is to be a model in every sense of the word. The Dean company is sparing no expense to make the new switchboard equipment absolutely perfect and the specifications for the protectors were very rigid, requiring them to be of the same high quality as the other equipment to be furnished by the Dean Electric Company.

The American Electric Fuse Company is very much gratified to secure this contract, and especially so because its standard, type "H" protector was found to meet all the rigorous requirements of the tests and specifications. In connection with the largest protector installations, the manufacturers have frequently found it necessary to design a special type of protector to meet the exacting requirements of such large exchanges. This was not the case in connection with the Detroit contract. The American type "H" protector, without any alteration, answered every one of the specifications and fulfilled every requirement.

The Detroit protector order is proclaimed the largest order for protectors ever placed in the Independent telephone business. It approximates 20,000 pairs in the main and branch exchanges and when the installation is completed will be one of the "show installations" of the Independent field. TELEPHONY at a later date is promised an illustrated description of the Home Telephone Company's plant at Detroit in which the American protector installation will be fully shown.

### OSHKOSH LOGGING TOOL CO.—ITS PLANT AND PRODUCTS.

Considering the importance of its operations, as regards the telephone industry, it may be of interest to many readers to know something about the Oshkosh Logging Tool Company, of Oshkosh, Wis., and its line of telephone construction and linemen's tools.

The Oshkosh Logging Tool Company is located on the Fox river where it flows into Lake Winnebago. Besides being a very beautiful spot, Oshkosh is noted for its many large manufacturing plants of various kinds, and the Oshkosh Logging Tool Company is especially conspicuous on account of the fine new plant which it recently completed and is now occupying.

This company was organized in 1887, when a small building was erected. This it was found necessary to more than double in 1897 when the company was incorporated.

Although the Oshkosh Logging Tool Company started in business for the manufacture of lumbermen's tools, it began to put out a few construction tools in 1895. This business grew so rapidly that it made necessary an addition to the plant in 1897, and ever since then this department has continued to grow until it now constitutes a very important part of the company's affairs.

In the year 1898 the Oshkosh Logging Tool Company turned out its first "Kalkeen" insulator pins. These pins were manufactured in but a small way for some years, but eventually this department grew, increasing from one million pins in 1903 to eighteen millions during the year 1906. This great increase in the pin department, together with increased business in all other lines, made larger quarters absolutely necessary. It was also found desirable to add some new, heavy machinery to cut down the cost of production, but such machines could not be put into the old factory, both for lack of space and insufficient boiler and engine capacity. Accordingly, in the spring of 1903 the present site was purchased, consisting of an entire city block. It is located on the river front and directly across the street from the Chicago and North-Western freight house.

During that year a two-story and basement brick, wood working factory was erected. This building is of steel

structure and the dimensions are 154 x 64 feet. This gives a floor area of 19,712 square feet as against 3,300 square feet for the wood working department in the old factory.

With a business which taxed the capacity of the old factory it became a difficult problem to move the machinery and stock without seriously interfering with the prompt filling of orders, and this problem was finally solved by moving one machine at a time, setting it up and starting it to running immediately in its new home.

The year 1904 witnessed the erection of a modern blacksmith shop, saw mill and large, iron-covered lumber shed.

The blacksmith shop is a one-story and basement, brick and steel, structure, 154 x 54 feet, giving 8,315 square feet of floor space, as against 2,100 square feet in the old plant.

The saw mill is a new venture for the Logging Tool Company. It now rails in a selected class of logs and cuts them up for handle stock to the best advantage.

Although warehouse space was badly needed, it was thought best to go slow and find out, if possible, how large a warehouse the business prospects would warrant. The result was that a four-story and basement brick and steel warehouse and office building was decided on. Ground was broken in 1905, but high water and delays in securing structural steel and other materials prevented the completion of this building until July 1, 1906. This warehouse

provides 60,000 square feet of floor space, where the old plant had 11,000 square feet.

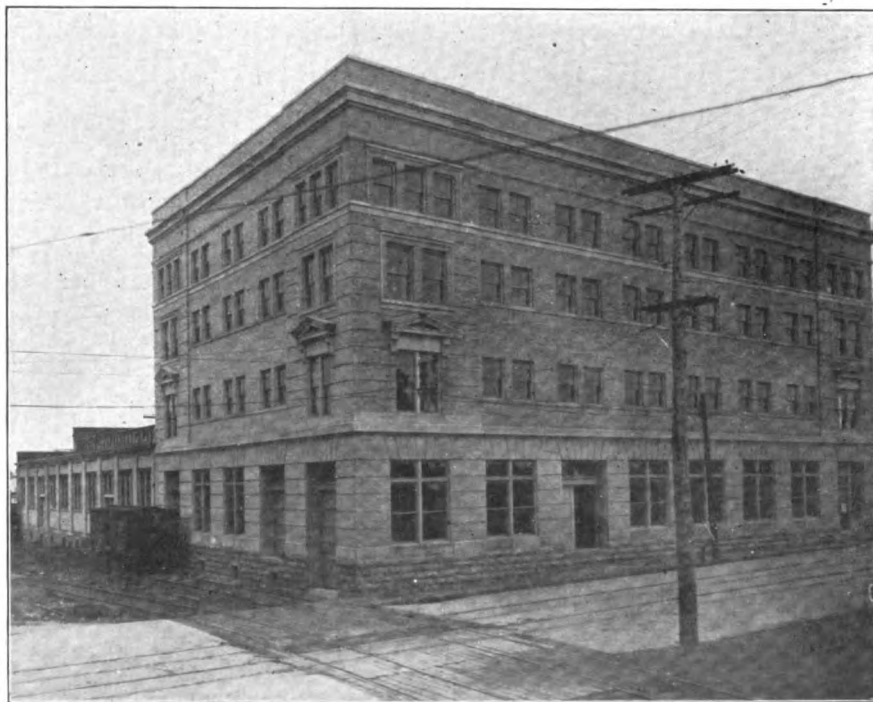
In one corner of this warehouse, comfortable office quarters are located, and all business friends are cordially invited to call whenever they visit Oshkosh.

An interesting feature of this plant is that it has no power plant, everything being run by electric motors, the current for which is obtained from the local electric light plant. The electrically driven saw mill is one of the most unique mills in the United States.

With a plant of this kind in the hands of able managers and skilled workmen, the Oshkosh Logging Tool Company feels that it is in position to take care of telephone buyers' wants in a manner which is bound to give satisfaction. The concern's business extends throughout the United States, from New York to New Orleans and San Francisco. Considerable export business to Mexico, Cen-



Original Plant Oshkosh Logging and Tool Company, Oshkosh, Wisconsin, 1887.



Present Plant of the Oshkosh Logging and Tool Company, Oshkosh.





VIEWS IN THE FACTORY OF THE OSHKOSH LOGGING AND COAL COMPANY, OSHKOSH, WISCONSIN.

1—Office of Mr. Elmer Leade, President. 2—Secretary C. A. Libby at his Desk. 3—Mr. F. W. Huelster Purchasing Department. 4—Main Office and Accounting Department. 5—Stenographers' Room. 6—Entrance to Office. 7—Interior Woodworking Factory. 8—Interior Woodworking Factory. 9—Interior Blacksmith Shop. 10—Yard and Teams. 11—Shipping Department. 12—Corner of Sample Room.



tral America and Canada is also enjoyed. The Oshkosh construction tools can be purchased through all jobbing houses, and wherever local dealers are unable to supply buyers, they are requested to write direct to the factory where their orders will be given immediate attention. The company's new warehouse enables it to carry a large stock of manufactured goods, for which orders are filled the same day they are received.

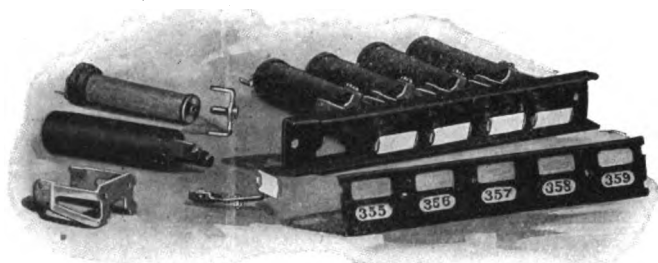
The Oshkosh brand of tools is fully guaranteed by its manufacturer, and especial attention is invited to the firm's climber, which is a very fine problem in forging. The entire climber, including the spur, is forged from a single piece of tool steel of proper temper and toughness. The company announces that it also is in position to manufacture any special tools according to telephone companies' blue prints.

A glance through the firm's catalogue shows a very complete line of telephone construction tools and anyone in the market for such goods will do well to write the Oshkosh Logging Tool Company, asking for Construction Tool Bulletin No. 8.

#### THE NEW MONARCH VISUAL.

In the visual signal just placed upon the market by the Monarch Telephone Manufacturing Company of Chicago are noticed several characteristics which will immediately associate this signal with other Monarch equipment. Outside of substantial, simple construction there is no other feature so apparent as "accessibility." The coil of this visual is arranged similarly to the coil of the Monarch drop, as it can be removed from its shell without affecting the adjustment of the armature and without breaking any soldered connections. In the accompanying illustration one of these coils may be seen removed from its shell. On the rear head are mounted the two terminal clips for attaching the line wires, either by means of a screw connection or soldering.

The armature is mounted in front of the coil, so in this feature also the visual is similar to the Monarch magneto drop. The advantages of this method of armature mounting are many, but the two principal ones may be said to be the increased sensitiveness on account of the short shutter hook and the convenient means left for an adjustment which need not be affected by the removal of the coil. The first advantage can be seen and appreciated at a glance, but the second will merit some study, as a very ingenious and



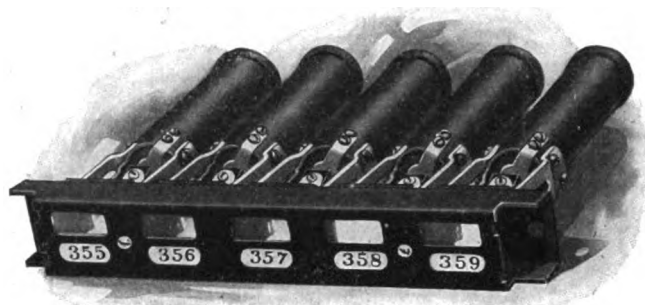
New Monarch Visual Signal.

good idea is here put into practice. A few words of explanation considered in connection with the illustration showing the parts unmounted may make the scheme perfectly clear. Upon examining this cut the armature with the shutter or target attached will be seen. Although not clearly shown, a pin or stud extends from each side of this armature and rests in a slot in the shell of the coil. The slot in each side of the shell may be seen distinctly and the idea will then be grasped. These pins resting in the slots act as pivotal points for the movement of the armature. Under normal conditions the end of the armature is tilted up and the target in front of the mounting plate is down but upon the coil being energized the armature is attracted to the core, thus pulling it down and throwing the target

up. The target is made of aluminum, and it so nearly balances the weight of the armature that a very small amount of current passing through the coil will operate the signal.

The adjustment as concerns the armature is fixed permanently and, in order to positively insure an exactly uniform distance between the core of the coil and the armature, a pin, supported by a yoke fastened to the shell, passes into a hole drilled in the end of the core. Therefore this pin becomes part of the core and its position being fixed a slight variation in the length or position of the coil does not affect the efficiency of the signal. This pin and yoke may be seen in one of the illustrations.

The target is fitted with two small clasps under which



New Monarch Visual Signal.

is inserted a number cord for convenience in distinguishing the line calling. The shield plate placed in front of the mounting has two openings in front of the target, one in the upper portion and one in the lower. These openings are covered with a glass plate and behind the lower one is placed a number card bearing the number of that particular line. This card covers the opening so that the target cannot be seen. The upper opening has no covering other than the glass so the target shows when operated. The mounting strip and the shield plate being finished dead black and the number plates being pure white with black numbers make the targets and numbers easily distinguishable.

The signals are mounted five per strip on one and three-sixteenths inch centers. The mounting strips are six and three-quarters inches long and one inch wide. The construction throughout is most simple and substantial.

The Monarch company is now preparing a booklet fully describing this signal and will be pleased to send it to those interested in this class of apparatus. This signal is designed for common battery work and will make a good simple and low priced equipment for private branch exchanges as well as small common battery plants.

#### THE IMPROVED EVERSTICK ANCHOR.

During the past year a number of improvements have been made in the Everstick anchor, manufactured and sold by the Everstick Anchor Company, 17 South Maine street, St. Louis, Missouri.

It is claimed that this device is practically the only one upon the market which expands into solid and undisturbed earth at the very bottom of the hole, precluding any movement either backward or forward. In other words, it is claimed that the Everstick anchors are set positively solid, and no vacuum under them to hold water. The Everstick anchor is made of malleable iron, with no danger of breakage, and is coated with asphaltum to prevent rust and decay.

It is further claimed for it that it is the quickest anchor in point of installation and practically everlasting, as well as the most efficient anchor upon the market. The manufacturers offer to refund all money paid for Everstick anchors which do not give thorough satisfaction.

## TRADE NOTES.

RABER & WATSON, Chicago, who sell good telephone poles, also believe in good advertising. One of their latest stunts is a "Mule Barometer," which will be sent free upon application.

THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, Rochester, N. Y., is sending out a neat and attractive line of printed matter, descriptive of its receiver cords, switchboard cords, telephone cords, flux solder, wool cable, etc.

THE D. & T. ANCHOR COMPANY, La Crosse, Wis., has prepared some interesting information upon various types of anchors, explaining the construction which gives them good holding power owing to the fact that they grip the solid ground.

THE STERLING ELECTRIC COMPANY, Lafayette, Ind., has recently issued a neat card, showing the proper way to use the telephone in contradistinction from the wrong way, employing two half-tone photographs from life by way of illustrations. Write for one of them.

MR. H. C. SLEMIN, formerly of the engineering and sales departments of the Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., has become advertising manager of the concern in place of Mr. J. O. Oliver, who shifts over to the sales organization.

FORT WAYNE ELECTRICAL WORKS, Fort Wayne, Ind., has a booklet, "Summer Comforts," for distribution. It illustrates and describes telephone booth fan motors, which are a delightful innovation appreciated by every user of public booth pay station, and help get the nickels and dimes.

THE COMMERCIAL ELECTRICAL SUPPLY COMPANY, St. Louis, invites all buyers of telephone supplies to read its monthly price list, descriptive of stock on hand at its St. Louis establishment. This price list comes in a very convenient form and is desirable for telephone men to have on hand.

THE JULIUS ANDRAE & SONS COMPANY, Milwaukee, is sending to the trade a very neat and useful folder descriptive of its line of telephone goods. This is one of the very best things in concise form which has recently come to our notice, and is well worthy of a place on every manager's desk.

THE COMMERCIAL ELECTRIC SUPPLY COMPANY, of St. Louis, Mo., informs its customers that electrical porcelain is likely to undergo a sharp advance in the near future and advises that they secure immediate quotations on all supplies of this kind, which they are likely to be in need of this season.

THE DIELECTRIC MANUFACTURING COMPANY, St. Louis, has issued a new bulletin, descriptive of its impregnating and cable compounds, which enjoy quite extensive use throughout the telephone field. Copies of the bulletin and condensed data sheet No. 2 will be mailed, gratis, to interested parties.

THE C. H. WORCESTER COMPANY, Chicago, producers of cedar poles, ties, etc., owing to its constantly increasing business, has found it necessary to move into larger quar-

ters. The company remains in the Tribune building, but the offices are now located on the seventeenth floor, in rooms 1708, 1710 and 1712, instead of room 1208, as heretofore.

THE FIRM of McGillivray & Pepiot have issued a neat folder entitled "A Talk on Telephones" by J. E. McGillivray. This folder not only gives some very appropriate advice to prospective buyers, but contains general information of an interesting character.

THE NAUGLE POLE & TIE COMPANY, 226 La Salle street, Chicago has recently issued a very convenient booklet containing standard specifications of white cedar poles. An order blank in the form of a post card is also attached to and made a part of the folder. Parties in the market for poles are invited to ask for this folder if they have not already received one.

THE STEEL GAIN MANUFACTURING COMPANY of 7 South Clinton street, Chicago, finds that its "Bull Dog" steel gain meets with much favor among users of poles and cross-arms. This device is a steel cross-arm support which makes braces unnecessary on five-foot or six-foot arms, saves the expense of cutting a gain and strengthens the pole instead of weakening it.

THE CALCULAGRAPH COMPANY, of 13 Maiden Lane, New York, has issued a new folder, descriptive of its device for mechanically recording elapsed time. The Calculagraph is already employed by many of the leading telephone companies for keeping records of their toll messages. Many of our readers will doubtless be interested in securing the Calculagraph Company's new literature on the subject. It relates to cost accounting more particularly.

THE AMERICAN ELECTRIC FUSE COMPANY, Muskegon, was awarded the contract for the entire cable terminal protector equipment to be used by the Home Telephone Company, Detroit, Michigan, in connection with its new exchange now building. The American type "J" terminal met all the specifications of the engineers and will be used exclusively at Detroit. Contract amounts to about fifteen thousand dollars and is probably the largest single order ever placed for cable terminal equipment in the Independent field.

THE UNITED STATES COIN REGISTER COMPANY, Toledo, O., is prepared to send out some very interesting information about the United States combined cash register and pay station. This pay station is furnished with a tape upon which a record of the amount of every deposit is made automatically. This tape is automatically cut off and deposited in the cash drawer when collection is made. It furnishes a record which enables the accounting department to have an absolute check upon all collections, and avoid errors and disputes. The company will send full information upon receipt of a request.

THE SWEDISH-AMERICAN TELEPHONE COMPANY was one of the leading exhibitors at the Iowa state convention, held in Sioux City, March 19, 20 and 21. The company's headquarters were in room 102, Garrettsen Hotel. A large number of orders were secured by the company, shipments being made from its Sioux Falls, South Dakota branch. The fact that western and northwestern Independents can have their telephones and supplies delivered from Sioux Falls is meeting with general favor. The Swedish-Ameri-

can is the only Independent telephone company making shipments from that point.

"SECURITY" CABLE TROLLEYS, made by the F. Bissell Company, Toledo, Ohio, can again be shipped on demand. For a time the deliveries were behind, not because of insufficient factory capacity but through delay in getting iron. The F. Bissell Company has prepared for an extra big year with extra big stock and will keep up with the trade, but will appreciate the courtesy of orders ahead of their customers' actual necessities as this certainly insures their convenience.

THE HALLETT IRON WORKS, 92-96 W. Polk street, Chicago, Ill., is making large sales of its standard materials for outside construction. Cable reel jacks and bars, alley arm braces and other classes of iron work used in telephone construction which this company sells have become thoroughly established in the market and won a high reputation for quality. A complete list of the company's products with any desired information will be sent to telephone managers upon request.

THE NORTON-SYSTEM TELEPHONE COMPANY, Toronto, Canada, has just published in its Bulletin No. 5 a description of some of the interior systems which it recommends. This bulletin shows the circuits for such systems and also apparatus, including telephones, switches, annunciators, etc., which are needed in constructing them. The company will be pleased to send this bulletin or any information concerning the several classes of telephone apparatus in which it deals to all interested persons.

A. LEON MEDEARIS, who is connected with the Southwestern Telegraph & Telephone Company at Jonesboro, Ark., has composed and published a very catchy song, entitled "She is Only a Telephone Girl." Copies of this new piece can be had of the publisher upon receipt of 50 cents, but all telephone operators mentioning TELEPHONY can have same for half price—25 cents. Mr. McDearis is the well known composer of two other very popular songs, entitled "My Darling Little Sweetheart," and "In Old Arkansas."

THE W. G. NAGEL ELECTRIC COMPANY, Toledo, O., in its journal, the Electrical Times, prints the usual current price summary, which gives latest prices upon construction material, wires, batteries, etc. This feature of the paper is especially interesting to all telephone managers and superintendents of construction, as it enables them to keep close track of the market and secure accuracy in all estimates. An interesting article also shows the danger of stringing telephone wires on the same poles with those bearing currents at a high voltage.

JOHN J. REIDY, manufacturer of the well known Reidy climber for linemen, has recently secured larger quarters for the manufacture of this device and various other specialties, such as straps, belts, pads, etc., used by linemen. Mr. Reidy is now located at Mill street and Saltonstall avenue, New Haven, Connecticut. In his new location he will have larger and better facilities and will be able to give the best of attention to his largely increased trade. Mr. Reidy will be glad to hear from all parties interested in the line of goods which he makes.

THE BELDEN MANUFACTURING COMPANY, 194 Michigan street, Chicago, Ill., has recently purchased a building comprising five stories and basement adjoining its present factory. The new building has been altered in such a way as to form an addition to the present manufacturing floor space of about fifty per cent. This increase has been made necessary by the demands in all departments of the com-

pany's business, which includes the manufacture of copper and German silver for various purposes, in addition to the well known Belden specialties for telephone companies.

THE MACEY COMPANY, of Grand Rapids, Michigan, is engaged in the publishing of card forms for telephone companies, which desire to keep their systems by this method. A number of set forms which have been published for various telephone companies will be mailed as samples to those companies contemplating a system of this kind. The Macey Company also will prepare original copy from suggestions furnished. It is claimed that the card system is the ideal method for keeping records of subscribers, accounts, etc., and is the most economical as well as the most flexible system which can be employed.

THE DAYTON MANUFACTURING COMPANY of Dayton, O., has recently issued a very convenient and comprehensive catalogue, No. 139, descriptive of the Silvey storage batteries, which are manufactured by this concern. The Dayton Manufacturing Company has been manufacturing storage batteries for the last sixteen years and claims that its now "armored type" of battery has so many self-evident points of merit as to make it a seller at sight. A number of special types of storage batteries especially designed for telephone purposes will be found described in the new catalogue. It can be had upon application.

THE AMERICAN CONDUIT COMPANY, Chicago, San Francisco and New York, has just issued a leaflet which gives some interesting information concerning concrete. It shows the amount of material required for a cubic yard of concrete made with different proportions of sand, loose gravel and cement. This table should be very useful to those who have occasion to compute volumes of this material, and as its use in connection with buildings, underground work, and other structures owned by telephone companies is rapidly increasing, it should have a practical value to many telephone men. A copy will be sent on receipt of a request.

MR. F. L. MCGILLEN, who has for some years been connected with the Valentine-Clark Company, Chicago, has resigned, to take effect April 1, and will then become associated with the California Pole & Piling Company, 507 Market street, San Francisco, Cal. Mr. McGillen will have charge of the department devoted to cross-arms, poles and piling. It is expected that the concern will open yards at Omaha and St. Louis in the near future. The California Pole & Piling Company is a branch of the Weyerheuser interests, and also is closely connected with the Charles R. McCormick Company, San Francisco and McCormick, Wash.

THE RAPID GROWTH of the business of the Oliver Manufacturing Company, of Philadelphia, makers and jobbers of electrical apparatus, has necessitated its securing larger quarters, and the company will, on April 1, occupy commodious offices and salesrooms at 1020 Walnut street, where it will show a most complete line of interior telephone systems, annunciators, watchmen's clocks, electric lighting fixtures, etc. Among the specialties which this company is placing on the market are the "Flexiphone" (flexible telephone), the "Flexilite" (an automatically adjusted electric light), and the "Equipoise" telephone arms, which are so widely and favorably known.

THE BLAKE SIGNAL & MANUFACTURING COMPANY, 246 Summit street, Boston, Mass., has in the "Blake tube flux," which under its new name has been recently put upon the market in an improved form, an especially interesting product. The flux is put up in a collapsible tube with a long aluminum spout. By manipulation of the tube

just the proper quantity of paste can be applied to the work during the process of soldering, and the spout enables it to be placed just where it is needed. Owing to the fact that this spout is made of aluminum it can be placed directly in hot solder without becoming clogged. Full information will be furnished by the company on receipt of a request.

THE ROLFE ELECTRIC COMPANY of Rochester, N. Y., is shipping hundreds of its new type porcelain fuse boxes daily. In New York alone over 25,000 of these boxes have been installed since January 1, 1907. The company states that a solid line taking in nearly every exchange from Buffalo to Albany, shows Rolfe goods at nearly every telephone, which speaks well for this company to have many of the telephone companies in its own state using its goods, as well as the larger companies throughout the country. A large number of inquiries are received each day regarding this fuse box, and are always cheerfully answered. Should any information be desired a request addressed to the Rolfe Electric Company, Rochester, N. Y., will bring full details.

THE HALCOMB TELEPHONE SUPPLY COMPANY has recently removed to new quarters at 123 West Sixth street, Kansas City, Missouri, where it will enjoy better accommodations and finer facilities than ever before for supplying the telephone field with new and rebuilt apparatus. This firm's advertisement will be found in the advertising section of TELEPHONY. The Halcomb Telephone Supply Company makes a specialty of buying standard but slightly used apparatus and rebuilding same in such a manner as to make it practically as good as new. The firm claims to make careful selection of the apparatus which it purchases, employs skilled help in the overhauling process and gives all of its goods a careful test before shipping. It is conveniently located as regards a large and active field.

THE INTERSTATE SUPPLY COMPANY, of Sioux City, Iowa, is now developing a complete line of telephone apparatus under the supervision of Mr. R. Hanson, who has been associated with some of the oldest and largest telephone manufacturing concerns of the country. It is expected that this line will be completed and ready to offer to the trade within the next sixty or ninety days. The Interstate Supply Company, on account of its favorable location, as regards large and rapidly developing territory, has apparently a most favorable outlook and under the popular and efficient management of Messrs. McGraw and Brown should achieve further and greater success as a manufacturer of telephone apparatus. Parties interested in further details about their new factory and line of apparatus are invited to correspond with them direct.

THE AUTOMATIC ELECTRIC COMPANY of Chicago, announces the closing of a contract for 10,000 additional lines of automatic telephone equipment for the Home Telephone & Telegraph Company of Los Angeles, Cal. This is for immediate installation in the new Olive exchange, and the completion of this exchange will practically mean the elimination of the manual equipment now in use in the present main exchange. Other contracts placed with the Automatic Electric Company during the first two months of 1907 are: Home Telephone & Telegraph Company, Portland, Ore., 3,000 additional; Montana Independent Telephone Company, Butte, Mont., 2,000 lines; Home Telephone & Telegraph Company, Tacoma, Wash., 1,000 additional; Rushville Co-Operative Telephone Company, Rushville, Ind., 800 lines, and several additions to present automatic exchanges.

#### THE ROCK ISLAND BATTERY.

"Quality, not price" is the thought which the Rock Island Dry Battery Company, Cincinnati, is hammering into the users of dry cells. The trademark, "R. I. Bat.," is internationally known, for these Cincinnati hand-made batteries are being shipped to all quarters of the world. Finland, Sweden, Scotland, South Africa and the Philippines were represented in a recent consignment to foreign lands.

Mr. M. A. Loeb, of the company, is reported to have recently closed important contracts with some of the largest concerns in New York, Boston and Philadelphia, and large concerns, as is well known, generally demand the best. The Rock Island battery has won such fame and success as rests upon a foundation of solid worth. Rock Island cells are especially noted for their claims to long life. They are made by hand, it is said, from the highest grade of carbon wrapped in chemically prepared cloth and set in a wall of chemical. The moisture is held captive by this treatment so that neither heat nor cold is said to affect the battery. The Rock Island is the only battery, it is claimed, that will not deteriorate on salt-water craft. These batteries have also made good, it is said, on the claim of little internal resistance, more constant tension and wonderful recuperative power.

In the course of their construction they are subjected to five tests and actual demonstration is said to have shown that they are superior to any other battery. Many of the Bell and Independent telephone companies have put the Rock Island battery to the test and have found, it is said, that they do not crystallize and are not affected by heat or cold.

The Rock Island Battery Company offers to fill orders within forty-eight hours after receipt and all batteries shipped are guaranteed never to be over forty-eight hours old. They are made in three sizes. No. 6 is very extensively used for telephone purposes, door-bell work, electrical clocks, automobile ignition and nearly all other purposes. No. 7 and No. 8 are the best for gas and gasoline engine ignition, and as No. 8 will outlast four sets of No. 6, it is decidedly the cheapest battery of the three sizes, although its original cost is somewhat greater than that of No. 6. Rock Island cells were first made at Rock Island, Illinois, but they are now made in a spacious, up-to-date factory at Ninth and Sycamore streets, Cincinnati, Ohio.

#### DELAWARE HARD FIBRE.

The Delaware Hard Fibre Company, of Wilmington, Delaware, has recently increased its capacity by erecting another large mill, and is now prepared to fill more promptly all orders for hard fibre in sheet, rod or tube form. It is claimed for the hard fibre made by this concern that it is not only thoroughly insulated but extremely durable and will not easily disintegrate. The making of hard fibre properly is a process which requires long experience, exceptional care and large capital. For any one of the above reasons there have been few concerns which have attained great success in this particular field, and the Delaware Hard Fibre Company is justly entitled to front rank in this respect. Much of the credit for this is due to the company's popular president and manager, Mr. Frank Rupert, who is well known throughout the telephone fraternity. This concern is ably represented in Chicago and the west by Albert J. Cox & Company, of 921 Chicago Stock Exchange building. Many readers who have never given the manufacture of hard fibre much thought heretofore will probably be interested in the following description of its origin and development:

Hard fibre is made from specially prepared vegetable fibres, by subjecting them to the action of powerful chemicals and a vulcanizing process which, together with heavy rolling and pressing, completely changes the nature of the fibres, making of them a material different in many re-



spects from any other known substance. In structure, hard fibre closely resembles horn. It possesses the strength and density of a metal and yet is elastic and nearly as light as hard wood.

It is insoluble in any of the ordinary solvents and is unaffected by contact with the animal, vegetable or mineral oils. When immersed for some time in water it will absorb it and swell, but is in no way injured. Upon drying it resumes its former size and density. When heated it does not melt or become soft, but at a high temperature chars and loses its elasticity.

An important property of hard fibre is that when pure and dry it is an excellent insulator of electricity. This fact, in connection with its physical properties adapts it for many uses in electrical construction.

Fibre may be sawed, worked in a lathe or planer, riveted, punched, drilled, and tapped, and will take a fine polish. It is not brittle, but on the contrary very tough, and will stand any amount of pounding and rough usage. A noteworthy feature of the material is that it improves with age. For electrical work fibre that has been cured for six months or a year gives the best results. The Delaware Hard Fibre Company carries in its factory a stock of about 100 tons from six months to two years old.

#### A UNIQUE LETTER.

One of TELEPHONY'S readers has sent in a letter received by him from the Western Telephone Manufacturing Company, of Chicago, with the request that it be published as a unique contribution to telephone advertising. The letter follows:

You have read a great deal lately of the "strenuous life." That's what the telephone manufacturing business is. This letter is about the other side of the story. It relates to the "simple life." The real title should be, "Simplicity," or "We Give You The Least For Your Money."

Nowadays many telephone manufacturers claim to give you the most for your money. We do not make any such claim when we sell you a Western "Economist" telephone. We give you less for your money than anyone else would give you in a telephone. We give you less complicated parts, less useless wiring, less weight, less size, less freight to pay, less packing box and less trouble than you would get if you bought any other kind of telephone. We sell Western "Economist" telephones by quality, not by weight.

Yours for simplicity,  
Western Telephone Manufacturing Company,  
G. Hallett Johnson,  
General Manager.

#### AN ELECTROPLATER'S VOLTMETER.

Weston Electrical Instrument Company, Waverly Park, New Jersey, in its new Bulletin No. 7 gives a very interesting description of its new electroplater's voltmeter, model 131. This instrument obviates the necessity of having an instrument for each tank and enables the plater to avail himself of an extremely accurate and reliable instrument at a very low cost. One instrument will accommodate fourteen tanks. Any lesser number of tanks may be connected in circuit, however. Interested parties should write the Weston Electrical Instrument Company, Waverly Park, New Jersey, for this bulletin.

#### A SECRET CALLING DEVICE.

Willix & Young, of Mt. Vernon, Iowa, announce a secret calling device which can be attached to any telephone and when a subscriber calls central no other subscriber will know it. In this way, it is claimed, an operator can handle as many rural lines as she can individual drops, simply because the drop never falls unless central is wanted. This is no push button device. Turning the generator in the usual way rings all the bells on the line but does not throw the drop. Turning the generator backwards throws the drop but does not ring the bells. The manufacturers announce that if one puts this device on according to the printed directions and it does not work per-

fectly they will refund double the amount charged for it. The device works on both metallic and grounded lines, though a relay is needed for each grounded line.

#### IT PAYS TO ADVERTISE.

In the March issue of TELEPHONY appeared an article in which the Western Telephone Manufacturing Company of Chicago compared its switchboards with good watches. The Western company reports to TELEPHONY a very large number of inquiries for switchboard information and prices, resulting from this article, and says that during the month of March four switchboard orders were closed, which were directly traceable to the March TELEPHONY write-up. The business of the Western Telephone Manufacturing Company, both in switchboards and telephones, has been growing rapidly and the present volume of sales is reported as the largest in its entire history.

#### THE BIGLEY TELEPHONE COMPANY'S NEW BARGAIN LIST.

The Bigley Telephone Company, of 56-58 West Van Buren street, Chicago, has issued a new list, Bulletin No. 2, descriptive of its line of telephone switchboards and supplies of all standard makes. This concern makes a specialty of its department for repairing, and offers to the trade a select lot of very fine, new and rebuilt apparatus and parts. In purchasing apparatus, the Bigley Telephone Company claims to exercise great care in acquiring only standard and modern makes and such as can be rebuilt and restored to their original condition. Each and every part is thoroughly overhauled and found to be practically as good as new before being offered for sale.

This firm will be glad to send Bulletin No. 3 to all interested parties upon request.

#### SAGINAW VALLEY TELEPHONE COMPANY.

The Saginaw Valley Telephone Company, of Saginaw, Michigan, until recently has been burdened with its franchises. Through the efforts of Mr. C. O. Trask in February last, after a campaign of several months, by unanimous vote of its council the city of Saginaw granted the company a new franchise with a sliding scale of rates, fair both to the public and the company alike. On March 21 Mr. Trask and his associates paid \$25,000 to the company as a first installment of \$100,000 cash subscribed for treasury stock, the same to be used to rebuild and enlarge the Saginaw exchange.

The following is the present board of directors, the first five being former members while the other four were elected at the last meeting, March 21:

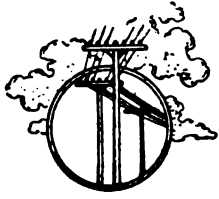
E. T. Carrington, Bay City; C. B. Curtis, Saginaw; J. L. Jackson, Saginaw; F. T. Brand, Saginaw; C. W. Liken, Seebewa; W. B. Woodbury, Detroit; James P. Gibbs, Ithaca; R. B. McPherson, Howell; E. P. Woldron, Saginaw.

The officers elected were as follows: E. T. Carrington, president, Bay City; John L. Jackson, vice-president, Saginaw; C. B. Curtis, treasurer, Bay City; H. A. Price, general manager, Bay City.

The outlook of this company is most gratifying, and during the present year much will be accomplished for the company and the Independent movement of which it is the exponent in the Saginaw valley.

#### VIRGINIA TELEPHONE CONVENTION.

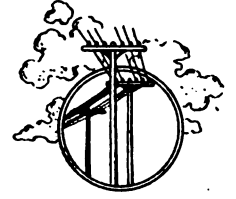
At a meeting of the executive committee of the Virginia State Independent Telephone Association, held in Murphy's Hotel, Richmond, March 19, there were admitted into the association four new members. The next annual meeting will be held at Norfolk, Va., May 21, 1907. This will be after the opening of the Jamestown Exposition, and it is expected that many will be present.



# POLE MATERIAL

*Comparison and Discussion of the Preservative Qualities of the Various Woods*

By Harry S. Stout



**H**AVE you ever during your busy rushing days—which means every day of a business man's life—paused to think of the number of minds that have been put to work to make the electric railway, telephone, and telegraph services what they are at this time? Every man, from the man who uses pick, shovel and tamper, to the highest official of each company, including the highest mechanical and civil engineers, has had a part in the work.

Now, in the electric railways the tracks, switches, rails, bonds, curves and everything are correct, and accidents from a car leaving the track are practically unheard of. With cars, not only are they handsome but mechanically perfect, affording luxury for the passenger and comfort for the employe. Insulation has been studied until now nearly all insulating systems are good except probably a few that are not standard.

Telephone and telegraph companies also have made many improvements and inventions in their lines, especially in the building of the lines and putting them up taut and well guyed and braced. If a purchasing agent is going to buy cars, wire insulators or any suspension devices or, in fact, most anything connected with his lines, does he accept or purchase them altogether on their general appearance? I believe he would appreciate a nice design of body and high finish and polish of paint and wood in a car, but his attention would not dwell on these particular things very long, for he would immediately go into the mechanical end of the car—motors, trucks, wheels, brakes and gears. He would ask, how are they constructed, What sort of material in them? How long will they last? What is the life of them and cost of maintenance? Afterward, he would say, "Paint them a certain color, and finish seats and woodwork inside so and so."

And so it is with all material used in electric railway, telephone or telegraph construction except poles. I do not believe there is another commodity entering into the construction of lines that has had so little investigation as the pole, which is a very important part of the construction. Purchasers in buying poles differ very materially from those buying a car. It seems they are eager to pick out of the accepted woods the one to adorn their lines. Beauty seems to be the aim in this particular commodity, while in all others without exception strength and durability are chiefly considered.

There are only a few woods accepted for this purpose—cedar, both northern and western, cypress and chestnut.

We all know there is a reason for accepting these woods. What is it? Our forefathers say they lasted longer in the ground than other woods, which explanation has been accepted. The reason these woods last longer than others is because they contain more tannin, the preservative of all vegetation.

The next question in this line is, which of the woods contains the most preservative or tannin, and which contains it in the most insoluble state, or, in other words, which carries most tannin, and carries it protected against moisture, which is its solvent? The next question is, which contains the most strength for tensions when new and which when partly rotted off?

It would be unbecoming for me to say very much against cedar, as it has been tried and tested and found good, but in a great many localities it has this reputation because

other goods have not been used. The chestnut is a wood that grows practically all over the eastern United States, but its home is especially in the Appalachian chain of mountains in the southeast. This wood has not had the opportunities to be tested that cedar has had, and it might be also well to say here that the farther south the chestnut is cut the larger is the percentage of tannin or preservative in it, and the tougher is the protecting ring or fiber against moisture reaching it.

A great many railroad, telephone and telegraph companies would immediately say, "If we knew that chestnut was even as good as cedar, and with it having a lower price, we would be very well satisfied to use it."

Now, taking into consideration that the northern cedar is becoming scarcer every year and necessarily higher in price, it is necessary for the purchasers of poles to look for other woods to take its place.

The statement that tannin preserves the wood can be substantiated from any chemical source, and if this is the case, much depends on the fiber or ring growth in the wood, which governs its toughness and maximum resistance to moisture. All trees are made up of annual growths or rings, as is seen by looking on the end of a piece of timber. The tannin cells are all between these layers, and being directly exposed to moisture are comparatively easily dissolved.

Now, the layer or growth in the chestnut, or what might be called a covering to the tannin cells, is far tougher than the layer of any other wood carrying the same amount of preservative or tannin, and will absorb less moisture than any other wood of its class. This being the case it is reasonable to believe that the life of this piece of timber must necessarily be longer than that of the other. Another advantage that the chestnut has in its tough growth is its resistance to vibration.

Telephone and telegraph lines vibrate from the wind, and it takes very little wind, if steady, to cause a vibration so that in this it will also be seen that the chestnut contains in its tough fiber a larger resistance than any other wood used for the purpose. A chestnut pole when new will stand twenty-three to twenty-five per cent more tension than any other timber used for poles—that is, it takes that much more to protect it and when poles are rotted at the base, as is the case with all of them, the chestnut when rotted down to six or seven inches in diameter will stand at least one hundred per cent more.

No doubt a great many companies have sustained losses in pole lines on account of the pole being burned off at the ground, especially at a point where lines are parallel to steam railroads, which are continually setting fire to the dry grass along the track. Chestnut resists fire a great deal more than any other material that is used for poles. Cypress is also being used in some places on account of its straightness, and so are the western or Idaho cedar, but it will be easily ascertained that neither of these woods compares with the others for life or strength.

An objection at times is used against chestnut by buyers, that it is not quite as straight as the other woods, but it is possible to set a very pretty line out of chestnut poles, as the writer has seen good lines that were set of what he would term very crooked poles by ordinary exercise of care and judgment.

*EFFECT OF THE SLEET AND SNOW AT ALBIA.*

In the description of the Albia (Iowa) Telephone Company which appeared in the March TELEPHONY, an illustration was published showing the havoc wrought by sleet



Showing Effect of Sleet and Snow at Albia, Iowa.

and snow. The accompanying illustrations give two very good views of the company's lines during the terrific sleet and snow storm which visited Albia in January, 1904, and which put the telephone service out of commission. These



Showing Effect of Sleet and Snow at Albia, Iowa.

photographs were furnished TELEPHONY through the courtesy of Mr. Grant M. Heiserman, president and general manager of the Albia Telephone Company.

*PROGRESS IN WISCONSIN.*

O. A. Rice, manager of the Interurban Telephone Co., writes as follows of the growth of the Independent movement in Wisconsin:

"In response to many inquiries in reference to the sale of the Wolf River Telephone property at Oshkosh as published in several of our county papers, I would say that this sale had nothing to do with the Interurban Telephone Company, commonly called the Wolf River Company, which has been in business since the Independent movement first started, and has been the means of giving New London the low rate of \$1.00 per month.

"During the last year there has been a wonderful awakening of public interest in the Independent movement. Independent companies have extended their service in all

directions, successfully competing with established monopoly in opening new exchanges, and developing thousands of miles of new territory with rural service and toll lines; the new companies compelling the old to give better service and reasonable rates.

"Never before in a single year have so many franchises for important cities been granted the Independents. The people of these cities have recognized the value of competition and decided in some cases by a popular vote to no longer submit to monopoly.

"Everywhere the people are beginning to appreciate the benefit of the greatest modern convenience, the telephone, and to realize that the Independent companies are entitled to their thanks and support for having placed it within their reach.

"With the opening of Milwaukee to the Independent interests of the state, new impetus will be given to the movement generally, and many cities and towns in the state which now do not possess Independent plants will build in the near future. A company has been organized, not alone to build Milwaukee, but a long-distance company, which purposes to build trunk toll lines throughout the state, connecting with other Independent properties and with Milwaukee."

*CONCERNING THE MANAGER.*

As a usual thing the "Hello" girl is given more publicity than all others connected with the telephone business, and the exchange manager, comparatively, receives no public attention at all. It is rather refreshing, therefore, to turn to a paper read by Vice-President Wm. J. Robinson of the Michigan Independent Telephone Association at the recent meeting at Jackson. The manager—who is he? What is he expected to do? What does he have to contend with? These are some of the questions answered by Mr. Robinson, who is manager of the Citizens' Telephone Company at Muskegon, Michigan.

"The manager," said Mr. Robinson, "is generally some good, bright, upright, honest young man that his company has had with them for some time, and who took a great interest in his work and labored faithfully for the interest of his employers—working for their interests without any thought perhaps of any prospects of immediate promotion and unaware that he was serving an apprenticeship for the position of manager.

"But he was being watched and an opportunity came for him to be promoted and his company concluded that he was the one they wanted out at Stumpy Corners to look after their interests there, build up their business, increase the revenue and improve the service. So he is promoted from his former job and is placed in charge at Stumpy Corners.

"There he is, away from his friends and associates—all alone, you might say—with none of his superiors at hand to confide with or give their advice and counsel how to handle contingencies that may arise, of importance to him at least. No one with whom to converse upon the subject of the most interest to him—Independent telephony—except, perhaps, his friend the Bell man; and how does he keep himself posted on what Independent telephony is doing?

"Does his general manager call him up and post him on what is taking place in the telephone world? Does the general manager write him a nice personal letter and post him on what his friend down at Six Corners is doing to get 'farmer contracts,' and say to him, 'Hustle up a little, old man, and perhaps your exchange will outnumber Six Corners'? No. But the young man hustles just the same, improves the service, gets the contracts, and puts in the telephones.

"And the first thing he knows his capable capacity is exhausted, his switchboard is full, his farmer lines are overloaded. What shall he do? He makes up his mind that the company will do its part and furnish what is necessary

to continue the good work. So he communicates with the general manager, or the superintendent of construction, or the superintendent of equipment, and lays the matter before them—proud of his achievements.

"How is he complimented upon his achievements? Generally in this manner: 'What are you trying to do? What do you think this company is?—a gold mine? Get along the best you can. We can't spend all of our money up there. Hustle up and get your collections in better shape so we will have plenty of money to pay the next dividend with and don't ask us for any more in the way of investment.'"

Mr. Robinson argued that right here is where the meetings of telephone men are valuable; as they give the managers an opportunity to exchange ideas, and by means of discussion and advice learn how to wrestle successfully with the problems that often arise to vex and annoy them.

"How is he going to hustle up his collections?" continued the speaker. "Can he get 'blood out of a turnip'? No, he thinks he can't, but he may have the pleasure of attending these meetings and ask questions of those who can get 'blood out of a turnip,' and they will tell him how it is done.

"And his friend from Six Corners, who was shooting trouble at the same time he was and who could not make a telephone talk when he had both zincs of the batteries connected and was helped out by him, can tell how he handled this man or that man and got him to pay his rental in advance instead of arrears, and his toll bills on presentation.

"He can meet Jones of Smith's Corners, who is with that other company that insists on checking a higher rate than the rate he has quoted, and there is Brown from the other way, who insists upon checking up every minute or a frac-

tion of a minute on all incoming calls, and White, who sends reverse calls to your office without informing your operator that they are reverse calls, and tell each other the error of their ways, and perhaps they will try and be more careful and possibly some of these errors we all like so well will be obviated.

"Then there are other topics that will be brought up and discussed, and he will hear from both sides. He will hear how this one or that one did this or that and got those fellows out there to pay a higher rate for something they thought they would get but didn't. He will perhaps hear what is the proper way to protect his lines and instruments against lightning. He will hear how to cut a copper toll line for the purpose of making a test to locate trouble and put it back in its original condition without making a joint.

"He will hear, perhaps, how other people build rural lines and what they think is the proper way to operate and conduct them so that the rural subscriber is satisfied and thinks he is getting the worth of his money, and how he can get his subscribers to use the toll lines more; and the value of discipline—how much and how little is for the best of all; and the conduct and personal appearance of employes—compare your opinion with those of others.

"What good will this association do you? It will do you a great deal of good if you come with the determination to get good out of it and enter into the discussions and let us hear from you.

"Let us all strive to make these meetings a success and see how much may be derived from them to promote a better harmony among Independent telephone workers that will bring Independent telephony to a higher standard and as near perfection as possible."

## UNCLE BILLY'S VIEW OF THE TELEPHONE QUESTION

By Robert Burns Buchanan

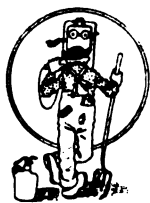
By Gosh, I've lived on this 'ere farm nigh onto fifty year;  
An' things are somewhat different from when I moved up here.  
We cut our hay then with a scythe, our fork—a crotched bough.  
But modern farming implements are all the rage just now.  
We used to "set" our milk in pans and put 'em on the shelf,  
But now it's whirled through a machine and sorter skims itself.  
Of course, these things are handy like, as handy as can be,  
But can't outdo the telephone, they can't, sir, no siree.  
My neighbors call me well to do, and, well, I s'pose they're right.  
The reason is, I look ahead—this makes the future light.  
Just thirteen year ago I saw if I but had a 'phone  
I'd get the highest price for stuff and stay right here at home.  
These Bell folks had a line out here, that went right by my gate,  
But, Lord, they wouldn't look at me, with clothes not up to date.  
I druv down to their office once and found a feller there  
Who nudged the operator who was in the "hello" chair.  
"Hello, old Rube," he said, says he, "What's doing on the farm?  
Look out, or in the village here you'll surely meet some harm."  
That talk sorter made me mad; an' you'd be mad, that's right.  
I really had a durned good mind to make that smarty fight.  
But, 'stead of that I grit my teeth, and stood up mighty straight.  
Says I: "I want a telephone. What is your lowest rate?"  
The Bell man he began to laugh and double up in glee.  
He thought it was a joke, I guess, a laughing there at me.  
I just stood waitin' quite a while; at last his spell went by.  
He set up then, and blowed his nose, and once more winked his eye.  
And then his lips began to move; at last his voice he foun'.  
He says: "To have a telephone you'll have to move to town.  
We haven't time to bother now with farmers on our line,  
Because without the chink to pay, they'd bother all the time.  
If you decide you want a 'phone, why not move into town;  
And when you're ready let us know, by simply calling round."  
"But," I inquired, "If I move here, what rent must I then pay?"  
"Oh, thirty dollars for the year." Then I just came away.  
As I have said, I came away, but wanting one so bad

That I kept hammering at 'em 'most every chance I had.  
But, at the end of two long years, I saw some linemen out  
With stakes and hatchets in their hands; it almost made me shout.  
But when they got quite near at hand 'twas very plain to see  
That their intentions wuz all right, so I just stayed, by Gee!  
And to the first one who went by I just said "Howdy do."  
But to the boss, who came along, "What be you goin' to do?"  
He just looked up at me and smiled as chipper as could be.  
"We're staking out a line for Independent 'phones," says he.  
And when that line for 'phones was up, I had one put right in.  
And though I paid just twelve per year, she worked slick as a pi:  
Now that was 'leven year ago; and though the line has grown,  
I've always been used square and couldn't lose that telephone.  
The Bell folks have been getting scared; a losing 'phones each day.  
The people don't go to them now; it's all the other way.  
They send out agents all around; to towns both small and great.  
To put in 'phones where e're they can and make a special rate.  
It's free to you the first three months, and then you have to pay.  
Besides there's something extra if you talk five miles away.  
Now if they drop this big fat bait right square in front of you,  
Don't move up near and draw it in, as suckers often do,  
For if you do you'll find yourself a-dangling on their line  
While somethin' sharper than a hook is diggin' in your spine.  
You'll have to sign a contract sure, to keep their 'phone so long.  
And these will sometimes disagree, unless your stomach's strong.  
Now, as you know your Uncle Bill's advice you've often sought  
Before you started cutting hay you'd ask him what he thought.  
Now, as I've told you heretofore, the way I allus do,  
And if you care to take it, this advice I'll give to you:  
If you want rates to take a jump, far upward to the sky,  
Just patronize the Bell and let the Independents die.  
You'll find that that'll happen. It's the long and short of it.  
Bell rates would jump up quickly, if the Independents quit.  
But if you want the rates to be right where they are to-day  
Just patronize your own home line and drive Bell men away.



# ITEMS FROM THE RURAL LINE DISTRICTS

Illustrated by O. H. Brandenburg



Miss Glydie Copp is working at the Michigan State Telephone Company.—*Holly (Mich.) Advertiser.*

The Fairview Telephone Company held a meeting at Geo. Blue's Monday afternoon.—*Canton (Kan.) Pilot.*

The farmers' telephone line will be completed from Patriot down to Egypt Bottom in the near future.—*Rising Sun (Ind.) Recorder.*

The Golden Mutual Telephone Co. have divided the line and are taking new members on each end of it.—*Flora (Ill.) Journal.*

Harry Manifold is going to have a telephone on the Yates Center line. (Miss Lola Rayborn is in Yates Center.)—*Yates Center (Kan.) Advocate.*

The Messrs. Popp and Umbach of the Home Telephone Company, have gone to Sturgis, Mich., on a business trip.—*Ft. Wayne (Ind.) Journal-Gazette.*

Gust Fergot and Frank Mouldenhauer made a trip to Welcome last Saturday in the interest of the Matteson Telephone Company.—*Howell (Mich.) Herald.*

We have settled on the price with the London Telephone Company and will keep our telephones this season.—*Mt. Carmel Correspondence Russellville (Ark.) Democrat.*

Frank Moldenhauer was to Bear Creek Corners last Friday in regards to the new telephone line which is to be erected next spring from Welcome to Nicholson.—*Clintonville (Wis.) Tribune.*

A new switchboard has been put in at the home of Grandma Dauron on line one and we now have telephone communication with thirty-six towns free of charge.—*Cherokee (Kan.) Sentinel.*

The cold snap is playing havoc with the telephone lines, three and four breaking at once, making the lineman wish for the good old summer time.—*Edelstein Correspondence Princeville (Ill.) Telephone.*

Mr. Tone of Centerville has accepted a position with the Wakonda Telephone Company as lineman. Mr. Tone comes well recommended and will make the company a good man.—*Wakonda (S. Dak.) Monitor.*

T. C. Wilson made a business trip to Green Bay endeavoring to secure better telephone service. Something seems wrong with the wires as they are sadly bent.—*Coleman Correspondence Marinette (Wis.) Eagle-Star.*

The telephone company and Mrs. Boyd have gotten into trouble over the cutting down of a tree on the street in front of her residence. She objects to having it done, as she considers it a shade to her house, protecting the window from the sun.—*Sterling (Ill.) Standard.*



Mrs. H. J. Stephenson was repairing the telephone line Monday.—*Spring Ranch Correspondence Hastings (Neb.) Tribune.*

The Big Sandy Telephone and Telegraph Company, who lately took control of the long distance between here and Morehead, have put in splendid telephone cabinets at Morehead, Olive Hill and here.—*Grayson (Ky.) Herald.*

B. Lawrence, the new telephone manager, has moved his family from Hillsboro, and occupies the Jno. Gose residence in the west side of town. Mr. Lawrence has three children in bed with the measles.—*Decatur (Tex.) News.*

The Independent Telephone Company have just put in a new switchboard at the central and put in several instruments lately. They seem to be doing the business here.—*Masardis Correspondence Presque Isle (Me.) Herald.*

Manager Collins of the Silverton Telephone Exchange, came down yesterday and last night joined the Elks. Mrs. Collins came along to nurse him back to life after the Durango stags finished with him.—*Durango (Colo.) Democrat.*

Alfred Buss and Will Roberts put the telephone wire on poles last week. Heretofore it has been on a fence most of the way. The poles were set last fall, but the wire was not raised.—*Bloom Correspondence Worthington (Minn.) Globe.*

Mr. Gorman, Mr. Lindquist, Mr. Silbel, and Mr. Terry, manager of the telephone company, and Mr. Swartz of the East Moline exchange, held a meeting in the city jail Monday evening to talk over the telephone business.—*Moline (Ill.) Journal.*

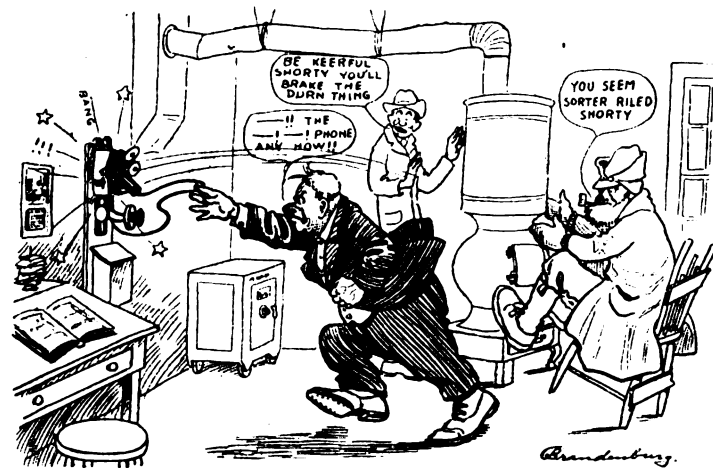
Miss Maze Kolp has resigned her position as "hello" girl at the local telephone office and Miss Ethel Holes, who has been taking a much-needed rest since last June, has resumed her old place.—*Van Buren Correspondence Marion (Ind.) Courier.*

The directors of the Berea and Slab Telephone Company met at the Mitchell school house Saturday to transact some business. The line will soon be extended to Cairo, being already commenced.—*Smith Run Correspondence Harrisville (W. Va.) Gazette.*

Rolla Taylor, who was knocked off a load of wood by a low telephone wire, sued the Warrensburg Home Telephone Company for \$4,000 damages. The company offered him \$60, whereupon Rolla didn't let a little difference of \$3,940 stand in the way, but settled.—*Clinton (Mo.) Democrat.*

Twenty-three farmers in the south part of Lone Tree, southwest of Spring Valley and north part of Mound, have formed a telephone company. They will run their line into Moundridge. They may connect with the Lone Tree line. They hauled their poles last week and they are putting them up this week.—*Galva Correspondence Canton (Kan.) Pilot.*

The Baraboo Telephone Company is considering the advisability of muzzling all the pet squirrels about the city, as the little animals have been causing trouble by gnawing holes through the lead covering of the cable, which allows water to get in, making a short circuit. It's either a muzzle for the squirrel or a tin covering for the cable.—*Baraboo (Wis.) Republic.*



Shawnee, Okla., Jan. 14.—Irritated beyond control when, after repeated attempts had been made to converse over a balky telephone, with "B-r-r-r—Hello—hello! Br-r-r—Hel—B-r-r-r!" as the only response, "Shorty" Hatfield slammed the receiver against the box with violence born of continued aggravation—and the instrument went out of business. The aggrieved telephone company complained and Mr. Hatfield paid a \$10 fine for cruelty to telephones.—*Oklahoma City (Okla.), Oklahoma.*

# Telephony

VOL. XIII.

MAY, 1907.

No. 5

## CHICAGO TELEPHONE REPORT

*An Exhaustive Review of the Telephone Situation as Submitted to the City Council.*

By D. C. Jackson, W. H. Crumb and G. W. Wilder

[TELEPHONY herewith presents the first half of this important contribution to telephone literature, which is the result of a thorough investigation of conditions in Chicago by a special commission of experts engaged by the city council. The remainder of the report will appear in the June issue. TELEPHONY is the first publication to print verbatim this comprehensive study of telephone conditions in the second largest city of the country, and believes the space devoted to the matter is justified by its great significance to the industry. The commission's findings with regard to service, rates and their regulation are worthy of close scrutiny. The May and June numbers of TELEPHONY, therefore, should be carefully preserved by all students of telephone conditions.—ED.]

WE HAVE industriously worked at the problems which you laid upon us at the time of our appointment as a commission to advise you on matters relating to the telephone situation in the city of Chicago, and by instructions from time to time since, and we beg leave to hand you our report.

A telephone company in a large city must face a problem in many respects more complex than that of any other public utility corporation. The water department is called upon to sell a single commodity, namely, water, and at prices which are fixed with comparative readiness. The gas company also is called upon to sell a single commodity, metered for nearly every customer, and its conditions in dealing with customers are relatively simple. It may sell some additional by-products, as coke, tar and ammonia, but the quantities and market values of these are readily arrived at. The traction company has a more complex problem than some of the other purveyors of public utilities, but even here the price paid by the several patrons is uniform and the substantial difference between patrons lies only in the lengths of the rides which they may choose to take.

The telephone problem, on the contrary, involves many complexities, partially caused by the relatively large number of classes of service which the telephone company must offer to its patrons for the purpose of fully developing the telephone service of the city, and partially by the intangible character of the electric medium with which the telephone business is carried on, the delicacy of the apparatus used, and the wide differences in the manner and extent of the use of the apparatus by the various subscribers.

If a telephone company properly extends the telephone service in the city, it must be prepared to take care of the requirements of a range of patrons as wide as the interests of the city itself, including the largest business organizations, the hotels, the newspapers, the professional men, the small business houses, and residences of all classes. It must provide apparatus for the service of each class of patrons which will enable it to furnish the service to each subscriber at an appropriate price within his means. It is desirable for the prices to be graded so that the largest user shall not pay less than his fair share of the expense of maintaining the traffic and the remuneration to the company for its investment, and equally so that the smallest user may get his telephone service at a price which is within his means and yet is reasonably remunerative to the company for its outlay.

Telephone service has been of remarkably rapid development and extension in this country. Less than fifteen years ago there was no telephone exchange system with as many as 10,000 subscribers served by the system. At that time the number of telephones in Chicago was considerably under 10,000. Only seven years ago there were less than 25,000 telephones in Chicago, and at that time the present tremendous rate of growth in the number of telephones began, the average increase during the last five years being at the rate of approximately 20,000 telephones per year. A similar increase in the growth of the number of telephones began in New York City a couple of years earlier. The bends upward in the curves showing the numbers of telephones in Chicago and New York are plainly evident on our Chart No. 4. The rapid expansion of the telephone service began in Chicago in 1900, and approximately two years earlier in New York.

Prior to the time when the rapid increase in the number of telephones began, the telephone art had been steadily changing, and the increased rate of expansion of the telephone service began approximately coincidentally with the introduction into the great cities of the modern so-called "common battery" method of telephone operation. The prior apparatus used for telephone service was more expensive to operate and maintain, less convenient for the user, and not adapted for the extended use to which the telephone is now put in the large cities—all of which prevented the telephone service from becoming fully developed. The subscribers were not as well satisfied with the service which could be afforded them by the older apparatus and it was also necessary to charge higher prices.

During the recent period of tremendous growth which has followed the introduction of the "common battery" method of operation, accompanied by a service of greater convenience and lower prices, the telephone companies of the larger cities have been practically submerged in an effort to keep ahead of the demands of the people for additional telephones, and the problems relating to classification of service and appropriate charges for different classes of service have not been worked out in a suitable manner. The telephone companies have apparently been fully engaged in the extension of their business and the extension and improvement of their plants, and they have not found men or time to work at the details of operating economies and the best methods of handling the service of different classes of subscribers in the way that railroads, traction companies,

electric light companies and various other public utility companies have been working out the details of economies relating to their processes of operation.

The telephone business is not only an unusually complex one, but the records of the existing telephone company doing a large business in Chicago are lacking in details which are needful for the fixing of specific scales of charges for different classes of service. We have endeavored to obtain data bearing on the cost of specific classes of telephone service from other telephone companies, including the Bell telephone companies of New York and elsewhere and also from certain of the so-called Independent telephone companies, but in no instance have we been able to obtain records kept in such detail or in such manner as to afford appropriate data for fixing rates, and in every instance the rates seem to have been dictated by estimates based on experience or the requirements of business expediency, instead of being founded on a knowledge of the cost of the different classes of service. The telephone companies seem to go on the belief that their business is satisfactory if the total results of each year's business show a profit, and that it is unsatisfactory if the year's business does not show a profit, and they have heretofore apparently neglected to consider more than superficially the essential question whether the rates charged deal fairly by the different classes of subscribers.

The telephone art is by no means stable. In most of the well-developed lines of industry, the art is on an advance but is advancing at a substantially stable rate. This is the condition, for instance, of the railroad art. No unforeseen or unanticipated revolutionary changes are momentarily expected to occur in the railroad art on account of discoveries or inventions, but the telephone art is different. The telephone service is now expanding at its tremendous rate largely on account of the introduction of the common battery system of operating telephones, and other improvements of more or less revolutionary character are likely to be introduced into the telephone art from time to time for decades to come.

These conditions make it impossible to arrive at any satisfactory solution of the problem of telephone rates which may be expected to extend over a period of twenty years, and we, therefore, make recommendations to you which tend toward flexibility in the operations of whatever company may receive a franchise at the hands of your honorable mayor and city council, but also reserve to the city a proper degree of authority in respect to rates.

The questions laid upon us by your instructions divide themselves into four categories:

1. The feasibility of the proposed project of the Manufacturers Telephone Company.
2. The relative merits of flat rate and measured rate telephone service.
3. The application for a franchise made by the Chicago Telephone Company.
4. The advisability of requiring universal toll connections by ordinance.

We have treated these four branches of our inquiry in the order given.

The time at our disposal was limited, but we have gone into the questions involved as deeply and as thoroughly as the time would permit.

We have called on the city auditor, Mr. Louis E. Gosselin, and city statistician, Mr. Hugo S. Grosser, for assistance, and we wish to thank them for their courtesy in aiding us in several directions. We also have conferred constantly with Alderman Linn H. Young, chairman of your committee. We have made numerous requests (courteously granted in most instances) for information and data from the engineer of the Manufacturers' Telephone Company, Mr. W. H. Johnston, and from the general manager and engineer of the Chicago Telephone Company, Mr. A. S.

Hibbard and Mr. J. G. Wray. We have also informally consulted a number of other engineers of well recognized experience and capability in the telephone art, particularly several men connected with large Independent telephone installations.

Our conclusions are set forth in the last part of this report, and in the intervening portion we have given reasons for the conclusions, which we have illustrated by some maps and charts chosen from a large quantity of data which we gathered together. We believe that our conclusions are founded upon the best information which is available in the telephone world, and we have introduced the particular charts in our report for the purpose of illustrating the reasons for arriving at these conclusions.

## I.

### THE FEASIBILITY OF THE PROPOSED PROJECT OF THE MANUFACTURERS' TELEPHONE COMPANY.

The first matter taken up by us was the Manufacturers' Telephone Company's proposition, and through arrangements made by Mr. John M. Glenn, their engineer Mr. W. H. Johnston met with us at our second formal meeting. At this meeting Mr. Johnston stated that the estimates of plant cost, annual expense, annual revenue, etc., submitted to your committee under date of November 27, 1906, were the result of a general study of the situation, but that he had no detailed items, showing exchange districts, approximate central office locations, approximate conduit and pole line routes, quantities of materials, etc., in shape to present to us at once, and asked that he be given two weeks in which to get plans and figures in shape for presentation. Near the expiration of the time set, Mr. Johnston again appeared before us, presenting a map of the city of Chicago, upon which he had indicated fourteen central office districts, the approximate number of telephones expected to be installed in each district, approximate central office locations and the approximate extent and routes for his conduit system, which map he stated was indicative of the scope of his company's plans rather than an attempt at definite detailed design. This plan is manifestly different from the plan with eight central exchange offices which was described by the Manufacturers' company to your committee.

He also presented us with revised estimates of the cost of construction, the annual cost of operation, maintenance, etc., and of the annual gross revenue which the plant might be expected to earn. Mr. Johnston stated that he considered the estimates originally presented to your committee were adequate to meet the demands for furnishing service as outlined, but that he preferred to submit to the commission a revised plan differing from the first, but laid out to accomplish essentially the same results. The plans and estimates submitted to us do not show that the quantities of materials given as required for the outside plant construction were arrived at from the making of detailed working plans; and it is evident that these quantities were arrived at by Mr. Johnston in compiling his estimates from published information concerning the Chicago Telephone Company's plant, his personal knowledge of the conditions and requirements for telephone service in Chicago, and his general experience as a telephone engineer, and not upon a definite and detailed plan, which would include the following features determined from an extended and detailed investigation made on the ground:

- Exact locations of exchange offices.
- Locations of subscribers' telephones.
- Exact locations of conduit routes, and quantity required.
- Location, number and extent of underground and aerial cables; and
- Location and extent of pole lines.

Preliminary construction estimates can be fairly accurately made following the method used by Mr. Johnston,

but both of his sets of estimates must be understood to include only preliminary figures.

Revenue estimates are based upon experience and general knowledge of the requirements of the telephone users, and cannot be accurately estimated in advance.

The expense items are based upon general experience with other operating telephone plants.

It is our understanding that your committee is proceeding upon the assumption that, if a franchise is granted to

Manufacturers' Telephone Company contemplates the construction of a telephone plant in the city of Chicago which shall be sufficiently extensive to meet all requirements for telephone service within the city limits, and one which will have an immediate installation of fourteen central offices, equipped and ready to furnish service to 110,000 subscribers' stations. It was explained to us by their engineer that the ultimate plan of development would presumably include the construction of several smaller exchange centers in the out-



Chart A—Showing the price of copper and lead since 1893.

the Manufacturers' Telephone Company, it must be prepared at the expiration of the Chicago Telephone Company's franchise to satisfactorily handle all of the telephone traffic in the city, and we have proceeded on this basis.

The Chicago Telephone Company presented to your committee extended criticisms of the Manufacturers' Telephone Company's estimates, and brought these in greater detail before the commission. A comparison of their estimates with the two sets of estimates presented by Mr. Johnston, and the results of our own carefully made estimates relating

lying districts, which centers would probably answer the same purposes as those centers now maintained by the Chicago Telephone Company and known as neighborhood exchanges. Our construction estimate has been sufficiently liberal to permit of an increase of approximately 10,000 subscribers' telephone stations without the expenditure of a considerable amount of money for extensions, but after that number of additional stations are installed it would be necessary to make extensive additions to the plant.

The form of switchboard proposed is a combination of



Chart B—Showing the price of steel beams and channels (structural steel) since 1893.

to the project of the Manufacturers' Telephone Company, is exhibited in the accompanying tables Nos. 1, 2, 3, and 4. During the making of our estimates we have made use of data and experience from every available source to which we could get access within the time at our command. In our construction estimates we provide cable and line conductors of suitable size to give an efficiency of transmission approximately equal to that now maintained by the Chicago Telephone Company. All of our figures have been carefully compiled and checked in detail, and we believe that they are as nearly correct as can be estimated by anyone at this time with the data at hand.

The revised construction estimate submitted to us by the

standard manual and automatic apparatus. Subscribers would signal to and be answered by central office operators in the same manner as with the common battery switchboards now in general operation. Each operator answering calls would be provided with means for automatically connecting a calling subscriber's line with the line called for. This method of "semi-automatic" operation is represented to be particularly adapted for large multi-office exchange systems. It has never been used in actual operation in any of the large cities or in any large exchange, but the principles have been used in smaller offices and we believe that details adapting it to large exchanges will ultimately be satisfactorily worked out. This method of operation is



along the line of development which is now receiving the attention of the most competent telephone engineers in the country. It is believed that the cost of "semi-automatic" operation (when the processes have ultimately been fully developed) will be less than the cost of manual operation, for the reason that the trunking operators' services will be unnecessary, and that one operator can complete every connection required of her in practically as simple a manner as if the exchange were limited to one central office with an ordinary multiple switchboard. The subscriber's telephone would be of the regulation common battery type now used throughout the city of Chicago.

The conduit system proposed by Mr. Johnston is intended to be sufficient to ultimately meet the requirements of approximately 400,000 subscribers' stations. In compiling our conduit estimate we have given due consideration to the fact that the conduit costs in the city of Chicago are constantly increasing on account of new street improvements and the constantly increasing number of obstructions to be met with in the streets. Distribution of subscribers' lines in the conduit districts will be effected directly underground through the building basements as far as the conditions will warrant. Alley pole lines and distributing poles will be used in residence districts. The use of open line wires will be minimized by an extensive aerial cable system.

It was proposed at certain meetings of your committee that the Manufacturers' Company might rent space in the tunnels of the Illinois Tunnel Company for the purpose of installing its underground cables, but the construction estimate submitted to us by the company's engineer involves the construction of independent conduits by his company and we have followed the same plan. It is our understanding that the telephone privileges of the Tunnel company may pass to the control of a company with which the Manufacturers' company, if given a franchise, would come into competition, and any arrangement for placing the cables of the Manufacturers' company in the tunnels would be the subject of contract negotiations between the two companies and outside of our province even if the time at our command had permitted us to consider such relations.

In the estimate submitted by the Manufacturers' company, the use of No. 22 B. and S. gauge conductor cable for all subscribers' lines is proposed. The trunk line cables are proposed to be of larger conductors in order to bring the standard of transmission up to what Mr. Johnston considers a proper point. The recent great increase in the cost of metals, especially copper, lead and iron, all of which are extensively used in telephone construction work, as well as the cost of skilled labor, will make the cost of this plant, if constructed at this time, considerably more than if built a few years ago. The fluctuations in the selling prices of copper, lead and structural steel are shown in our charts Nos. A and B, plotted from weekly quotations in the Iron Age, from which it will be seen that the price of copper has been steadily increasing during the past three years, and that the present prices of copper are higher than those prevailing at any time during the past fourteen years. The price of lead, which is used very extensively in the manufacture of telephone cables, has increased approximately fifty per cent during the past five years, and is now higher than at any time during that period. It is estimated that if the cables and copper wire could be purchased at the prices prevailing two years ago a saving of a million dollars or more could be effected.

Mr. Johnston's revised estimate provides for a large central office building in the business district, in which the company's general offices would be located, and twelve smaller office buildings in the outlying districts. Also provisions are made for renting space in a fireproof building in the business district in which one of the large downtown

central offices would be operated. The buildings to be constructed are proposed to be of fireproof construction.

#### ESTIMATES OF CONSTRUCTION COST.

Table No. 1 shows the results of the different estimates of construction cost. First, the Manufacturers' company's original estimate; second, the Manufacturers' company's

TABLE NO. 1.  
Manufacturers' Telephone Company—Construction Estimates

	Manufacturers' Telephone Co. Original Estimate.	Manufacturers' Telephone Co. Revised Estimate.	Chicago Telephone Co. Estimate.	Telephone Commission Estimate.
1 Conduit.....	\$ 3,425,000	\$3,425,000	\$4,290,000	\$2,970,000
2 Pole Lines.....	1,350,000	1,300,000	1,350,000	1,380,000
3 Cable, underground and aerial	3,800,000	3,274,000	4,873,500	4,785,000
4 Line wires.....	157,500	135,000	310,500	525,000
5 Drop wires.....	400,000	490,000	721,000	420,000
6 Substation equipment	1,450,000	1,450,000	1,770,000	1,620,000
7 Switchboards.....	2,430,000	1,580,000	3,120,000	2,326,000
8 Main building.....	500,000	400,000	1,000,000	500,000
9 Small buildings.....	300,000	432,000	600,000	480,000
10 Fitting rented space.....	25,000	15,000	.....	15,000
11 Tools and supplies.....	a 235,000	235,000	a 770,000	250,000
12 Furniture and fixtures.....	15,000	20,000	50,000	25,000
13 Supervision and engineering.....	250,000	600,000	917,750	700,000
14 Interest and insurance.....	750,000	c 550,000	600,000	600,000
15 Bank Balance.....	100,000	d 400,000	500,000	300,000
Total.....	\$15,007,500	\$14,296,000	\$20,382,750	\$16,806,000
6 Brokerage.....	.....	687,300	.....	1,877,333
Total investment.....	.....	\$14,983,300	.....	\$18,773,333

a—Includes stable and supply buildings.

b—Insurance only.

c—Interest only.

d—Bank balance and insurance.

revised estimate; third, the Chicago Telephone Company's estimate, and fourth, the Telephone Commission's estimate. The various items marked include the following:

1. Conduit: Main line and subsidiary conduit, including river crossings, vaults, manholes, etc., complete, ready for receiving underground cables.
2. Pole lines: Poles set in place, painted, stepped, guyed and fitted with crossarms and fixtures.
3. Cable: Underground and aerial cable, in place, properly terminated and ready for service, also suspension wires and guying for aerial cables.
4. Line wires: All open air wires attached to poles, exclusive of drop wires.
5. Drop wires: Wires extending from poles or fixtures to subscribers' buildings.
6. Substation equipment: This includes 110,000 subscribers' telephones, installed ready for operation, a portion of which will be connected with private branch exchange switchboards.
7. Switchboards: Central office and private branch exchange switchboards, installed ready for operation.
8. Main building: Main office building and land in the central district, ready for occupancy.
9. Small buildings: Same as above in outlying districts.
10. Fitting of rented space in fireproof building in central district ready for installation of central office apparatus.
11. Tools and supplies: All tools and supplies necessary for the construction, maintenance and operation of the plant.
12. Furniture and fixtures: All furniture and fixtures necessary for the construction, operation and maintenance of the plant.
13. Supervision and engineering: All necessary supervision and engineering during the designing and construction of plant.
14. Interest and insurance: Interest on investment during construction of plant and insurance on buildings, apparatus, material and supplies during construction.
15. Bank balance: Working capital necessary for operation of plant.
16. Brokerage: Difference between amount of securi-

ties issued and cash received for same. It is estimated that this will equal at least ten per cent of amount issued.

ESTIMATES OF ANNUAL EXPENSE.

Table No. 2 shows the results of the different estimates of annual expense. The various items marked include the following:

TABLE NO. 2.  
Manufacturers' Telephone Company—Annual Expense Estimates.

	Manufacturers' Telephone Co. Original Estimate.	Manufacturers' Telephone Co. Revised Estimate.	Chicago Telephone Co. Estimate.	Telephone Commission Estimate.
<b>OPERATION—</b>				
1 Switchboard operation, etc.....	\$600,000	\$739,440	\$1,664,300	\$739,440
2 Service inspection, etc.....	27,000	.....	27,000	12,000
3 Contract department.....	125,000	74,000	80,000	74,000
4 Accidents and damages.....	25,000	.....	25,000	25,000
5 Advertising.....	20,000	20,000	60,000	20,000
6 Collecting.....	50,000	68,000	75,000	70,000
7 Rent.....	15,000	15,000	15,000	15,000
8 Directory.....	300,000	300,000	15,000	90,000
<b>MAINTENANCE—</b>				
9 Switchboard repairs, etc.....	100,000	.....	.....	125,000
10 Line and telephone repairs.....	375,000	364,760	.....	467,500
11 Cable repairs.....	75,000	70,000	.....	100,000
12 Conduit repairs.....	10,000	10,000	.....	10,000
13 Pole line repairs.....	25,000	50,000	.....	60,000
14 Line wire repairs.....	25,000	25,000	.....	35,000
15 Telephone and P. B. X. inspections	50,000	50,000	.....	60,000
16 Out orders, plant changes, etc.....	175,000	175,000	1,205,600	200,000
17 Care of buildings, etc.....	50,000	50,000	100,000	50,000
<b>GENERAL—</b>				
18 Legal.....	25,000	.....	50,000	25,000
19 Taxes.....	75,000	.....	147,000	150,000
20 Insurance.....	100,000	.....	50,000	50,000
21 Salaries, stationery, etc.....	350,000	550,000	320,000	320,000
22 Uncollected accounts.....	25,000	25,000	74,000	40,000
23 Reserve for repairs.....	100,000	390,000	100,000	300,000
24 Additional to equal M. & M. estimate	261,000	.....	.....	.....
Total.....	\$2,983,000	\$2,976,200	\$4,142,900	\$3,037,940
25 Compensation to City.....	256,650	253,840	185,000	235,670
26 Depreciation.....	750,000	756,200	1,000,000	906,360
27 Interest 5 per cent.....	750,000	750,000	1,018,137	938,666
Total annual expense including interest.....	\$4,739,650	\$4,736,240	\$6,346,037	\$5,118,636

1. Switchboard operation, etc.: Expense for making switchboard connections and supervision thereof, expense for maids, cleaners, matrons, and janitors, operators' school, operators' restaurant supplies, heat, light, power and supplies for operators' quarters and operating rooms.

2. Service inspection: Traffic records, extra cost of "peg count" and special operating supervision.

3. Contract department: Contract agent, assistants, clerks, solicitors, stationery, postage, car fares, etc.

4. Accidents and damages: Cost of adjusting claims for accidents and damages.

5. Advertising: Newspaper and general publicity advertising.

6. Collecting: Superintendent of collections, collectors, bookkeepers, clerks, stationery, postage, car fares, etc.

7. Rent: Rent of large central office in downtown district.

8. Directory: Compiling, publishing and delivering directory.

9. Switchboard repairs: Switchboard repairs, main and intermediate distributing frame jumpers, switchboard lamps, cords, etc., and maintenance supplies.

10. Line and telephone repairs: Repairing line and instrument trouble, etc., car fares, maintenance supplies, etc.

11. Cable repairs: Repairs on underground and aerial cables, electrolysis tests, labor, materials, etc.

12. Conduit repairs: Repairs on conduits, laterals, pavements, etc., labor and materials.

13. Pole line repairs: Repairs on pole lines, straightening, guying, moving poles, etc., labor and materials.

14. Line wire repairs: Repairs to open line wires, removing slack, taking down dead wires, etc., labor and materials.

15. Telephone and private branch exchange inspections:

Inspection and repairs of telephones and apparatus not at central offices, including private branch exchange switchboards, labor and materials.

16. Out orders, plant changes, etc.: Instruments removed, moved, poles moved, etc., labor and materials.

17. Care of buildings, etc.: Building repairs, repairs of tools, janitors' supplies, etc.

18. Legal: General legal expenses.

19. Taxes: City, county and state taxes.

20. Insurance: Fire and accident insurance.

21. Salaries, stationery, etc.: General executive and clerical force, stationery, postage, light, heat and traveling.

22. Uncollected accounts: Charge off account of uncollected rentals earned.

23. Reserve for repairs: Reserve for extraordinary repairs, emergencies and other charges not directly chargeable to routine expense.

24. Additional to equal McMeen and Miller estimate: Total difference between Manufacturers' company's original estimate and estimate prepared by McMeen and Miller for that company, details of which have not been placed in our hands.

25. Compensation to city: Five per cent of gross receipts as provided in the proposed franchise submitted by the Manufacturers' Telephone Company.

26. Depreciation: Annual amount to be charged off for depreciation in value of plant.

27. Interest: Five per cent interest on the investment.

ESTIMATES OF ANNUAL REVENUE.

Table No. 3 shows the different estimates of the revenues which may be expected to be derived from the operation of the plant, if constructed as contemplated.

TABLE NO. 3.

Manufacturers' Telephone Company—Annual Revenue Estimates.

	Manufacturers' Telephone Co. Original Estimate.	Manufacturers' Telephone Co. Revised Estimate.	Chicago Telephone Co. Estimate.	Telephone Commission Estimate.
<b>BUSINESS TELEPHONES—</b>				
Direct line, unlimited.....	\$450,000	\$1,215,000	.....	\$1,080,000
Two-party line, unlimited.....	600,000	1,080,000	.....	960,000
Direct line, measured.....	492,000	104,400	.....	91,200
Two-party line, measured.....	522,000	180,000	.....	120,000
Four-party line, measured.....	820,000	243,000	.....	224,000
Extension sets, unlimited.....	60,000	37,800	.....	24,000
Extension sets, measured.....	65,000	10,850	.....	9,800
Private branch exchange, switchboards	14,000	28,000	.....	28,000
Trunk lines, unlimited.....	140,000	350,000	.....	350,000
Trunk lines, measured.....	91,200	80,000	.....	80,000
P. B. X. Telephones.....	60,000	111,000	.....	96,000
<b>RESIDENCE TELEPHONES—</b>				
Direct line, unlimited.....	180,000	180,000	.....	180,000
Two-party line, unlimited.....	225,000	270,000	.....	315,000
Four-party line, unlimited.....	210,000	210,000	.....	300,000
Direct line, measured.....	212,000	144,000	.....	136,000
Two-party line, measured.....	252,000	200,000	.....	184,000
Four-party line, measured.....	207,000	189,000	.....	288,000
Extension sets, unlimited.....	20,000	10,000	.....	12,000
Extension sets, measured.....	30,000	2,750	*3,680,800	4,400
Private lines, extension bells, etc.....	70,800	71,000	19,400	71,000
Tolls and pay stations.....	212,000	100,000	.....	160,000
Directory advertising and other reven.	200,000	200,000	.....	.....
Total annual revenue.....	\$5,133,000	\$5,076,800	\$3,700,000	\$4,713,400

\*Total earnings all exchange telephones.

Our estimate of the revenue that would be earned through the operation of the plant has been carefully compiled, basing our judgment of the proportion of the subscribers who will choose the different classes of service upon the characteristics of the telephone users of Chicago as indicated by our information regarding the numbers of subscribers in the different classes of service of the Chicago Telephone Company. The essential difference between our estimate and the revised estimate of the Manufacturers' Telephone Company is that their estimate is based upon 70,000 business telephones and 40,000 residence telephones. We believe that the proportion of business to residence telephones will more nearly equal 60,000 business and 50,000 residence for

the first 110,000 secured, and that after this number has been secured and the telephones placed in operation, then the residence telephones will increase more rapidly than the business telephones.

The Chicago Telephone Company's estimate of revenue to be derived from the Manufacturers' project is given in total only, their estimate having been made by applying the Manufacturers' proposed rates to their own subscribers in their several classes in such a way that the various items could not be easily reduced to the 110,000 telephones proposed to be operated by the Manufacturers' Telephone Company.

It will be noted that the estimates made by the Manufacturers' company show a revenue item of \$200,000 under the designation of "revenue from other sources," and it was explained by Mr. Johnston that this revenue would come principally from advertisements in their telephone directory. It was thought best by us, however, in our estimate to reduce the cost of publishing their directory, which you will note has been done on Table No. 2, from \$300,000 to \$90,000 and to omit this item from their revenues.

Table No. 4 is a comparative summarization of the preceding tables showing the various estimates of the final net earning capacity of the project. Of the four sets of figures submitted, we believe the set computed by us to be the

COMPARATIVE SUMMARY OF ESTIMATES.

TABLE NO. 4.

Manufacturers' Telephone Company—Summary of Estimates.

	Manufacturers' Telephone Co. Original Summary.	Manufacturers' Telephone Co. Revised Summary.	Manufacturers' Telephone Co. Original Summary.	Manufacturers' Telephone Co. Revised Summary.
Investment cost of plant .....	\$15,007,500	\$14,983,300		
Gross revenue .....	5,133,000	5,076,800		
Annual expense (operating, etc.) .....	\$2,983,000	\$2,976,200		
Compensation to City, 5% gross revenue .....	256,650	253,840		
Depreciation .....	750,000	756,200	3,989,650	3,986,240
Net return .....	\$1,143,350	\$1,090,560		
Interest on investment 5% .....	750,000	750,000		
Surplus .....	\$ 393,350	\$ 340,560		

Chicago Telephone Co. Telephone Commission Summary.

	Chicago Telephone Co. Summary.	Telephone Commission Summary.
Investment cost of plant .....	\$20,362,750	\$18,773,333
Gross revenue .....	3,700,000	4,713,400
Annual expense (operating, etc.) .....	\$4,142,900	\$3,037,940
Compensation to City, 5% gross revenue .....	185,000	235,670
Depreciation .....	1,000,000	5,327,900
		906,360
Net return .....		\$ 533,430
Deficit .....	\$1,627,900	
Interest on investment 5% .....	\$1,018,137	938,666
Deficit .....	\$2,646,037	\$ 405,236

most nearly correct. The figures of the Manufacturers' Telephone Company are too optimistic, while those presented by the Chicago Telephone Company are too pessimistic. Reducing the compensation to the city to three per cent would affect our estimate of the net earning capacity of the Manufacturers' project quite materially, but even this would not enable that company to derive sufficient funds from the proposed rates and method of charging to meet reasonable depreciation charges and pay interest on the investment, but would still leave an annual deficit of approximately \$311,000.

The item of depreciation in our estimate is figured at the rate of 6 per cent on a first cost of \$15,106,000, covering plant and buildings; and we have also included a reserve fund of \$300,000 per annum for repairs, which would be used for reconstruction of operating plant, made necessary by city improvements, etc. This sum of \$300,000 is practically 2 per cent of the \$15,106,000, giving an aggregate for the annual contributions to a fund for depreciation, reconstruction and insurance of 8 per cent of the cost of the operating plant. A detailed study of depreciation and reconstruction is presented in the latter part of this report, and the percentage arrived at in the computations there exhib-

ited, agrees with the foregoing.

Our conclusion is that the project as laid out, with the rates and classes of service offered, would prove unprofitable and that eventually it would be necessary for the Manufacturers' company to either increase or abandon its flat rates or restrict its service within a limited area to subscribers at the higher rates of service.

If the flat rates proposed by the Manufacturers' company were abandoned and the company should go into operation with only the measured rates printed in the proposed franchise of the company, it is our opinion that the earnings would then be sufficient to sustain the operations of the company and pay fair dividends on the investment. This, however, is contrary, as we understand it, to the intention of the Manufacturers' company and we have not therefore gone into a farther study of such a plan. Our Chart No. 1, compares the average prices per message under the measured rates proposed by the Manufacturers' company with those proposed by the Chicago Telephone Company, from which it will be seen that the measured rates of the two companies make substantially no difference up to a use equaling 2,500 messages per year (which is within the range of ordinary users), while for greater use, the rates of the Manufacturers' company fall lower than those of the Chicago Telephone Company, and for a use of 10,000 messages

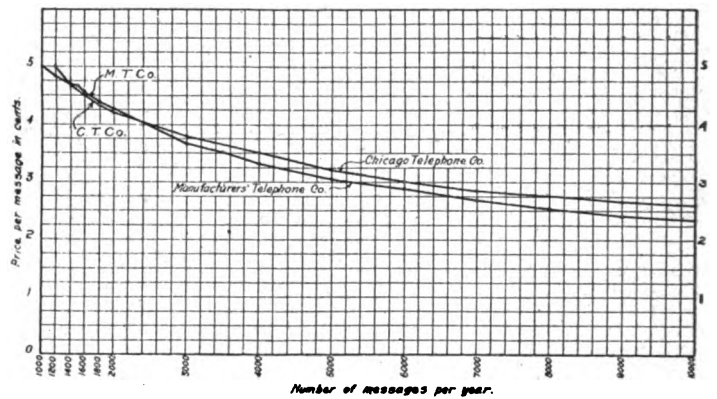


Chart No. 1—Chart showing comparative rates per message for direct line measured service business telephones, according to quantity used per year, proposed by Chicago Telephone Company and Manufacturers' Telephone Company.

per year, they are approximately ten per cent less. This difference is made possible by the fact that the conditions in the franchise proposed by the Manufacturers' company insures to them a renewal of their grant at its expiration or a reasonable payment for the property, whereas the conditions in the franchise proposed by the Chicago Telephone Company does not contain any such provision.

Regarding the possibility of constructing such a plant as planned, within a period of two years from the granting of a franchise, we report that we have considered this matter carefully, have advised with some well known telephone engineers who have been engaged with extensive telephone construction work, and have come to the conclusion that such a project would be practically impossible of accomplishment. The Manufacturers' company has furnished us with letters from various manufacturers and dealers in materials and supplies of the kinds necessary for the construction of the plant, each of which states that that particular manufacturer or dealer would be able to supply his share of the material or equipment needed within the time specified; but our experience with dealers and manufacturers leads us to the conclusion that such promises as these are seldom fulfilled, and that when large quantities of supplies, such as would be necessary for the construction of this plant, are required within a comparatively short time, they are to be had only by the payment of premiums, and often cannot be had at all within the time that they are desired. The selection and purchase of thirteen building

sites together with the preparation of building plans, etc., and the construction of buildings it is believed would require of itself upwards of eighteen months. The matter of securing the necessary amount of skilled labor for the construction of the plant as proposed, within the time limit of two years, would be very difficult and perhaps impossible.

We believe that it would require at least four years to construct and put into comprehensive operation a telephone system that could successfully replace the present service of the Chicago Telephone Company.

## II.

### THE RELATIVE ADVANTAGES AND DISADVANTAGES OF FLAT RATES AND MEASURED RATES FOR TELEPHONE SERVICE.

In order to give the best possible telephone service, the following features should be maintained at the highest possible standard by the company furnishing the service:

The telephone plant should be engineered and constructed along broad lines, and with ample facilities for handling the business and taking care of future development.

There should be provided suitable means for quickly and accurately connecting and disconnecting subscribers' lines.

There should also be provided suitable means for accurately signaling the subscriber desired without the knowledge of any other subscriber.

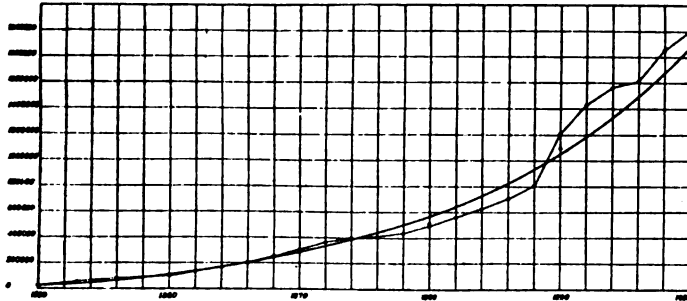


Chart No. 2—Showing population of Chicago in the past, taken from school census and federal census reports. Dot shows federal census.

#### DATA FOR CHART NO. 2.

Showing population of Chicago in the past, taken from school census and federal census reports:

Year.	Population, School Census.	Population, Federal Census.
1850.....	29,063	28,269
1853.....	50,130	
1856.....	84,113	
1860.....		109,206
1862.....	138,186	
1864.....	169,353	
1866.....	200,418	
1868.....	252,054	
1870.....	306,605	298,977
1872.....	367,396	
1874.....	395,408	
1876.....	407,661	
1878.....	436,731	
1880.....	491,516	503,298
1882.....	560,693	
1884.....	629,985	
1886.....	703,817	
1888.....	802,951	
1890.....	1,208,669	1,099,850
1892.....	1,438,010	
1894.....	1,567,727	
1896.....	1,616,635	
1898.....	1,851,588	
1900.....	2,007,695	1,698,575

All lines should be free from inductive disturbances, and of sufficient carrying capacity to provide for a high standard of transmission.

The speech transmitting and receiving devices should be of the best quality, and carefully maintained.

The plant should be well constructed and maintained.

The number of cut-offs which interrupt communications should be reduced to a minimum.

The number of "busy reports" and other unavailing calls should be reduced to a minimum.

All interference with conversation between subscribers should be reduced to a minimum.

The work required of the subscribers should be reduced to a minimum.

All of the plant employed in providing service should be under the control of one corporation or organization.

The company furnishing the service should provide courteous treatment to all of its subscribers, and should promptly and fully follow up and satisfactorily adjust all complaints.

An accurate directory of subscribers' telephone numbers should be provided.

The term flat rates in telephone service ordinarily means the manner of charging for service which consists in mak-

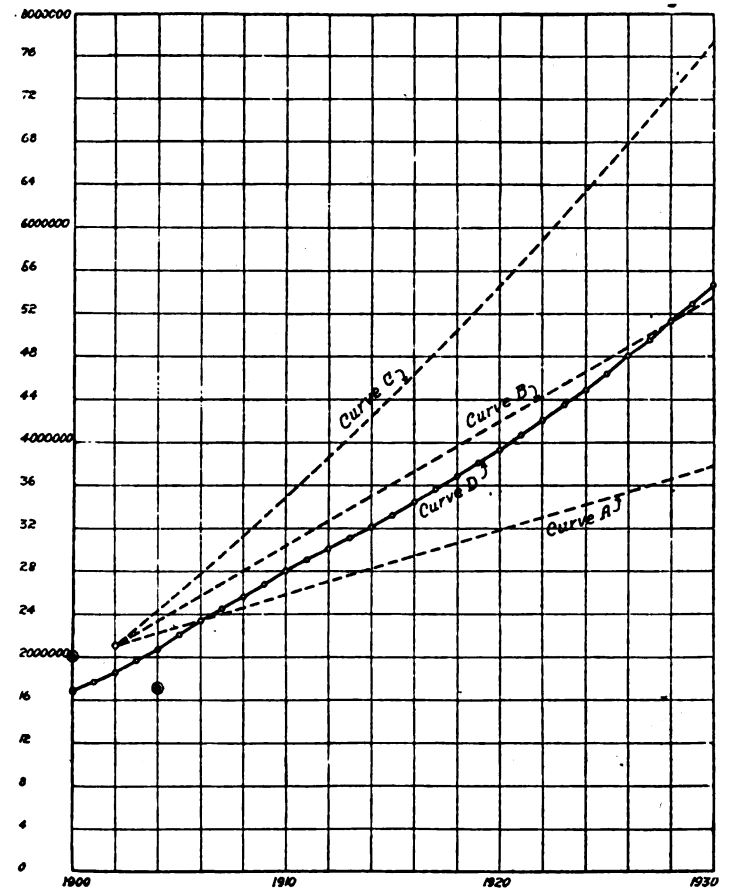


Chart No. 3—Showing probable future growth in population of Chicago. Curves A, B and C correspond with the estimates made by Mr. B. J. Arnold, which are published as curves G, H and I on Plate No. 14 of his first traction report. Curve D is the estimate of City Statistician Grosser. Dot shows federal census. Dot with circle shows school census.

ing a fixed charge per year for furnishing the subscriber with a telephone instrument in his place of business or residence, and a suitable line or lines and means for connecting, so that he may converse with other subscribers at will. This price is a survival of the idea that a telephone company rents apparatus and telephone lines, and is based upon the theory that the cost of providing service for any subscriber to a particular class of service will be very nearly equal to the average cost in that class of service. The subscriber with this arrangement is authorized to make as frequent or infrequent use of his telephone as his requirement or convenience warrants, and all subscribers of the same class are presumed to pay the same price. The warrant for this equality in the price charged subscribers who may make use of their telephones in widely different degrees, lies only in an assumption that the expense of the service is almost altogether a matter of providing the lines and the apparatus, and that the cost of providing each subscriber's service is



practically independent of the number of times the instrument may be used for communications.

By measured rate service is ordinarily meant a service which is carried on upon the assumption that the telephone company is organized for the purpose of giving telephone service, as distinguished from the renting of instruments and lines. This, in our view, is clearly the proper duty of the telephone company, and any franchise granted to a telephone company should be drawn from this view. The provision of instruments and lines, and the other articles of equipment of the telephone company, is made purely for the purpose of enabling subscribers to transmit messages between each other with the greatest practicable convenience and dispatch. It is therefore the transmission of messages which constitutes the duty of the telephone company, and the measured rates go upon the assumption that the telephone company should be paid for the performance of this specific duty.

In connection with the measured rate service it is, of course, obvious that the company must furnish its subscribers with suitable telephone instruments and lines, and also provide the necessary equipment for making connections to

maintenance of the property, and the payment of a fair return on the money invested. When flat rates are charged, two classes of customers are ordinarily differentiated, namely (a) business customers, and (b) residence customers. In each class there may be subdivisions due to the arrangement of individual customers on a single line or two,

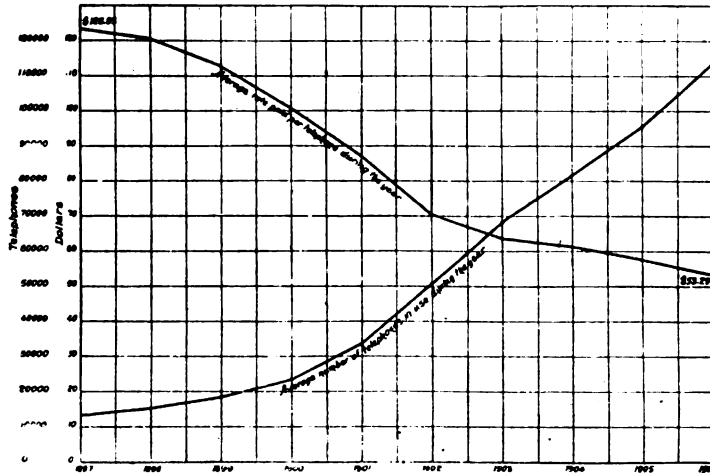


Chart No. 4—Showing the change in the average price paid each year per telephone in Chicago for the last ten years.

DATA FOR CHART NO. 4.

Showing the change in the average price paid each year per telephone in Chicago for the last ten years, excluding "neighborhood" telephones.

Year.	Average Number of Telephones in Use During the Year.	Average Rate Paid per Telephone During the Year.
1897.....	13,163	\$123.53
1898.....	15,020	120.47
1899.....	18,377	112.80
1900.....	23,586	100.81
1901.....	33,831	87.22
1902.....	50,642	70.33
1903.....	68,271	63.99
1904.....	81,445	61.14
1905.....	95,566	57.79
1906.....	113,782	53.29

complete the intercommunications between subscribers, and for this reason it is appropriate for a company making measured rate charges, to exact a guarantee that there shall be not less than a fixed minimum number of messages or that the rate paid for service at each telephone shall not fall below a certain reasonable amount per annum. This amount will include the transmission of messages up to an appropriate number, over and above which an additional small charge may properly be made per message.

The ideal method of charging for telephone service is obviously to charge each customer in proportion to the service he receives from the company, and to make the charges of all customers as low as is consistent with the operation and

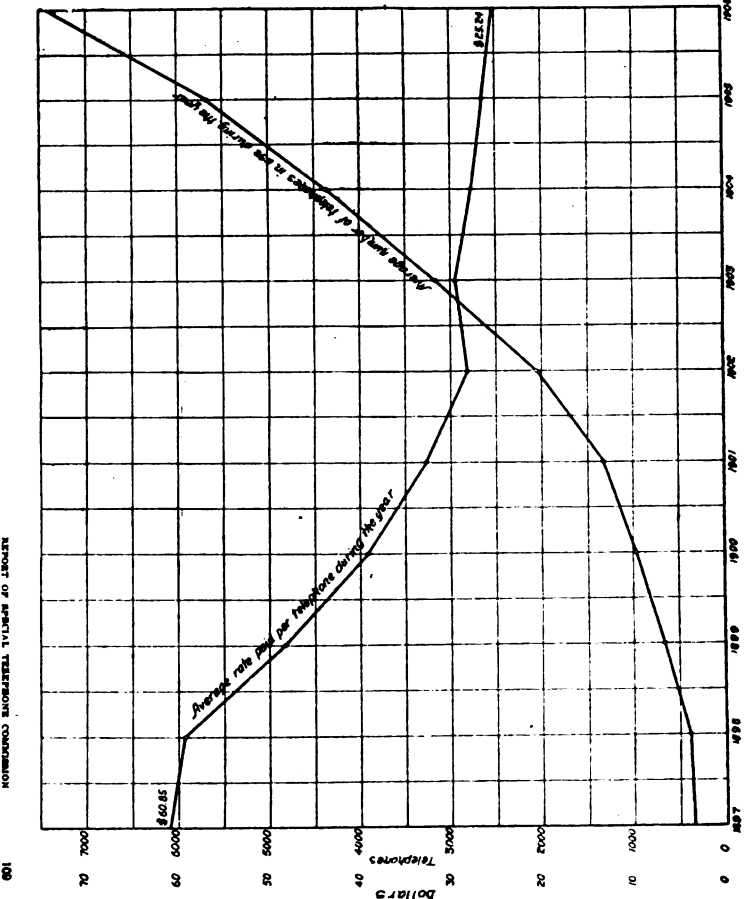


Chart No. 5—Showing the change in the average price paid each year per telephone in the neighborhood exchange districts for the last ten years.

DATA FOR CHART NO. 5.

Showing the change in the average price paid each year per telephone in the "Neighborhood Exchange" Districts for the last ten years.

Year.	Average Number of Telephones in Use During the Year.	Average Rate Paid per Telephone During the Year.
1897.....	352	\$60.85
1898.....	393	59.25
1899.....	655	48.29
1900.....	977	39.04
1901.....	1,325	32.77
1902.....	2,042	28.15
1903.....	3,170	29.43
1904.....	4,366	27.72
1905.....	5,674	26.42
1906.....	7,404	25.24

three, four, or more customers on a party line, but none of these subdivisions can be made except on the basis of differences in the amount of equipment required for each customer. It is true that the differentiation between a business customer and a residence customer, which is oftentimes made, is justified on the ground that the residence use of telephones averages smaller than the business use, but no grading as between the different business establishments, or between one residence and another, can be made by that process when flat rates are adopted as the method of charging the subscribers. The result of this obviously must be, assuming that a company's total receipts are sufficient to pay

for the cost of operating and maintaining its property and paying interest on the money invested, to give some of the customers on the flat rate a great deal more service than others receive, so that the smaller users manifestly pay more than their service should require, while the larger users who keep their telephones constantly busy, receive a service of much greater value and expense to the company than is justified by the annual bills which they pay. These large consumers under the flat rates also interfere with the traffic of the smaller users by keeping their lines so busy that the smaller users are unable to conveniently get into conversation with the busy lines, thus causing unavailing calls for connections which are expensive to the company and annoying to the customers.

The greatest range of rates that it is possible to make with the flat rate arrangement is relatively small, the difference between the highest paying flat rate customer and the lowest paying flat rate customer being comparatively small,

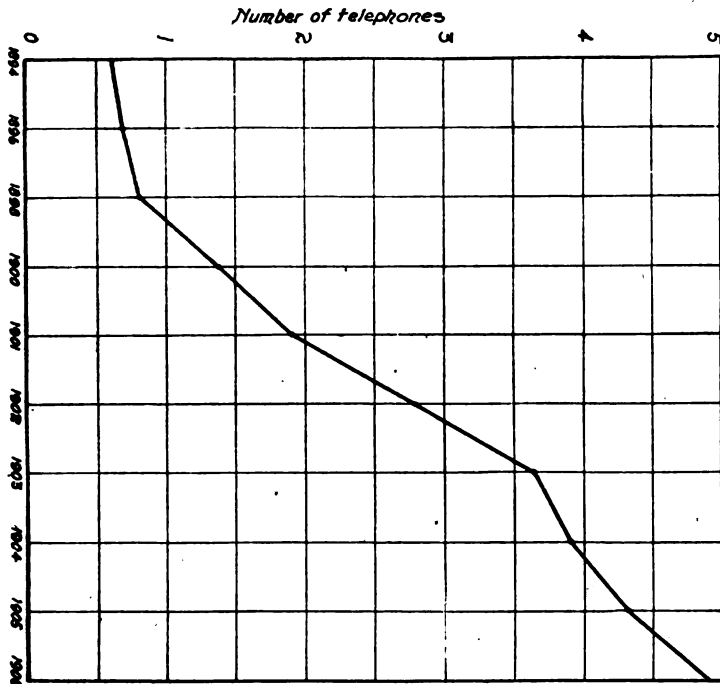


Chart No. 6—Showing the number of telephones in use in Chicago for each one hundred inhabitants.

DATA FOR CHART NO. 6.

Showing the number of telephones in use in Chicago for each one hundred inhabitants.

Year.	Population.	Average Number of Telephones.	Number of Telephones per One Hundred Inhabitants.
1894.....	1,567,727	9,594	.61
1896.....	1,616,635	11,034	.69
1898.....	1,851,588	15,020	.81
1900.....	1,698,575	23,586	1.39
1901.....	1,773,939	33,831	1.91
1902.....	1,863,833	50,642	2.80
1903.....	1,970,450	68,271	3.65
1904.....	2,075,528	81,445	3.92
1905.....	2,206,009	95,566	4.33
1906.....	2,341,420	113,782	4.86

and this tends to retard telephone development and prevent its general use.

The measured rate arrangement manifestly makes it possible to reduce the price of the telephone to the small user to the smallest possible annual charge, that is, to a charge which is just sufficient to cover a reasonable interest and depreciation for the portion of the plant that must be set aside for the use of that individual user (or the average of the users in his particular class), increased by an amount which is proportional to the actual number of messages

transmitted from his telephone in the year. It is only by this arrangement that large city service may be extended to the small business men and the small residence and apartment dwellers who may be unwilling to pay more than from eighteen to twenty-four dollars per year, and this sort of customers constitutes a remarkably large proportion of the total telephone-using population of a large city like Chicago. When the measured rates are introduced exclusively, and carried to their logical conclusion, it may increase the cost of telephone service to the largest business users, but these users are even then charged no more than the actual service rendered to them costs the company, plus the appropriate amount to represent interest on the investment; and it is an obvious business principle that each class of service should not only be satisfactory to the users, but should also return its reasonable proportion of remuneration to the company furnishing the service.

In the discussion below, we have endeavored to point out by the use of charts, some of the features pertaining to the flat rate and the measured rate, so as to show the way in which the measured rate tends toward the diffusion of telephone service which makes it of greater advantage to the people of the city considered as a whole, while the flat rate tends toward its contraction.

Our charts, Nos. 2 and 3, show the growth of population

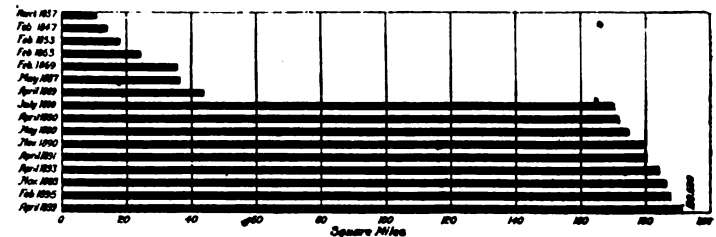


Chart No. 7—Showing growth of the area of the city of Chicago.

DATA FOR CHART NO. 7.

Showing the growth of the area of the city of Chicago.

	Number of Square Miles.
Total area, March 4, 1837, the date of incorporation.....	10.635
First extension, February 16, 1847.....	3.375
Second extension, February 12, 1853.....	3.988
Third extension, February 13, 1863.....	6.284
Fourth extension, February 27, 1869.....	11.380
Fifth extension, May 16, 1887.....	1.000
Sixth extension, April 29, 1889.....	7.150
Seventh extension, July 15, 1889.....	126.070
Eighth extension, April 1, 1890.....	1.773
Ninth extension, May 12, 1890.....	2.899
Tenth extension, November 4, 1890.....	4.603
Eleventh extension, April 7, 1891.....	0.981
Twelfth extension, April 4, 1893.....	3.875
Thirteenth extension, November 7, 1893.....	2.125
Fourteenth extension, February 25, 1895.....	1.000
Fifteenth extension, April 4, 1899.....	3.500

Total area to date, square miles..... 190.638

of the city of Chicago in the past, and the estimated future growth. Chart No. 2 shows by the black dots the population given by the United States census at the end of each decade, and the open circles which are joined by lines show the population given by the school census reports. The full curved line indicates the average curve of growth of the city. It will be seen from this chart that the city population has been growing at a tremendous rate during the last decade, and that it shows no tendency to hesitate in its growth. Chart No. 3 shows the probable future growth of the city, curves A, B and C corresponding with the estimates given by Mr. Bion J. Arnold in his report on the traction situation, starting at an assumption of 2,100,000 inhabitants in the year 1902. Curve D shows an estimate of future city growth made by City Statistician Grosser, for our use. It starts from the figure of the federal census of

1900. Mr. Arnold's average curve (curve B) and Mr. Grosser's curve cross each other at the year 1928, and the indication of the curves is that the population of the city will not be far from 5,000,000 inhabitants at that time, and that it will probably exceed 5,000,000 inhabitants by as much as a quarter of a million by the opening of 1929. Mr. Arnold's lowest curve, curve A, indicates a population at the opening of 1929, of approximately 3,750,000. It may be expected that the population at the opening of 1929 will therefore

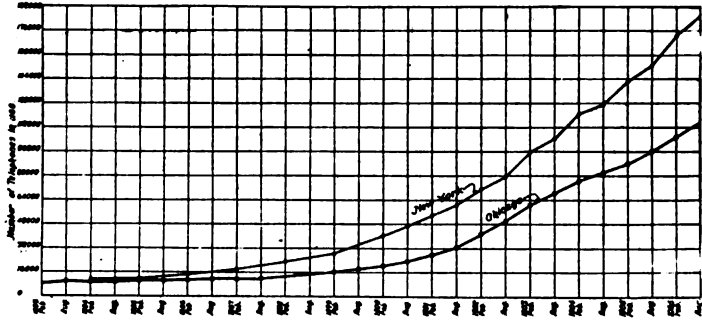


Chart No. 8—Showing the growth in numbers of telephones in use in Chicago and New York.

DATA FOR CHART NO. 8.

Showing the growth in numbers of telephones in use in Chicago and New York.

Month.	Year.	Number Telephones, Chicago, Exchange District.	Number Telephones, New York, (Manhattan and Bronx.)
February,	1893	8,679	.....
August,	1893	9,751	.....
February,	1894	9,443	11,218
August,	1894	9,744	.....
February,	1895	9,980	11,853
August,	1895	10,467	.....
February,	1896	10,777	14,647
August,	1896	11,291	.....
February,	1897	11,479	18,173
August,	1897	11,658	.....
February,	1898	.....	23,046
August,	1898	.....	.....
February,	1899	16,310	28,423
August,	1899	18,013	.....
February,	1900	20,380	40,437
August,	1900	23,187	.....
February,	1901	27,929	53,394
August,	1901	32,728	60,877
February,	1902	41,232	71,219
August,	1902	50,118	79,686
February,	1903	60,588	95,801
August,	1903	68,508	104,392
February,	1904	76,218	120,855
August,	1904	82,217	127,592
February,	1905	87,847	142,951
August,	1905	96,260	152,810
February,	1906	105,861	173,539
August,	1906	115,427	186,120

be as much as 5,250,000, and certainly not less than 3,750,000. At the present time (1907), the telephone development in the city of Chicago shows between five and six telephones for each 100 inhabitants. It is our opinion that this development will expand with improved and cheaper service, until there are at least ten telephones for each 100 inhabitants, and the telephone development which must be planned to occur before the opening of 1929, should be made with a view of providing the system with as many as 500,000 telephones and perhaps 600,000 telephones. Four hundred thousand telephones is too low an estimate to be reasonable, especially in consideration of the fact that a first-class and cheapened service is likely to increase the number of telephones beyond ten per 100 inhabitants, and may increase the development to a point where as many as fifteen telephones will be introduced to that number of inhabitants. Charts Nos. 4, 5 and 6 illustrate the way in which the telephone development has heretofore increased as the price

of service has fallen. The consideration of the manner of charging must therefore be made with due prevision of the tremendous number of telephones that an operating company will be called on to provide within a few years. It is our belief that the number of telephones in the city of Chicago should exceed 300,000, and perhaps exceed 350,000, when the population of the city is about 3,500,000. Within twenty years, as we have pointed out, 400,000 is too small an estimate of the number that should be in use in the city of Chicago, and the number may exceed 500,000. These estimates are founded on the presumption that a franchise will be granted to a company with conditions requiring adequate service over the entire city.

Our Chart No. 7 shows the way in which the area of the city of Chicago has been growing. The area is given in square miles. Upon the absorption of territory in April, 1899, the total area within the city limits, according to the city statistician, became 190.638 square miles. From 1837 to 1889, the area of the city had a steady increase. In July, 1889, a very large area was added to the city and, since that time, the area has been gradually increasing in a small degree. From 1889 to 1899, ten years, the area of the city had increased practically twenty square miles, which is at the rate of two square miles per annum. If farther addi-

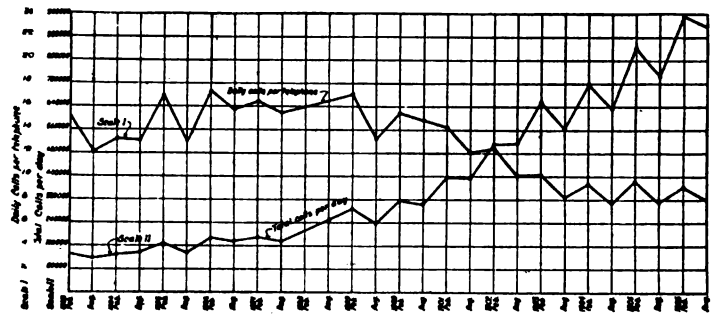


Chart No. 9—Showing the calls per day in the Chicago Exchange district and the number of daily calls per telephone. Chicago has fewer telephones in use than New York, but makes more calls per day.

DATA FOR CHART NO. 9.

Showing the total originating "calls" per day in the "Chicago Exchange" District and the average number of "calls" per telephone per day.

Month.	Year.	Total Originating Calls.	Originating Calls per Telephone.
February,	1893	131,329	15.15
August,	1893	117,889	12.09
February,	1894	123,817	13.12
August,	1894	127,172	13.07
February,	1895	168,295	16.95
August,	1895	135,964	13.00
February,	1896	186,423	17.32
August,	1896	172,213	15.71
February,	1897	188,206	16.40
August,	1897	175,959	15.42
February,	1898	.....	.....
August,	1898	.....	.....
February,	1899	285,468	17.50
August,	1899	239,150	13.28
February,	1900	315,100	15.47
August,	1900	303,465	14.87
February,	1901	419,433	14.22
August,	1901	392,827	12.02
February,	1902	511,033	12.40
August,	1902	515,207	10.03
February,	1903	654,638	10.08
August,	1903	562,365	8.21
February,	1904	715,020	0.98
August,	1904	653,246	7.70
February,	1905	840,053	9.57
August,	1905	759,739	7.85
February,	1906	952,159	9.01
August,	1906	916,622	7.95

tions are made to the area of the city at the latter rate, by the opening of 1929, the area of the city will exceed 225 square miles. That is, it may be expected that the telephone

service will not only become much more widely used within the present city limits, but the city limits may be expected to extend somewhat, and thus require additional considerations in dealing with the subscribers.

The growth of the number of telephones in the city of Chicago is shown by the Chicago curve on chart No. 8, to now be going on at a rate of nearly 30,000 telephones per year, and the development has been going on at an average rate of nearly 20,000 telephones per year for five years. During the next five years we believe that the growth in the number of telephones will go on at the highest rate yet

number of calls emanating from the telephones in the Chicago exchange district has increased steadily since 1893. For the purpose of this and following charts, a call is counted each time a subscriber takes his telephone receiver from the hook and his signal is answered by an operator. With this increase in the number of calls there has been a corresponding increase in the cost of handling the traffic, and the only way immediately open for reducing the expenses is to bring about a reduction in the number of calls. As the number of telephones increases, the calls will increase at a more rapid rate unless every reasonable effort is

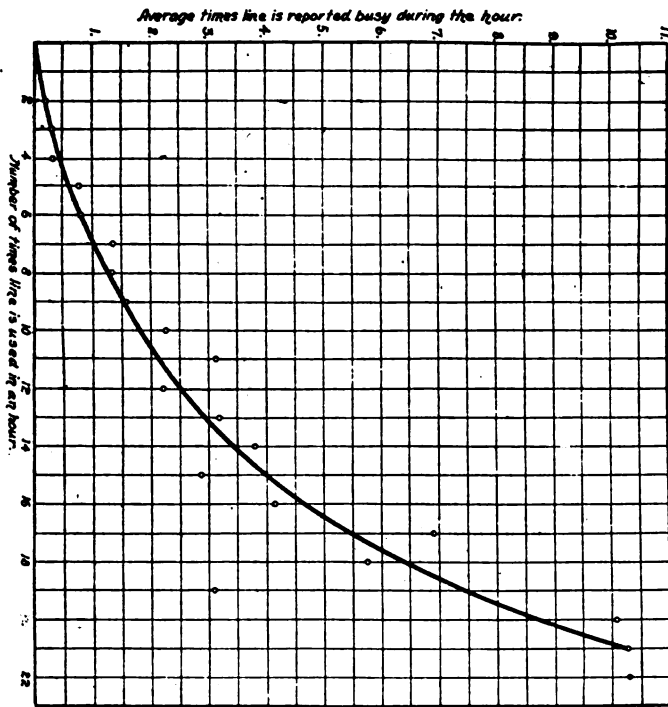


Chart No. 10—Showing record of observations made for the purpose of learning the relation between the number of times a line is used in an hour and the number of times the line is reported busy during the hour.

DATA FOR CHART NO. 10.

Record of observations made for the purpose of learning the relation between the number of times a line is used in an hour and the number of times the line is reported busy during the same hour.

Hour.	Number of Observations.	Number of Times Line Reported Busy.	Average Number of Times Line Reported Busy.
1.....	....	....	....
2.....	256	48	.19
3.....	251	75	.30
4.....	258	80	.31
5.....	276	209	.76
6.....	246	197	.80
7.....	251	341	1.36
8.....	184	246	1.34
9.....	148	236	1.59
10.....	114	259	2.27
11.....	114	356	3.12
12.....	89	197	2.21
13.....	59	188	3.19
14.....	58	220	3.80
15.....	54	156	2.87
16.....	41	170	4.15
17.....	28	193	6.90
18.....	28	161	5.75
19.....	25	77	3.08
20.....	13	131	10.08
21.....	16	164	10.25
22.....	11	113	10.28

attained and perhaps the rate will increase, provided the service can be made sufficiently inexpensive for the smaller users, and the quality of the service can be maintained or improved.

Our chart No. 9 indicates the way in which the total

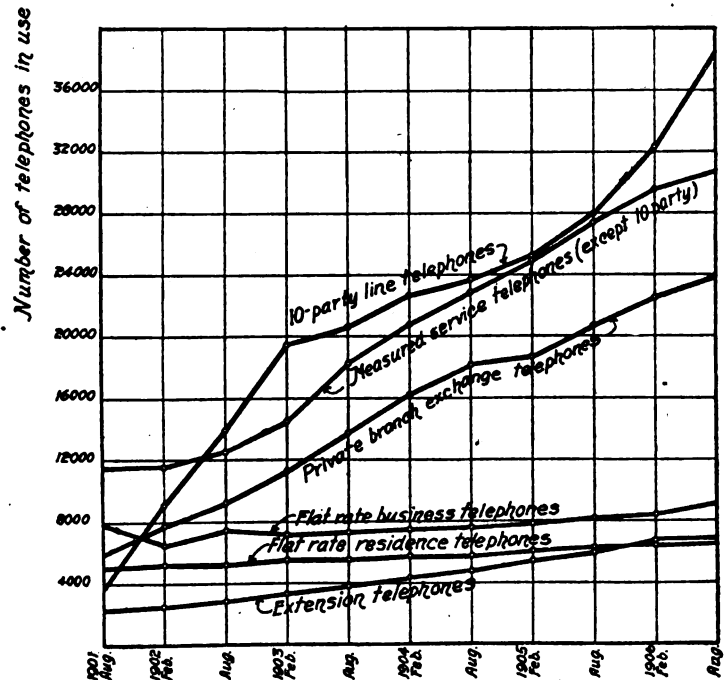


Chart No. 11—Showing the growth of the different classes of service in the Chicago Exchange district, that is, excluding the neighborhood exchange telephones which aggregated 8,570 on January 1, 1907. Taken from records of Auditor of the Chicago Telephone Company.

DATA FOR CHART NO. 11.

Showing the growth of the different classes of service in the "Chicago Exchange" District; that is, excluding the "Neighborhood" Exchange telephones, which aggregated 8,570 on January 1, 1907.

	Private Branch Exchange Telephones.	Flat Rate Business Telephones.	Flat Rate Residence Telephones.	Measured Service Telephones (Except Ten-Party Line Telephones.)	Ten-Party Line Telephones.	Extension Telephones.
August, 1901.	4,246	6,769	4,022	10,564	3,848	2,379
February, 1902.	6,385	6,755	5,240	11,406	8,912	2,534
August, 1902.	8,014	7,440	5,205	12,556	13,989	2,914
February, 1903.	10,562	7,049	5,526	14,983	19,128	3,340
August, 1903.	13,408	7,291	5,529	18,220	20,167	3,893
February, 1904.	15,475	7,461	5,736	20,872	22,299	4,375
August, 1904.	17,445	7,596	5,764	22,950	23,568	4,894
February, 1905.	18,643	7,801	6,096	24,916	25,107	5,284
August, 1905.	20,736	8,183	6,113	27,216	27,959	6,053
February, 1906.	22,550	8,393	6,509	29,538	32,216	6,655
August, 1906.	23,942	9,163	6,511	30,657	38,461	6,693

put forth to prevent useless and frivolous calls from the telephones. Of the total number of calls each week day, which at present average nearly a million in the Chicago telephone exchange district, about one-third of the traffic as now handled constitute unavailing calls, that is, calls which are made by subscribers but prove to be futile efforts and do



not mature into messages because the line called for is found to be busy or the called for subscriber fails to answer or any of the various other fertile reasons for the failure of a call to be completed into a message. Each of these calls means cost for the operations performed. To bring about good and cheap telephone service it is necessary to reduce these unavailing calls to the lowest possible number, and especially to reduce the frequency with which called for lines are found to be busy. Such "busy reports"

useless telephone calls which must be removed before the service can be made the most satisfactory and the price of the service can be reduced to a minimum.

The frivolous and useless messages can be largely cut off by making measured rates of service, since even a small charge per message becomes a marked deterrent to the needless use of the telephone. This is illustrated by the line representing the average number of daily calls made from each telephone, shown on our chart No. 9. The number of telephones has been steadily increasing in Chicago, and the total number of telephone calls per day has also been steadily increasing, but the average number of daily calls emanating from the individual telephones began to decrease in 1899 and has decreased from an average approximating sixteen calls per telephone per day to an average approximating nine calls per telephone per day. The

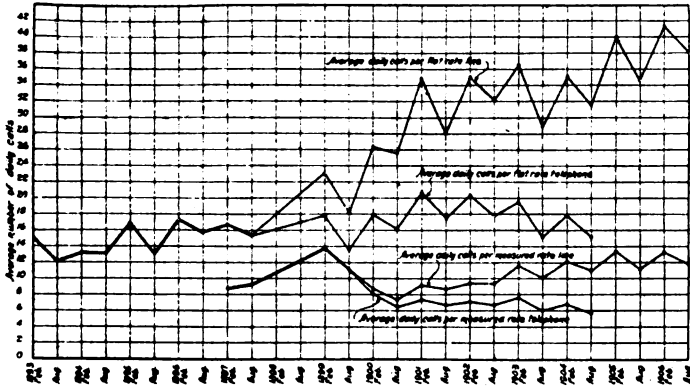


Chart No. 12—Showing the average numbers of daily calls per line and per telephone on flat rate lines and measured rate lines in Chicago exchange district, excluding 10-party telephones.

DATA FOR CHART NO. 12.

Showing the average number of daily "calls" per line and per telephone on flat rate lines and measured rate lines in "Chicago Exchange" District, excluding ten-party telephones.

Month.	Year.	Average Daily Calls per Measured Rate Line.	Average Daily Calls per Flat Rate Line.	Average Daily Calls per Measured Rate Telephone.	Average Daily Calls per Flat Rate Telephone.
February,	1893.....	.....	15.15	.....	15.1
August,	1893.....	.....	12.09	.....	12.1
February,	1894.....	.....	13.10	.....	13.1
August,	1894.....	.....	13.05	.....	13.0
February,	1895.....	.....	16.90	.....	16.8
August,	1895.....	.....	13.00	.....	13.0
February,	1896.....	.....	17.30	.....	17.3
August,	1896.....	.....	15.70	.....	15.7
February,	1897.....	8.75	16.75	8.75	16.7
August,	1897.....	9.16	15.44	9.16	15.4
February,	1898.....	.....	.....	.....	.....
August,	1898.....	.....	.....	.....	.....
February,	1899.....	13.85	23.1	13.80	17.8
August,	1899.....	11.10	18.05	11.10	13.5
February,	1900.....	8.70	26.3	8.15	17.9
August,	1900.....	7.35	25.6	6.53	16.2
February,	1901.....	9.18	34.9	7.42	20.6
August,	1901.....	8.71	28.0	6.73	17.5
February,	1902.....	9.40	35.0	7.10	20.3
August,	1902.....	9.35	32.1	6.73	17.8
February,	1903.....	11.50	36.5	7.60	19.5
August,	1903.....	10.10	28.9	6.03	15.1
February,	1904.....	12.10	35.1	6.82	17.8
August,	1904.....	10.90	31.5	5.80	15.1
February,	1905.....	13.40	40.0	.....	.....
August,	1905.....	11.20	34.6	.....	.....
February,	1906.....	13.30	41.4	.....	.....
August,	1906.....	11.80	38.0	.....	.....

now constitute in Chicago about one-half of the total unavailing calls and are in excessively large numbers, averaging about sixteen per cent of the total number of calls, which is in a large degree due to the tremendous use of the telephones under the flat rate now prevailing. It is obvious from our examination that the Chicago telephone service is burdened by an expensive and undesirable parasite of

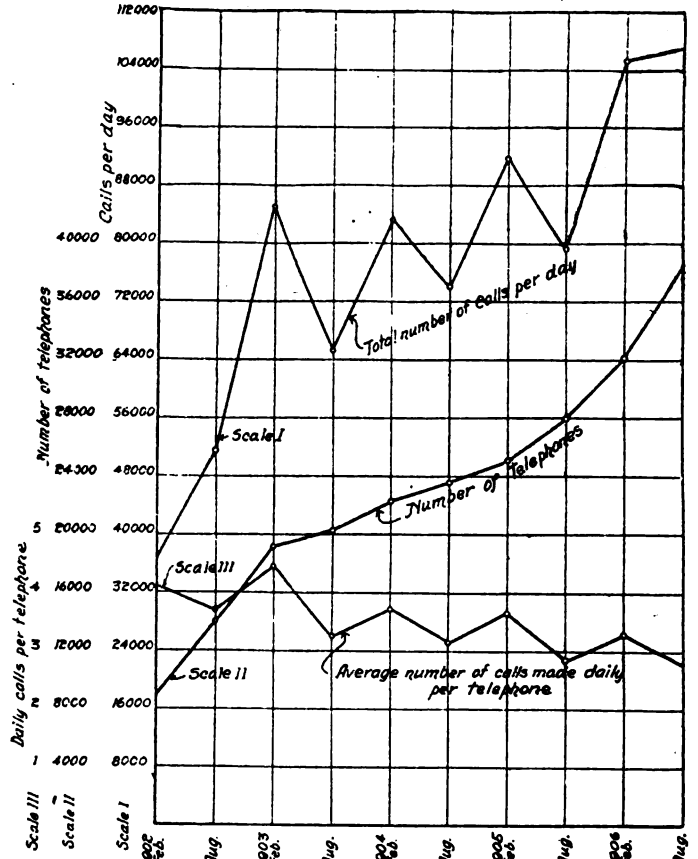


Chart No. 13—Showing the number of 10-party telephones, the number of calls per day originating from 10-party telephones, and the average number of calls made daily per telephone.

DATA FOR CHART NO. 13:

Showing the number of ten-party telephones, the total number of "calls" per day originating from ten-party telephones, and the average number of "calls" made daily per telephone.

Month.	Year.	Total Number of Calls per Day.	Number of Telephones.	Average Number of Daily Calls per Telephone.
February,	1902.....	36,599	8,912	4.11
August,	1902.....	51,725	13,989	3.70
February,	1903.....	85,399	19,128	4.46
August,	1903.....	65,193	20,167	3.24
February,	1904.....	82,981	22,299	3.71
August,	1904.....	73,947	23,568	3.13
February,	1905.....	91,753	25,107	3.65
August,	1905.....	79,364	27,959	2.84
February,	1906.....	105,521	32,216	3.28
August,	1906.....	106,847	38,461	2.77

time that this decrease began is concurrent with the introduction of measured rates, and during the four years while the measured rates were coming into vogue the average daily calls per telephone in the city were steadily decreas-

ing until they have now reached an apparently fixed value that is determined to a considerable degree by the remaining flat rate telephones which involve an over use of the lines.

In these charts it will be observed that a point is marked on each of the curves for the months of February and August of each year, with the exception of the year 1898, during which no records were kept by the Chicago Telephone Company. These points were fixed by what are called "peg counts," taken on one day in August and one day in February to determine the total number of calls

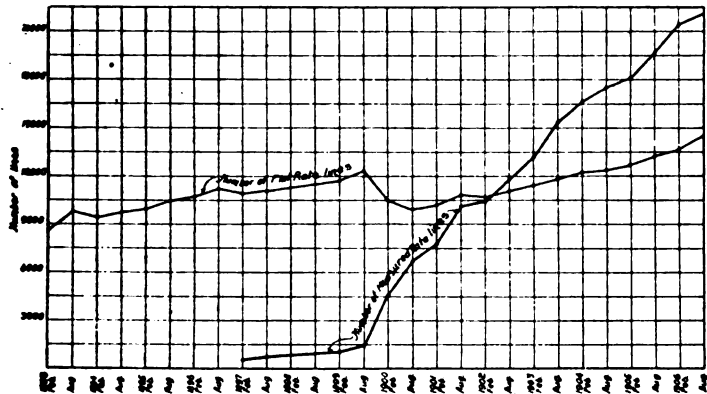


Chart No. 14—Showing the numbers of flat rate lines, including commutation trunk lines connected with private branch exchanges, and measured rate lines in Chicago Exchange district, excluding 10-party lines.

DATA FOR CHART NO. 14.

Showing the numbers of flat rate lines (including commutation trunk lines connected with private branch exchanges) and measured rate lines in "Chicago Exchange" District, excluding ten-party lines.

Month.	Year.	Number of Flat Rate Lines.	Number of Measured Rate Lines.
February,	1893	8,679	
August,	1893	9,751	
February,	1894	9,443	
August,	1894	9,744	
February,	1895	9,980	
August,	1895	10,467	
February,	1896	10,777	
August,	1896	11,291	
February,	1897	10,958	521
August,	1897	11,000	654
February,	1898		
August,	1898		
February,	1899	11,733	1,046
August,	1899	12,359	1,458
February,	1900	10,429	4,581
August,	1900	9,967	6,679
February,	1901	10,247	7,812
August,	1901	10,879	10,119
February,	1902	10,761	10,466
August,	1902	11,019	11,799
February,	1903	11,442	13,190
August,	1903	11,879	15,306
February,	1904	16,668	12,250
August,	1904	12,336	17,406
February,	1905	12,657	18,063
August,	1905	13,209	19,660
February,	1906	13,599	21,352
August,	1906	14,482	22,012

coming into the exchange. The counts are made by each operator keeping a record on some counting device of the aggregate number of calls coming to her position during her hours of service, and the total number thus given are plotted on our chart No. 9. The average daily calls per telephone are derived by dividing the total number of calls per day upon each of the dates of the "peg counts" by the number of telephones then in use in the city. It will be observed that the zigzag lines representing total calls per day and average daily calls per telephone rise and fall, ordinarily being higher in each February than either of the points corresponding to adjacent Augusts. This is because

the telephone business in Chicago is larger in February than in August, since February is a month of great business activity and August is a month during which the business activity is reduced.

It must be borne in mind that in all these charts giving the total calls per day and the total calls per telephone, the data relate to "peg count" calls, which include all of the unavailing calls in addition to those which have become messages, and that approximately one-third of the daily calls in the city of Chicago are unavailing, one-half of the unavailing calls being caused by the overuse of lines which are reported busy.

Chart No. 10 shows a record of observations made for the purpose of learning the relation between the number of times a line is used in an hour and the number of times the line is reported busy during the hour. By the phrase, the number of times a line is used in an hour, we mean the number of actual messages, outgoing and incoming, which

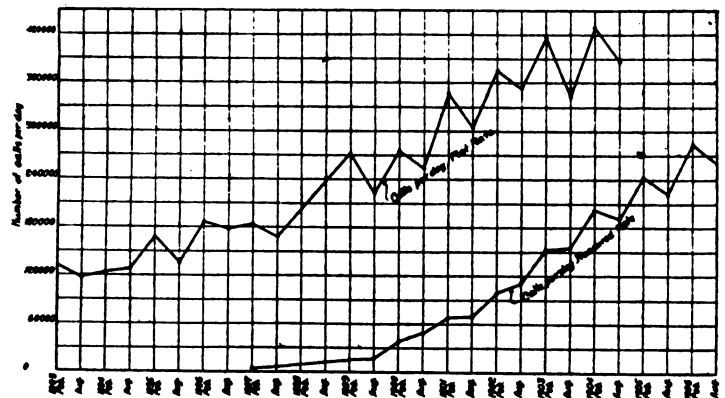


Chart No. 15—Showing the numbers of calls per day originating from flat rate telephones and from measured rate telephones in Chicago exchange district, excluding 10-party telephones.

DATA FOR CHART NO. 15.

Showing the total numbers of "calls" per day originating from flat rate telephones and from measured rate telephones in "Chicago Exchange" District, excluding ten-party telephones.

Month.	Year.	Calls per Day, Measured Rate.	Calls per Day, Flat Rate.
February,	1893		131,329
August,	1893		117,889
February,	1894		123,817
August,	1894		127,172
February,	1895		168,295
August,	1895		135,964
February,	1896		186,423
August,	1896		177,213
February,	1897	4,554	183,652
August,	1897	5,996	169,963
February,	1898		
August,	1898		
February,	1899	14,478	270,990
August,	1899	16,179	222,971
February,	1900	39,837	275,263
August,	1900	49,082	254,383
February,	1901	68,037	347,573
August,	1901	69,835	304,576
February,	1902	98,383	376,051
August,	1902	110,109	353,373
February,	1903	152,126	417,113
August,	1903	154,646	342,526
February,	1904	202,506	429,523
August,	1904	190,724	388,575
February,	1905	242,556	
August,	1905	220,570	
February,	1906	283,475	
August,	1906	260,299	

pass over the line in an hour. Chart No. 10 is plotted from data collected by the Chicago Telephone Company through a special observer, who kept up a series of careful observations on several hundred lines. The data observed have been plotted, using the number of messages

passing over the line, that is, the number of times the line was used in an hour, on the horizontal axis and the number of times during the hour the line was reported busy on the vertical axis. Each circle laid down on the plat represents the averages of a number of observations as shown in the table accompanying this chart and the observations represent data derived from numerous lines, so that the points may be assumed to be fairly accurate in representing the facts. The circles represent the average data obtained, and

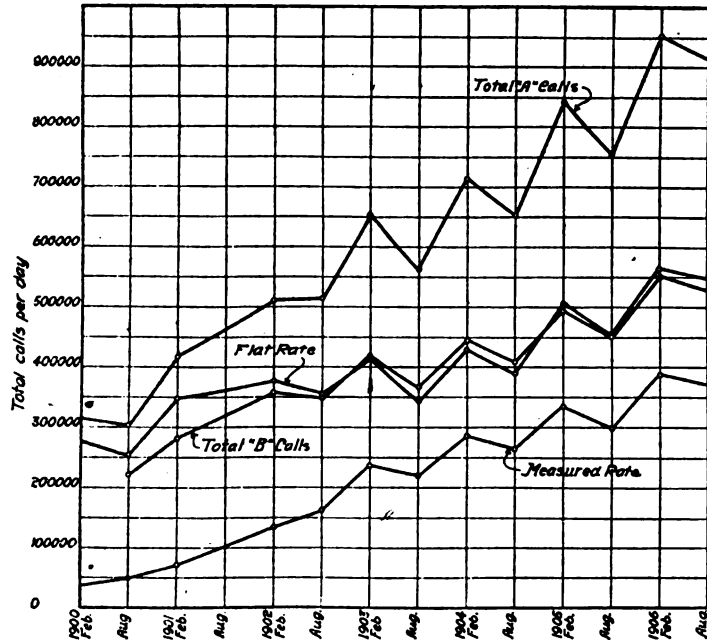


Chart No. 16—Showing the way in which trunked calls ("B" calls) increase as the service extends.

DATA FOR CHART NO. 16.

Showing the way in which trunked calls ("B" Calls) increase as the service extends.

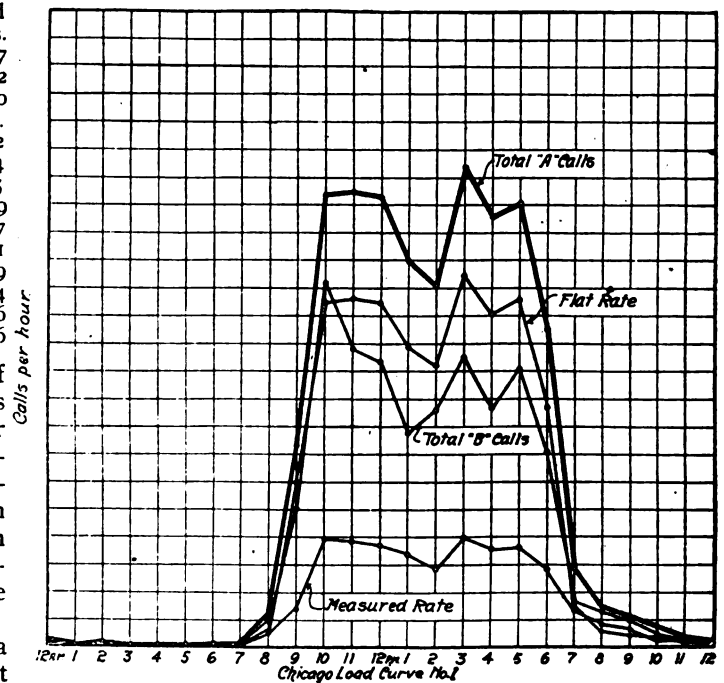
	Total Originating Calls.	Total Flat Rate Calls.	Total "B" Calls.	Total Measured Rate Calls.
February, 1900.....	315,100	275,263	.....	39,837
August, 1900.....	303,465	254,383	220,913	49,082
February, 1901.....	419,433	347,573	280,666	71,860
August, 1901.....	.....	.....	.....	.....
February, 1902.....	511,033	376,051	358,544	134,982
August, 1902.....	515,207	353,373	352,311	161,834
February, 1903.....	654,638	417,113	417,240	237,525
August, 1903.....	562,365	342,526	367,201	218,839
February, 1904.....	715,020	429,533	442,579	285,487
August, 1904.....	653,246	388,575	408,614	264,671
February, 1905.....	740,053	505,744	493,108	334,309
August, 1905.....	759,739	456,805	452,778	299,934
February, 1906.....	952,159	563,163	552,751	388,996
August, 1906.....	916,622	549,476	528,986	367,146

we have drawn a curved line to represent the average of the positions of the circles. It will be observed from this curve on the chart that if a line is used eleven times an hour it may be expected to be reported busy at least twice during the hour to calling subscribers who desire to communicate with that line; but if it is used twenty-one times an hour it may be expected to be reported busy not less than ten times. This plainly shows that the unavailing calls increase in a tremendous ratio as the load on a telephone line increases.

Our chart No. 10 is based upon the number of times a line is used in an hour, but we will point out here that almost all lines that are used in flat rate service are very much busier during one hour of the day than during any other hour of the day; that is, a large proportion of the total calls over a telephone line during a day are made within certain specific "busy" hours, which makes the busy reports much more numerous during certain parts of the day than the average number of calls might indicate.

Chart No. 11 shows the growth since August, 1901, of the different classes of service in the Chicago exchange district (that is, excluding the neighborhood exchange telephones). It will be observed that during this period ten-party line telephones, which are nickel prepayment telephones, and therefore belong to the measured rate class, and the other measured rate telephones, have increased steadily. The private branch exchange telephones have also increased, and a considerable portion of these also belong in the measured rate classification. The flat rate business and residence telephones have not increased in a large degree. We were not able to obtain the actual data for the two preceding years, but the measured rate service was proportionately increasing during those years, it having been first introduced about 1899; and our chart No. 9 shows that during these years' increase of the measured rate service, from 1899 to 1906, the average number of calls per telephone per day has consistently decreased. This has helped to make it possible for the Chicago Telephone Company to steadily decrease the average charges per telephone within the Chicago exchange district. That such a decrease has occurred is plainly to be observed from our chart No. 4, which shows two curves, one indicating the average number of telephones in use in Chicago during each year from 1897 to 1906, which is indicated by a rising line from left to right as the dates advance, and another curve showing the average rate paid per telephone during the year, which is indicated by the falling line as the dates advance. The average rate paid in 1897 was \$123.53, as indicated on the chart, and it has fallen year by year since, until it has now become as low as \$53.29. The figures on this chart do not include "neighborhood" telephones.

With continued careful management, improved methods of keeping records for the determination of the costs of the different classes of service, and a greater extension of the measured rate service we believe that the Chicago Telephone Company, in case it should be granted a franchise, can continue this decrease in the average yearly rate that the subscribers pay per telephone, until the average yearly rate



Calls per hour Harrison exchange, August 3, 1906.

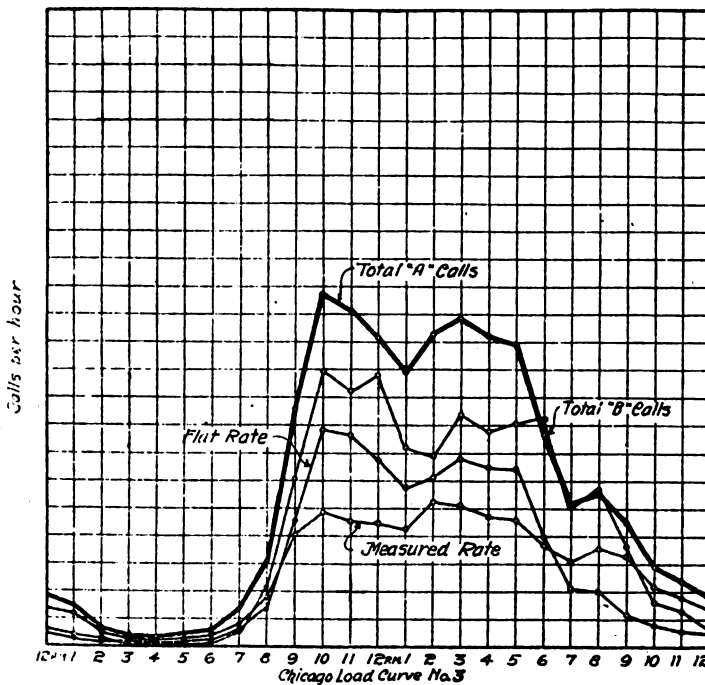
does not exceed forty dollars, or perhaps less, and a large proportion of the telephones will be paying not more than eighteen dollars per year. On the other hand, our study of the problem convinces us that an extension of the flat rate telephone service would tend to so greatly increase

the useless calls over the telephones, and so overload the lines, that the unavailing calls would increase tremendously, making the daily calls per telephone even larger than they were in 1906, and thus increase the annual expense of the service so largely that the average price per telephone would be given a tendency to rise instead of fall.

It is a tradition in telephone circles that the service per telephone costs more as the number of telephones connected with the plant increases. As the number of telephones increases, each subscriber has the opportunity to call upon more people by telephone, and the law of averages would indicate that the number of calls per day from each telephone should increase, thus making the service more expensive to the operating company, provided the service is a flat rate service and unnecessary use of the telephone is not deterred by a measured rate charge. This condition seems to have worked out in practice, according to the statements of telephone companies at Cleveland, Indianapolis and elsewhere, and flat rate service seems to increase in cost per telephone as the number of telephones attached to a system increases.

On the other hand, a different condition exists in connection with measured rate service. With the measured rate service the message is the unit instead of the rental of the instrument; and it is the message that the subscriber ought to pay for, because it is for the purpose of sending his messages that he provides himself with a telephone. With measured rate service, and a reasonable use of the telephone lines, the unavailing calls are reduced to a minimum. The number of calls per telephone per day, apparently, are not inclined to increase as the system increases in extent. This is illustrated in our charts Nos. 12 and 13. But the total number of messages handled increases approximately in proportion to the number of telephones. Under these conditions, the ordinary laws regulating the difference between the cost of producing articles in large and small quantities comes into play, and the actual cost per message ought to steadily decrease. Since it is the messages that are paid for under the measured rate system

The difference thus arising between flat rates and measured rates is very marked. The flat rate telephone user tends to increase his number of messages as the system enlarges, so that the average calls per day per telephone may be expected to increase and the proportion of unavailing calls also to increase. The consequence is that the company is forced to handle more calls per telephone as the system becomes larger, and the price per telephone has to



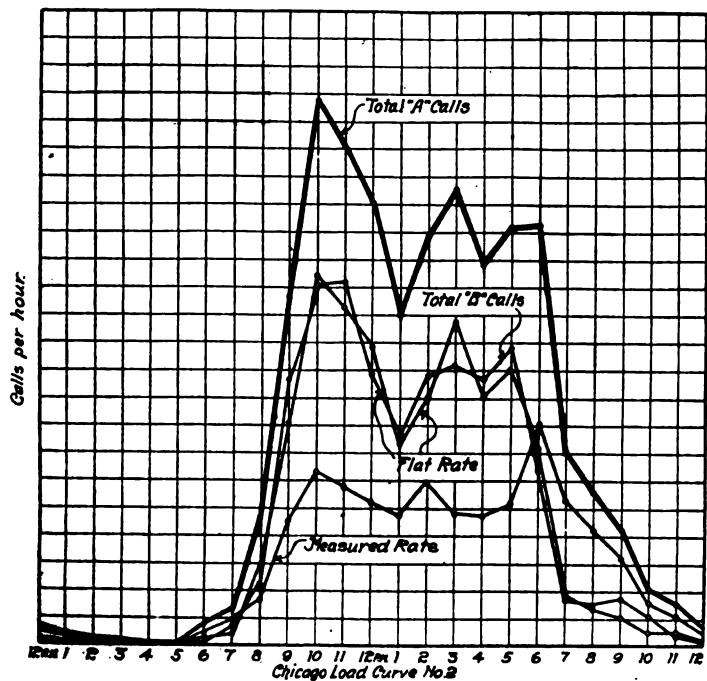
Calls per hour Calumet exchange, August 3, 1906.

increase under flat rate charges; while the subscribers limit their use of the telephone to their actual needs under measured rates and the number of calls per telephone does not have a tendency to increase as the system increases in size after it has reached a considerable development such as is now found in the city of Chicago. Under these conditions the principle of wholesale production makes it possible for the company to reduce its cost of operating per message and thereby reduce the average price charged the telephone subscribers.

The telephone hanging on the wall appeals to the average telephone subscriber as constituting the total expense to the company through the maintenance of the instrument and lines. The maintenance and the interest on the equipment does constitute a considerable expense to the company, but a great deal of the expense to the company is due to the actual cost of handling each message. This expense composes a large proportion of the annual expenditures of the Chicago Telephone Company.

Moreover, the more calls that are made per line, the larger must be the switchboards provided by the company for making connections for communication between subscribers' lines, since each operating employe can only take care of a limited number of calls per day, and if the number of calls per telephone increases, each operating employe can take care of the requirements of fewer lines. As the operating employes are increased, the switchboards must be increased at large expense to afford additional operator's positions, and all of this increases the annual expense for telephone service. The deterrent of a small charge per message, varying from a nickel downwards depending upon the number of calls used per year, is sufficient to overcome much of this difficulty and to reduce the telephone service to a fairly uniform and business-like basis.

We think that the Chicago Telephone Company has involved itself in considerable unnecessary expense by ap-

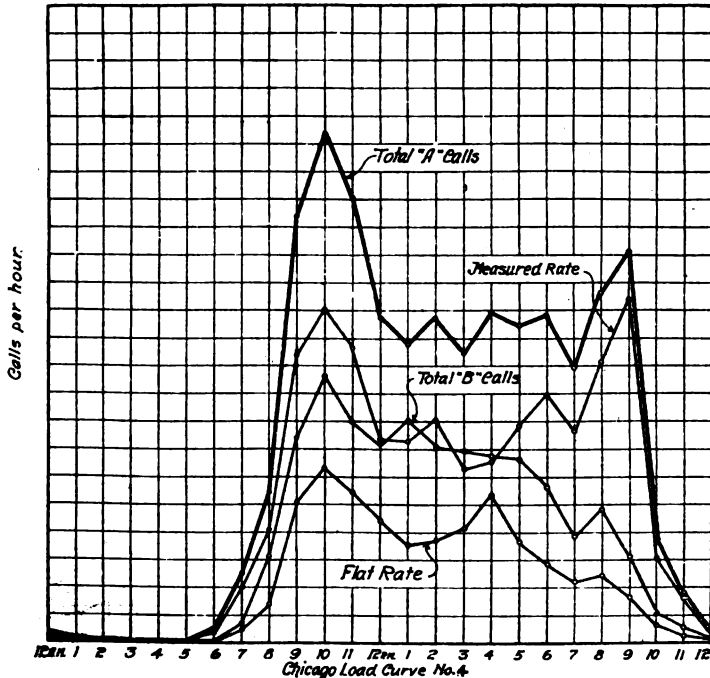


Calls per hour Monroe exchange, August 3, 1906.

and the actual cost per message ought to steadily decrease as the system enlarges, the average amount paid by each subscriber will decrease if the subscribers limit the use of their telephones to their actual needs, and the telephone company is well managed.



parently encouraging its subscribers to make calls upon operators for various items of information. The record of a count made in November, 1906, shows that more than 42,000 requests for the "time of day" were made of the operators on that day. The expense of this service should go far toward keeping the subscribers who asked the time of day supplied with clocks; and various other much repeated enquiries apparently aggregate an equal expense.



Calls per hour Wentworth exchange, August 3, 1906.

In further illustration of the relation of the number of calls made per telephone by different users, we have had some additional charts made from the data which we have gathered together.

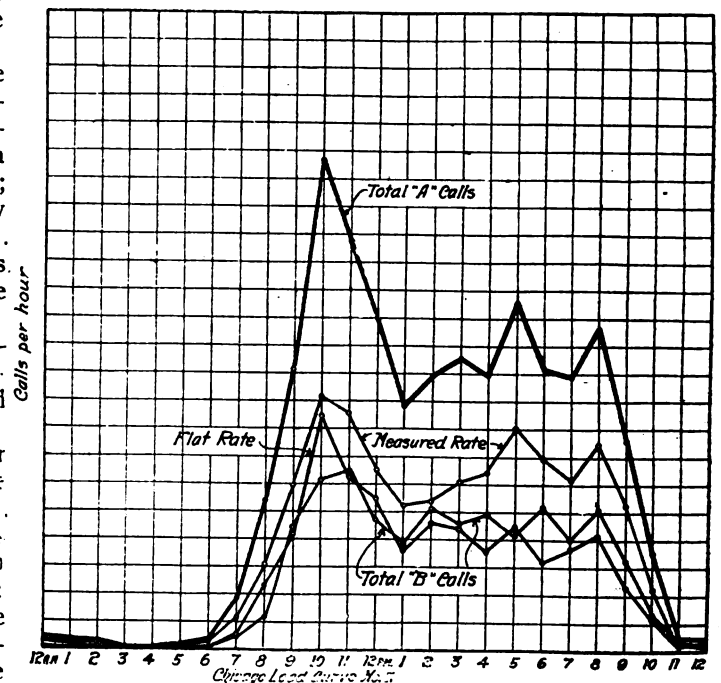
Chart No. 14 shows the number of flat rate lines and the number of measured rate lines in the Chicago exchange district. The flat rate lines include what are known as commutation trunk lines, namely, lines from private branch exchanges which are used for outgoing messages only; and the measured rate lines do not include the ten-party lines, which we have put upon a separate chart (No. 13). It will be observed that the number of measured rate lines is rapidly increasing compared with the number of flat rate lines.

Chart No. 15 shows the total number of calls per day originating from the flat rate telephones and from the measured rate telephones connected with the lines illustrated in chart No. 14.

Chart No. 12 shows the average number of daily calls per line and per telephone on the flat rate lines and on the measured rate lines which are illustrated in chart No. 14, and this chart indicates the large difference which exists between the two kinds of service now current in Chicago in respect to the number of calls per line or per telephone per day. The average number of calls per line on the flat rate lines is steadily increasing, thus increasing the annual expense to the telephone company per line, though the price charged to the flat rate subscribers remains independent of the use of the telephones. The numbers of calls per line and per telephone on the measured rate lines show different characteristics. The number of calls per telephone per day is steadily decreasing toward an apparent minimum limit of approximately six calls per telephone per day, thus decreasing the cost to the telephone company and making it possible to make marked reductions in the average price per telephone.

Chart No. 13 shows the number of ten-party telephones, the total number of calls per day originating from these ten-party telephones, and the average number of calls made daily per telephone. This shows that in this service the number of calls made daily per telephone is remarkably low, and the price of this service may properly be made correspondingly low.

There is another feature which relates to the question of relative use by flat rate and measured rate users of telephones. It is impracticable to connect all telephone subscribers in a great exchange system, such as is found in Chicago, with a single office, and it becomes necessary to arrange means for transferring calls made by the lines in one office to the called-for subscribers' lines in other offices. This is ordinarily denominated "trunking" the calls between the offices, and it involves a double expense for operators, since one operator is required to receive the call of the subscriber at the originating office and another operator is required to complete the connection to the called subscriber's line in the second office. As the system increases in number of telephones, the proportion of "trunked" calls is likely to increase. We have illustrated this in connection with our Chart No. 16, which shows the way in which the "trunked" calls, marked "B calls" on the chart, increase as the service extends. This Chart No. 16 shows the daily number of "B calls" according to the "peg counts" of February and August for a number of years back, and it will be observed that the number of "B calls" consistently increased during this period. This chart also shows the number of measured rate calls originating from subscribers' lines and the number of flat rate calls originating from subscribers' lines, and it will be observed that the number of flat rate calls has increased year by year at a rate approximately equal to the increase of calls from measured rate lines, although our Chart No. 14 shows that the number of flat rate lines has not been increasing as rapidly as the measured rate lines. Chart No. 16 also shows that



Calls per hour Hyde Park exchange, August 3, 1906.

the rate at which "B calls" or "trunked" calls increase corresponds more nearly to the rate at which the flat rate calls increase in number than to the rate at which the measured rate calls increase in number.

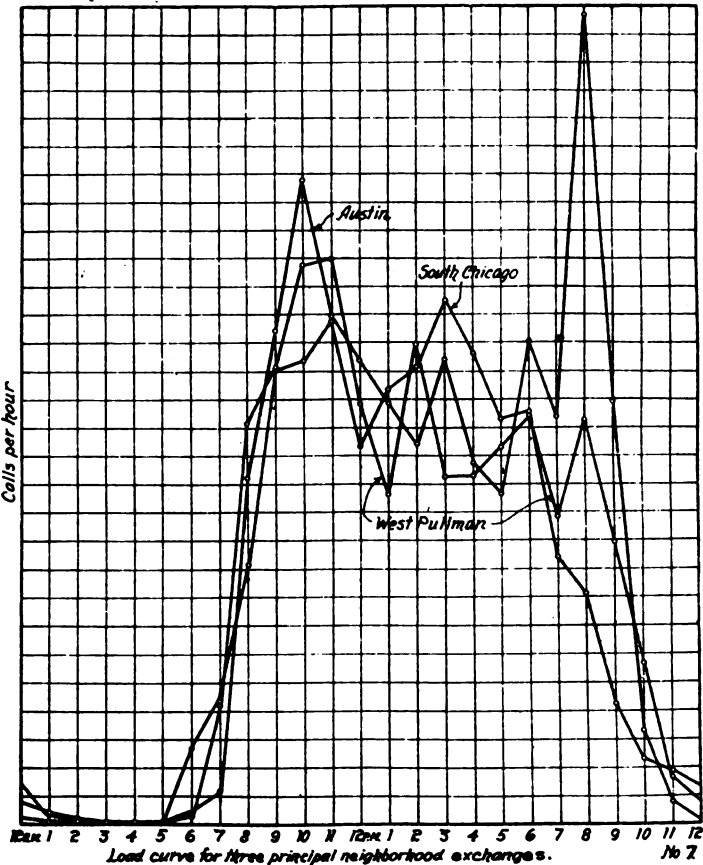
The indications that are afforded by Chart No. 16 are likewise afforded by the series of load curves which we have given. A load curve is a curve showing the number

of calls occurring within a telephone exchange during each hour of the day. We have plotted the load curves for the "peg count" taken on August 3, 1906, in all the telephone exchange offices of the city, giving separate curves representing the measured rate calls, the flat rate calls, and the incoming trunked or "B calls" for each exchange. We have also given a line showing the sum of the measured rate and flat rate calls for each exchange on that day. These are indicated by the titles Chicago Load Curves Numbers 1, 2, 3, 4, 5, 6 and 7. We include a number of typical load curves with this report. The Chicago Telephone Company makes a "peg count," as heretofore indicated, once a month, and we have given the load curves for the "peg count" for one month, taken at random, as shown in table No. 8.

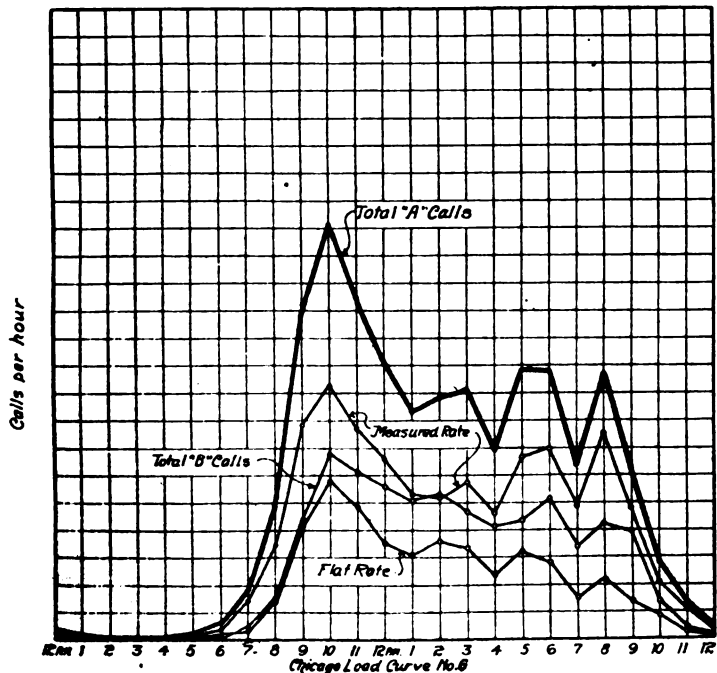
Load curve table No. 9 gives the sum of the calls obtained from the several exchange offices in the Chicago exchange district. The curves are shown as the total number of calls originating on all the subscribers' lines (marked "A" calls) on August 3, 1906, during each hour of the day, the total number of measured rate calls during each hour of the day, the total number of flat rate calls during each hour of the day, and the total number of "trunked" or "B" calls coming in to all of the exchange offices during each hour of the day. A point on each of these curves indicates the number of calls of the particular class during the corresponding hour of the day. The indication of "B" calls on the load curves for the several separate exchange offices, does not afford any means of telling from what sort of a line the original calls emanated, because records of the trunked calls are only made at the receiving office, while the sending office (where the "B" call is not recorded) is the only one which could determine from what sort of a line a trunked call emanates. But the total load curve makes it possible to compare the total trunked calls with the total flat rate and the total message rate calls, and it will be observed that the number of trunked calls corresponds closely to the number of flat rate calls. This is probably an indication that the greater proportion of the trunked calls come from the flat rate lines, and that these lines are consequently causing more than a proportional share of the double ex-

closely to the flat rate calls, and that the flat rate lines apparently therefore should be properly charged with the larger proportion of the expense of the trunking service and maintaining the trunking plant.

In passing, we will call attention to the complexity of the service indicated by these load curves. It will be no-



Load curve for three principal neighborhood exchanges, No. 7  
Calls per hour Austin, South Chicago, West Pullman exchanges, August 3, 1906.



Calls per hour Lake View exchange, August 3, 1906.

pense of the trunked calls. We have studied this question from the records of the Chicago Telephone Company extending back over the period since the introduction of message rates in Chicago, and in each year find a similar indication, namely, that the trunked calls correspond more

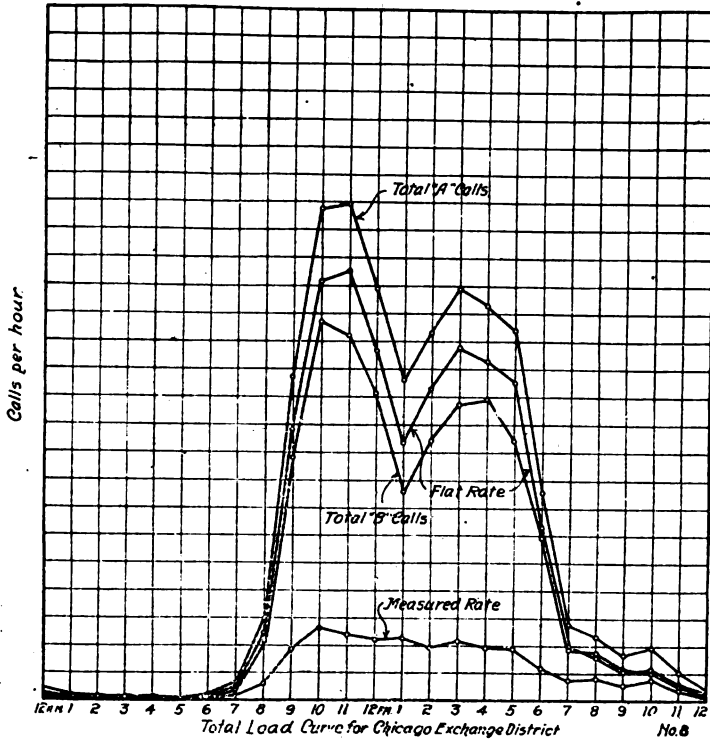
ticed that the load curve for Harrison exchange, which is in the business portion of the city, and is typical of the load curves at Main, Central and Harrison exchanges, shows extended peaks of traffic; that is, it shows a very large number of calls at a particular hour, about eleven o'clock in the morning, and that business falls off rapidly on either side of the peak. There is another peak in the afternoon in each of these exchanges. In the exchanges like Wentworth, Hyde Park, Douglas and Lake View, there comes a relatively high peak between seven and nine o'clock in the evening, apparently due to the demands of social intercourse between the families of subscribers.

These great variations in the hourly use of the telephone increase in a marked degree the cost per message for operating, because the telephone company must always have sufficient operators on hand to meet the requirements of the hour, and must have a sufficiently large switchboard to enable it to handle all the calls which arrive at the busiest hour. Even with the best arranged schedule for the operators' work, it is impracticable to arrange for operators to be on hand for only one or two hours in the morning and one or two hours in the afternoon, but the operators must be put at work for a considerable number of hours at a time, so that the irregularities of the load curves which run up into high peaks increase the cost of operating on account of increasing the average number of operators that must be kept on duty in proportion to the total number of calls per day, and also increase the cost for interest and maintenance on account of the extra switchboard positions required to enable these extra operators to perform their work.

A scrutiny of the load curves of the various exchange offices and especially of the business offices, indicates that the greatest proportion of the peak of the load in each exchange office comes from the flat rate users, and that the measured rate curve is more uniform over the period of the day. This absence of peak makes it possible to perform the

ured rate service, and therefore actually enables the telephone company to make the cost of operating less per individual call of the measured rate service than it can for the flat rate service.

On the flat rate basis the telephone subscriber who makes calls over his telephone line twenty or more times per day (perhaps even fifty or one hundred or more times) pays the same price as the subscriber who uses his telephone only eight or ten times a day, and the flat rate being an average rate which enables the telephone company to come out at the end of the year with its expenses all paid and a balance to pay interest on its investment, it is obvious that the small user pays more for his telephone than his use makes necessary and the largest user pay less for his telephone than his service probably costs the operating company. This is so manifestly unfair that there can be no justification in maintaining a strictly flat rate telephone charge in large cities, with the present known method of operating. Such charges for telephone service are as unjust as similar charges would be if made for electric light or gas. It will be recognized as absurd to suggest that a gas company should charge a fixed rate per year for each gas burner in a place of business, regardless of the number of hours that the place of business is open. The differences between the amount of gas used per burner in a store that closes at 5:30 p. m., and in a saloon which closes at midnight, or between an office which is on an upper floor of some well appointed and well lighted office building, and a shipping room which is in the basement of the same building, are so great that it is manifest that this flat rate method of charging would exercise the utmost injustice between customers—affording a long hour user a large amount of gas at a price which might not pay the company for the expense of the manufacture thereof, while the short hour user, paying the same price per burner, would be paying an extremely excessive price per cubic foot for the gas in order

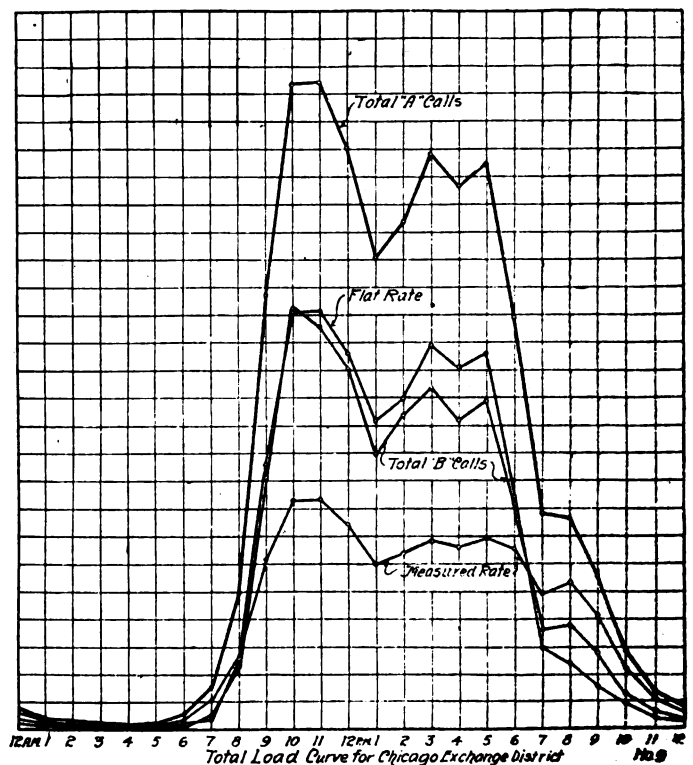


Load curve for the entire Chicago exchange district for August, 1900.

telephone service more economically, and the present measured rate users are therefore less expensive users to whom to supply service. A measure of the expense of the operating is to some degree indicated by the ratio of the maximum number of calls in the busy hour to the total number of calls per day in the exchange. This ratio is larger for the flat rate calls than for the measured rate calls in the Chicago exchange district. As shown by the twelve "peg counts" for 1906 the average ratio for the total number of originating calls is .1072, the ratio for the flat rate calls is .1185, and the ratio for all measured rate calls, including ten-party lines, is .0991, which indicates that the cost of operating for the measured rate calls is less than the cost of operating for the flat rate calls. Other peg counts show similar results.

Service inspection tests from the New York City exchange, which are operated almost entirely on the measured rate basis, show that the proportion of unavailing calls there is only about one-sixth of the total calls, and that the proportion of calls receiving busy reports is one-twelfth of the total calls. A comparison of peg counts for these two exchange systems indicates that the expense for traffic employees per station is lower in New York than in Chicago, and we conclude that this difference must be due to the measured rate method of charging for service.

We have pointed out earlier, certain cogent reasons why the line of the average flat rate subscriber costs the telephone company, as a rule, more than the line of the average measured rate subscriber, largely on account of the overloading of the lines and the increase of the unavailing calls by the flat rate subscribers' use; and the foregoing study of the load curves indicates further that the way in which the calls become distributed in the system makes it possible for the telephone company to arrange its operating force more economically to take care of its present meas-



Calls per hour Chicago exchange district, August 3, 1906.

that the losses entailed by the long hour user should be recouped to the company. This method of charging was in vogue by electric light companies in the earlier days of electric lighting, before electric meters were reasonably perfected. It was then usual to charge business houses a fixed

rate per incandescent lamp installed and connected to the lines, and residences a different and smaller rate per incandescent lamp installed, the assumption being that the residence would use the lights for fewer hours per day. This method of charging brought many electric light companies to the verge of bankruptcy, and as long as it was in vogue electric lighting remained a luxury. With the advent of charges for actual consumption (that is, measured rates), electric light came within the reach of the greater proportion of people who now use it, and the expansion of the electric lighting service was brought to a reasonable mark.

The meter question is one which creates some difficulty in the telephone field. Nickel prepayment telephone boxes provide for a large number of users. There are now in Chicago over 68,000 nickel prepayment telephones, and the number is apparently steadily increasing. In New York City the measured rate lines are individually equipped with meters in the exchange offices, and the Chicago Telephone Company has developed a meter which makes it impossible to register more than a single unit for each message over the line. We believe that this meter used in connection with the measured service lines that are not equipped with prepayment boxes will prove accurate and satisfactory, in case the city council grants the Chicago Telephone Company a franchise. This meter is arranged in such a manner that no record can be made until the connection with the subscriber's line has been set up in the manner required for making a communication. Thereupon the operator by pushing a button may cause the meter to register one unit, and however many times the button may be pushed thereafter, through oversight or malice of the operator, no additional messages will register on the meter until the connection has been taken down after the completion of the message and a new connection has been made, as upon receiving another call from the subscriber. This guards against an excess number of calls being registered against any subscriber through an oversight on the part of the operator. We see no reason why this meter arrangement should not prove commercially accurate and satisfactory, and we recommend its adoption for the instances of metered lines in case the Chicago Telephone Company should be granted a franchise.

We have allotted a great deal of time to the study of this question of rates and are convinced that the general use of measured rates results in improvement in the service by the reduction of unavailing calls and also results in the reduction of the average cost to the consumers through the elimination of useless calls from the various stations, and makes it possible to place the lowest rate for the least expensive service within the means of the largest possible number of people. We are also convinced that the general adoption of measured rate service will bring about a more uniform rate of calling during the day, which will make it possible to ultimately reduce the price per message, thus bringing about a further reduction in the average cost of telephone service, and especially a reduction to the large class of users which subscribe for telephones of the lowest cost.

A partial application of flat rates is practicable in connection with business telephones which have sufficient service to make it worth while to set aside a special line or lines for outgoing calls only, since such lines do not interfere with the convenience of others, and do not cause a piling up of unavailing calls, because their busy state in no wise affects calls coming from other lines. Such flat rate outgoing service lines must in each instance be accompanied by a sufficient number of incoming lines, to be furnished at a relatively small rental. A partial application of flat rate service may also be applied in connection with residence telephones and with neighborhood exchange telephones, and is here justified because the restricted character or restricted circle of use makes the average calling rate per telephone

relatively small and approximately equal for all users of the same class. In connection with residences this use of flat rates in a large city has some serious disadvantages, but its advantages probably overcome the disadvantages.

We gave some consideration to the telephone rates and grades of service in foreign countries, but found no basis for useful comparisons. The London telephone system is the only one comparable in size with the service given in Chicago, and it has only recently been brought to comparable magnitude. The measured rate seems to be there preferred by the engineers. The service in Paris and Berlin is notably bad and the number of telephones few. In some of the smaller foreign cities the service is apparently good, but good foreign service does not partake of the speed and accuracy demanded by American telephone subscribers. The slower speeds reduce costs; zone charges are commonly used, and the wages of employes are lower; and it is impossible to make an intelligent analytical comparison of the foreign with American rates.

#### TELEPHONE IN HER HAIR.

The use of the telephone has become so universal that it is apt to be credited with playing a part in nearly everything. It is expected to cure many evils and is also often charged with participation in matters of a decidedly peculiar nature. An instance is related by a Kansas City paper:

"John Hayes, chief of police, received a letter this morning from The Lady Citizens of Topeka. The letter said that they wanted to inform him of a mind-reading show that is headed this way. It told all about how the minds are read.

"The advance man comes to your town," the letter says, "and he looks up everyone in the telephone directory. Then he finds out all about them. When the show is pulled off there are a lot of tablets passed around among the audience for the persons to write their life histories on. Then they hand the tablet to a man who passes through the audience. About four sheets under where the person write there is another sheet covered with paraffine. This is taken to a dressing room and rubbed with carbon paper. Then it is readable. There is a small telephone from the dressing room to the woman who reads minds. She is standing in the center of the stage. The earpiece of the telephone is concealed under her hair. Then the life histories are telephoned to her from the dressing room."

"I wouldn't like to be that advance man," the chief said after reading the letter. "That must be a nice job, looking up everyone in town."

#### TESTIMONY FOR THE TELEPHONE.

Always hereafter will Mrs. Jennie Buck, wife of a Montgomery farmer, and her friends be loud in their praise of the telephone. The fact that one of these instruments was accessible at her home saved Mrs. Buck's life, as alone and her clothing burning and the house on fire, she was able to call for help, which came in the person of a neighbor's daughter, who answered the alarm call on the telephone. This use of the telephone adds effective testimony to its convenience and importance as a part of a home's equipment. Over and over again is a telephone used to summon help to fight fires, and in this respect alone to scores of farmers have telephones proven a profitable investment. In the matter of summoning physicians and the hours of time saved in thus securing their service, telephones have in countless cases been the means of saving life. More and more do telephones in rural districts, as well as in the towns and cities, prove their serviceability in times of dire need.



# OHIO TELEPHONE CONVENTION

*State Association of Buckeye Independents Held a Successful Meeting at Columbus*

By H. S. Cranfield

ONE of the most enthusiastic, interesting and helpful conventions ever held by the Ohio Independent Telephone Association was the 1907 meeting which convened at Columbus, O., March 28. Although it was a one-day event every minute of the time was profitably employed and the delegates agreed that it formed an important chapter in the history of the Buckeye state organization. Every one of the counties, excepting Hamilton—which contains Cincinnati—was represented by official delegates. There were visitors present from Independent companies in Hamilton county, but not as regularly accredited delegates from a county organization.

The convention met at the Hartman hotel. Frank L. Beam, president of the Ohio association, called the delegates to order and introduced Mayor Dewitt C. Badger, who welcomed the visiting telephone men to Columbus in a fitting address. Dwight E. Sapp of Mt. Vernon responded on behalf of the association, and in his remarks called attention to the wonderful progress made by the Independent movement in Ohio. As one of the pioneers in the contest against telephone monopoly Mr. Sapp had many interesting things to say about the early struggles of the men who blazed the way. He told of the first meeting of Independent telephone men which was held in a back room of the Chittenden hotel, April 12, 1895, when there were but three Independent exchanges in Ohio and these were at Mt. Vernon, Norwalk and Chillicothe. The speaker then pointed to the fact that to-day the combined capital stock of the Independent telephone lines of Ohio is over \$35,000,000. The three exchanges have grown into a system having 835 exchanges, and there are now 1,663 toll stations, while the number of telephones in service in the state is 270,720. The number of stockholders has risen from a hundred to 24,050. Independent lines and exchanges are now serving every one of the eighty-eight counties in the state except Hamilton county.

President Beam made his annual address, which showed in detail the work of the association in Ohio during the last year. The report proved that material progress was made in 1906 in the state. President Beam pointed out that while the strenuous competition of the past year has improved the telephone service it has also reduced prices. Securities of Independent companies, he said, have advanced to a point where no better investment can be found on the market than theirs. Although so much has been done in the past, he urged continued activity, and the most hearty co-operation among officials and stockholders until the state shall be fully developed. Mr. Beam said that at the present time every county except Hamilton shows a network of Independent wires, and even Hamilton county has a few Independent lines, and will inevitably be fully built in the future as the interests of the business men require such connections.

The following standing committees of the convention were appointed by the president:

Auditing—George H. Metheany, Lima; J. B. Rhodes, Zanesville; George A. Ford, Toledo.

Nomination—R. E. Hamilton, Toledo; A. J. Cullen, Elyria; G. A. Thorpe, Wilmington.

Legislation—W. G. Thompson, Hamilton; Dwight E. Sapp, Mt. Vernon; James S. Brailey, Jr., Toledo; Frank A. Davis, Columbus; C. Y. McVey, Cleveland.

Constitutional Amendments—W. L. Carey, Jr., Cleveland; H. P. Folsom, Circleville; H. C. Devine, Mt. Vernon

Secretary O. O. Welsheimer was unable to present his report as reports to him had been delayed, but promised the delegates to mail them a complete statement within sixty days. Ralph Reamer, the treasurer of the association, offered his financial report showing the organization to be in good condition. The following district reports were made by the vice-presidents of the respective districts: C. L. Norton, No. 1, Cleveland; W. F. Laubach, No. 2, Akron; J. B. Rhodes, No. 3, Zanesville; H. B. Folsom, No. 4, Circleville; W. Gilbert Thompson, No. 5, Hamilton; I. H. Thedieck, No. 6, Sidney; D. M. Odaffer, No. 7, Marion; R. E. Hamblin, No. 8, Toledo; Dwight E. Sapp, No. 9, Mt. Vernon.

At the afternoon session a number of interesting papers were read, including one on "Changed Conditions," by J. H. Ainsworth, superintendent of the Independent exchange at Dayton. Mr. Ainsworth was formerly manager of the Bell exchange at Columbus, and then was opposed to the Independent movement. In beginning his address Mr. Ainsworth referred to his change of heart and said he was only nine months old as an Independent telephone man. His remarks on competition, considering his conversion, were of unusual interest.

"I began my telephonic managerial career in 1888 with the Bell company in a town of 4,000 population," said Mr. Ainsworth, "and my first exchange had just twenty-nine subscribers (not counting extensions as is present Bell practice). The rates were \$48 per year for business and \$36 per year for residence within one-quarter mile of the central office, and, although we had party lines, they were not operated on the give and take principle as now—the company saving its cable and pole line and switchboard space and granting the subscriber a better rate because of the character of the service—not on your transmitter—they charged you more the farther you were away, and I had one subscriber who paid \$9.00 per month, but conditions have changed. Those were the days of the Blake transmitter, which worked so well that when this subscriber of mine, whose office was just across the street, talked to his \$9 per month telephone at his coal mine, he might just as well have stuck his head out of the window and conversed with the wide, wide world, and his conversation was almost a disturbance to the neighborhood, it was necessary to talk so loud. But conditions have changed, and he now talks with his people over long-distance transmitters, and transmitters, too, made west of the Hudson river. Those were days when a manager did not dare to order a new set of instruments until he had a contract signed up, binding the prospective subscriber down hand and foot, lest he change his mind, refuse to take the instrument and the poor, struggling licensee company have to pay the royalty anyhow, at least until the instrument could be sent back to Milk street."

The speaker then related his conversion to the idea that competition is good for the telephone user, and added: "What is true of Columbus is true of every other town where the Independent company has come to the rescue of the people, and Cincinnati's business men are beginning to realize that they have been buncoed too long. Cincinnati, thinking herself alive, is telephonically ten years behind her sister cities, and, at a conservative estimate, is losing the

appalling sum of \$10,000,000 yearly in trade, and millions more in excessive telephone charges. Unless she gets right on the telephone question, along with Omaha, Denver, Chicago, Milwaukee, Cleveland, Pittsburg, St. Louis, Buffalo, Philadelphia, and even Boston, unless she recognizes the changed conditions, she will be run over in a business way."

Cyrus Huling contributed an instructive address on "Telephone Securities," which showed that he had made an exhaustive study of the question. Stacey B. Rankin of South Charleston read a paper on "Co-operation Between Local and Long Distance Companies," and urged the necessity of first-class construction. James S. Brailey, Jr., of Toledo, discussed the subject "The Independent Telephone in the Public Eye." "Telephone Law in Ohio" was the topic handled by C. B. Matthews of Cincinnati, counsel for the Queen City Telephone Company, who criticized the United States patent office, which, he said, fails in one of its important objects, namely, the reward of inventors, most of whom do not realize on the value of their labor and study. He related the story of the obstacles placed in the path of Independents who tried to gain an entrance into Cincinnati. He urged the state association to exercise vigilance in keeping off the statute books laws inimical to the Independent movement. W. W. Fisher of Bellefontaine spoke on the subject of consolidation of interests of Independent companies. H. P. Folsom of Circleville read a paper on "Sterilization and Preservation of Telephone and Telegraph Poles," which will be found on another page of this issue of TELEPHONY. The formal part of the program closed with an address by James A. Allread of Greenville on "Power and Force of the Independent Telephone Association of Ohio." James B. Hoge, president of the International association, opened a discussion on the question of farmers' mutual companies springing up in various parts of the state and the extent to which they should be countenanced and recognized by the Independent companies. President Hoge desired some sort of an expression of the ideas of the association to carry to the International convention. Mr. Hoge said that in some instances these mutual companies were cutting in on Independent territory and becoming competitors of the Independents in a detrimental way. He suggested that many of these companies bought equipment from the same construction companies patronized by the Independent companies with whom they come in competition. Mr. Hoge thought the trouble could be remedied through the supply dealers, who, he understood, would be more than glad to co-operate with the companies in their endeavor to abate the alleged evil.

President Hoge's position was opposed by Washington Hyde of Darke county and A. W. Richardson of Salem. Mr. Hyde said the farmers' mutual companies have as much right to build, operate and construct telephone plants as anybody in the country. He eloquently appealed to the convention to give fair play to these men who were only now on the ground occupied in the beginning by the Independents. He said they were numerous in his part of the country, and that one company was building a toll line from Warren. "Let us not antagonize them," said Mr. Hyde. "Let us line up with them. We give free exchange service to one of these companies and the other day the company wanted to sell its plant to us. The problem will work itself out in time. Another rural company, and a joint stock company, too, with over 100 telephones, made a contract with us for \$4 per telephone for our service. Soon they will prefer to turn over their plant to us, and in fact offered to sell out to us. 'We are farmers,' they said, 'and you are business men. We do not want to run this business.' Let them run the business. It educates them. When we go into new territory we have to educate the people to the use of telephones. Now, why not allow them to educate themselves? Encourage them to do so and it will pay. They will consider us their friends. The Bell people tried to

get the same people I have mentioned to do business with them. If we hadn't got them the Bell people would. I would urge this convention to take no such step as contemplated."

On the report of the nominating committee the following officers of the association were elected: President, Frank L. Beam, Columbus; secretary, O. O. Welsheimer, Columbus; treasurer, Ralph Reamer, Columbus. The delegates-at-large to the International convention at Chicago in June chosen were: Frank L. Beam, Columbus; Dwight E. Sapp, Mt. Vernon; James B. Hoge, Cleveland; James S. Brailey, Jr., Toledo; W. Gilbert Thompson, Hamilton; H. P. Folsom, Circleville; I. H. Thiedieck, Sidney; G. P. Thorpe, Wilmington; J. B. Rhodes, Zanesville; C. Y. McVey, Cleveland; Louis Brucker, Mansfield; Cyrus Huling, Columbus; Frank A. Davis, Columbus; Washington Hyde, Warren; D. M. Odaffer, Marion; R. E. Hamblin, Toledo; Charles Hollender, Newark; George M. Adams, Millersburg.

The alternates-at-large selected were: L. H. Beatty, Ravenna; H. L. Clark, Ada; W. W. Morrison, Toledo; C. L. Norton, Cleveland; Leo. Fiehr, Piqua; Dr. C. Jones, Athens; A. J. Curren, Elyria; A. V. Hageman, Lorain; William Hoyle, Cambridge; L. George, Wapakoneta; Clarence Brown, Toledo; C. H. Granel, Painesville; C. R. Newberry, Ashtabula; J. K. Johnston, Sandusky; D. A. Yoder, Bowling Green; D. E. Fuller, Clyde; E. E. Knox, Portsmouth; C. H. Marvin, Urbana.

The district delegates named were: District No. 1, F. A. Knapp, Bellevue; E. L. Coen, Vermillion; District No. 2, W. F. Laubach, Akron; J. F. Smith, Cadiz; District No. 3, A. H. Doudna, Bridgeport; A. B. Hobson, Flushing; District No. 4, H. A. Marting, Ironton; G. A. Schleyer, Circleville; District No. 5, William B. Fee, Milford; Charles E. Biehn, Georgetown; District No. 6, John H. Ainsworth, Dayton; W. W. Fisher, Bellefontaine; District No. 7, George H. Metheany, Lima; J. A. Longwell, Van Wert; District No. 8, E. L. Barber, Wauseon; J. A. Steinkamp, Elmore; District No. 9, G. R. Johnston, Columbus; A. A. Whitney, Mt. Gilead.

President Beam made a happy speech thanking the convention for the honor bestowed and urging the same co-operation and loyal support that had made the association a success in the past.

The committee on constitution made a report, making but one recommendation, which was that the constitution be changed so as to permit of an earlier date for the convention, arranging it so the date would fall more nearly the middle of March. The present date was so near the end of a quarter that it prevented the attendance of bankers and members of loan and real estate men's associations because of quarterly settlements. The convention adopted the report and placed the convention date on the third Thursday in March instead of the last Thursday. The convention then adjourned.

In the evening the delegates attended a banquet, at which Dwight E. Sapp presided as toastmaster. Governor Harris responded to the toast, "Ohio," and Clarence Brown of Toledo to the toast, "Telephone Situation from the Point of View of a Professional and Business Man"; Henry A. Lanman, president of the Columbus Citizens' Telephone Company, spoke on "Changed Conditions in Telephone Securities"; Norman C. McLoud of Cleveland on "The Wireless Telephone"; Hon. C. R. Krickenberg of Greenville on "Hello!"; Dr. S. S. Palmer on "Modern Miracles," and Alfred Robinson, Ironton, on "Pride."

All the conductors of the country lines of the Westchester (Pa.) Street Railway Company have been equipped with telephones of a unique design, which they carry in their pockets. In case of need these telephones can be used at points a short distance apart on the line.

# KENTUCKY TELEPHONE CONVENTION

*Independents Held Their Second Annual Meeting at Louisville, April 16*

By Earl C. Long

THE Kentucky Independent Telephone Association held its second annual convention at Louisville, April 16, and the meeting proved to be successful in every particular: When President M. B. Overly called the convention to order in the "red room" of the Seelbach hotel, there were 138 delegates and representatives of Independent companies present. The convention hall was decorated artistically with flags, maps, shields and mottoes, and from the ceiling in the center of the room was hung a large lantern flying the Independent colors. In the four districts of the state are seventy-five operating companies, thirty-five of which were represented at the convention.

After President Overly had made his opening address the vice-presidents of each district presented a report showing the conditions in their territory, together with the growth during the past year. It developed, much to the surprise of many present, that in the state of Kentucky there are 41,640 Independent telephones as against 42,052 Bell telephones. When these figures were announced and the fact was pointed out that the two interests were on practically an even footing—even though the cities of Covington and Newport are as yet entirely undeveloped by the Independents—there was a round of applause that should have been heard by the co-workers all over the state.

Routine matters filled up the time until noon, but when adjournment was taken for luncheon, everything had been cleared away ready for the exchange of experiences and the instructive remarks that were on the program for the afternoon session. When the convention re-assembled at 2 o'clock, it was addressed by George S. Shanklin, president of the Fayette Home Telephone Company, of Lexington. He discussed Independent telephone securities in a way that riveted the attention of every one present. He spoke of the soundness of Independent telephone companies everywhere and the investigations that had been made of such companies by the two telegraph systems of the United States. He prophesied that the day would come when, for economic reasons, the Independent movement will absorb one system with its thousands of miles of pole lines already in existence, that could be quickly converted into long-distance lines. He also called attention to the boggy of deterioration in telephone plants by comparing in detail the deterioration of telephone equipment and the equipment of traction lines. Mr. Shanklin had studied the matter deeply, and he presented facts and figures to show that the deterioration in traction properties is nearly twice as great as that of the modern telephone plant.

A recital of conditions in Texas was given by J. L. Nunn, an ex-Kentuckian, now located at Amarillo in the Lone Star state. He referred humorously to troubles of a technical nature with which he claimed to be unacquainted personally, but dwelt seriously upon the troubles of a financial nature that he was experiencing in meeting the tremendous demands for increased service, for the reason that the development was growing away beyond anything he had ever before seen in a business way.

Various delegates from different parts of Kentucky followed with tales of experiences, crowned universally with success, and showing that the Independent movement was not only strongly entrenched, but a fighting organization of the highest grade. The fighting side of the telephone movement was graphically given by R. E. Cooper, of Hop-

kinsville, who, with his associates, had just brought to a successful close a struggle with the Cumberland Telephone & Telegraph Company in the adjoining state of Tennessee, primarily in the city of Nashville. When he closed with the modest statement that Tennessee had at last been freed and that the Independents could now build a telephone plant in any town or city in the state, the convention cheered loudly. The enthusiasm reached a climax when W. B. Stanfield, of Mayfield, Kentucky, told of the battles that had been fought by him and his associates in the western part of the state against the methods of the opposition. When he closed with the statement that in his part of the country they had made the Independent movement a political question and that no candidate for any office had any standing whatever unless he pledged himself as in hearty sympathy with the people's movement for freedom, the applause was without any restraint whatever.

The convention was brought to a close in the late afternoon after an election of officers for the ensuing year had taken place, which resulted in the election of M. B. Overly, of Louisville, as president; W. G. Turpin, of Henderson, as secretary, and J. W. Chambers, of Winchester, as treasurer.

All delegates were guests at a banquet given in the evening by the Louisville Home Telephone Company and the Central Home Telephone Company. Toastmaster Donald McDonald, in his happiest vein, called upon various men here and there throughout the banquet room for impromptu remarks, which kept the assemblage interested until about 11 o'clock.

In addition to the delegates from the various companies belonging to the association, representatives of telephone companies located in Alabama, Tennessee, Illinois and Indiana, which are closely connected by business and long-distance ties with the Kentucky companies, were on hand. Representatives of associations in other states were present in the persons of Jesse W. Wiek, of Indiana, and Albert Parlett, president of the Virginia Independent Telephone Association. About fifteen of the prominent telephone manufacturers sent their officers or general salesmen, who became more thoroughly acquainted with their Kentucky patrons, and enjoyed the hospitality of the Louisville companies.

## ILLINOIS MEETING IN MAY.

The third annual convention of the Illinois Independent Telephone Association will be held at the St. Nicholas hotel, Springfield, Ill., Tuesday and Wednesday, May 14 and 15. C. B. Cheadle, of Joliet, the secretary of the association, has extended a cordial invitation to all telephone men in Illinois and neighboring states to attend the meeting, and a large attendance is expected. E. R. Conklin, of Aurora, president of the association, will preside.

## WEST VIRGINIA TELEPHONE CONVENTION.

The second annual convention of the West Virginia Independent Telephone Association will be held at Wheeling, W. Va., May 9 and 10, in the National Telephone building. The officers of the state association are: President, W. C. Handlan, Wheeling; vice-presidents, First district, J. H. Wise, Cameron; Second district, W. M. Cayton, Parsons; Third district, J. W. Downs, Buckhannon; Fourth dis-

trict, Hugh Amos, Burnsville; Fifth district. Lon H. Hutchinson, Huntington; secretary, A. C. Davis, Parkersburg; treasurer, Lloyd Beeghley, Weston; member national advisory board, J. Walter Barnes, Fairmont; executive committee, W. C. Handlan, J. Walter Barnes, Lon H. Hutchinson, E. K. Hertford, A. C. Davis

An unusually interesting program has been arranged for the two-day meeting. It follows:

**THURSDAY, MAY 9. AFTERNOON SESSION—2:00 O'CLOCK.**

Convention called to order by President W. C. Handlan.  
 Reading of minutes of last convention by Secretary A. C. Davis.  
 Report of Treasurer Lloyd Beeghley.  
 Roll call of members and responses in talks of from three to five minutes on the local situation.  
 President's Address.....W. C. Handlan, Wheeling  
 "Telephone Associations".....E. K. Hertford, Charleston  
 (General Manager Charleston Home Telephone Company.)  
 Appointment of Committees.  
 General Discussion.  
 Recess.

**EVENING SESSION—8:00 O'CLOCK.**

Address of Welcome.....Mayor C. C. Schmidt, Wheeling  
 Response.....J. Walter Barnes, Fairmont  
 "The Future of Independent Telephony"  
 John A. Howard, Wheeling  
 (President National Telephone Company of West Virginia.)

**FRIDAY, MAY 10. MORNING SESSION—9:30 O'CLOCK.**

"Standard Construction".....Frank B. Hall, Rochester, Pa.  
 (Consulting Telephone Engineer.)  
 "Value of Good Toll Lines".....Frank Hart, Pittsburg, Pa.  
 (Supt. Long Distance Pittsburg & Allegheny Telephone Co.)  
 Discussion.  
 "Pooling of Toll Lines".....W. C. Handlan, Wheeling  
 (General Manager National Telephone Company.)  
 Discussion.  
 "The Folly of the Sub-licensee".....J. Walter Barnes, Fairmont  
 (General Manager Consolidated Telephone Company.)

**MORNING SESSION—CONTINUED.**

"Our Employees".....Lon H. Hutchinson, Huntington  
 (General Manager Huntington Mutual Telephone Company.)  
 Discussion.  
 Recess.

**AFTERNOON SESSION—2:00 O'CLOCK.**

Reports of Committees.  
 "The Right of Territory".....J. W. Downs, Buckhannon  
 (General Manager Buckhannon Telephone Company.)  
 Discussion.  
 "Independent Telephone Securities".....A. C. Davis, Parkersburg  
 (General Manager West Virginia Western Telephone Company.)  
 "Rural Telephones".....T. B. Lee  
 (General Manager State Mutual Telegraph & Telephone Co.)  
 Discussion.

Other topics for discussion will be depreciation, how charged, successful soliciting, successful operating, standardization of apparatus, toll traffic, how handled, our emblem, sources of revenues, improvements of toll connections, improvement of local service, relations of large and small companies.

The convention will conclude with a banquet, at which toasts will be responded to by the leading telephone men of the state and officers of the association.

**MICHIGAN MANAGERS MEET.**

The executive committee of the Independent Telephone Managers' Association of Michigan met at Owosso, April 15, and decided to hold the 1907 convention of the association at that city May 8 and 9. The convention will meet at 2 o'clock p. m., Wednesday, May 8. The program the first day will treat of "The Operating Room," while the second day "Toll Work" will be the subject for discussion. Following is the program for the two-day meeting:

**WEDNESDAY.**

Address of welcome, Mayor Dr. D. H. Lamb.  
 Response and opening address, F. V. Newman, President.  
 "The Chief Operator," Miss Margaret Heney, chief operator, Owosso exchange.  
 "Discipline and Department of Operators," Miss Fannie Hiddie, chief operator, Grand Rapids exchange.

"Information Department," Miss Amelia Kowlski, chief operator, Ann Arbor exchange.  
 "The Merit System with Operators," C. E. Smith, manager, Cadillac exchange.  
 "Service Reports," H. W. Sexton, wire chief, Owosso exchange.  
 General discussion, open to all.

**THURSDAY.**

"Thorough Business," B. L. Carson, manager, Bay City exchange.  
 "General Handling of Toll Business," Miss Inez E. Close, manager Pontiac exchange.  
 "Following Up Unfinished Toll Tickets," Mrs. Florence R. Gould, chief operator Battle Creek exchange.  
 "Co-operation Between Toll Operators," Miss Jessie D. Presley, manager Belding exchange.  
 "Information on Toll Tickets," Geo. F. Stratemeyer, traffic manager Grand Rapids exchange.  
 General discussion, open to all.

It is expected that many members of the association will bring their wives, and that all managers will send a large delegation of operators. The general managers of the several companies have been invited to make it possible for chief operators and other lady employes to attend this meeting, the central idea of the association being to have a program that will be interesting and helpful to the branch of the work in which they are employed.

Wednesday evening will be devoted to sociability, beginning with a dinner at 6:30. Following the dinner, Hon. Stanley E. Parkill will give a brief address, after which General Manager Charles E. Tarte of the Citizens' Telephone Company, Grand Rapids, will act as toastmaster for the evening. Following the social visits and toasts there will be an informal dance.

The Independent Telephone Association of Arkansas will hold its annual convention at Fort Smith, Ark., May 20. The convention will meet in the Casino, at Electric Park, and the Pan Long Distance Telephone Company, of Fort Smith, will make the stay of delegates and visitors a pleasant event. A. E. Boqua, general manager of the company, has sent out an attractive souvenir postal card showing the park where the meeting will be held.

The Missouri Independent Telephone Association will hold its annual convention at Kansas City, May 7 and 8. The Coates house has been selected as headquarters. An entertaining and instructive program has been provided.

The annual convention of the Indiana Independent Telephone Association will be held at Indianapolis, May 15 and 16. April 19 the districts in the northern and central parts of the state held their annual meetings to name delegates to the state convention. It is expected the question of exchange of toll service with the Bell licensee, the Central Union Telephone Company, will come up for discussion.

**TELEPHONE TALES.**

An ingenious superintendent of construction for an Indiana telephone company has hit on the novel plan of using a ferret to assist in installing an underground conduit. The little animal pulled through the pipes the rope to which the cables were attached and enabled the gang of workmen to do in an hour what would have ordinarily consumed many days. A strap was placed around the slender body of the ferret, and tied to this was a small rope to which was attached a larger rope. A large crowd of people watched the experiment. The ferret was pushed into the opening of the conduit, and at the other end, two blocks away, a piece of fresh meat was held. Attracted by the scent the ferret raced through the conduit, dragging after him the rope. Without the aid of the ferret the workmen would have been obliged to use a jointed rod, beginning at one end and screwing on joint after joint until it reached the other end. As soon as the ferret had gone through the conduit he was started through another and after a rest he made a third trip. This method was continued until all five conduits were threaded, after which the cable was pulled through.



# DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

CONTRIBUTORY NEGLIGENCE TO TOUCH SAGGING WIRE WITH  
PIECE OF METAL WHILE FORMER EMITS SPARKS.

A VERY instructive case setting forth the law with reference to the foregoing proposition has recently been decided by the court of appeals of Kentucky in which the administrator of the estate of one Edward Wescott recovered a verdict of \$15,000 against the Citizens' Telephone Company in the trial court of Campbell county. The facts upon which this verdict was rendered were as follows: "At the time of his death Edward Wescott was in the employ of the Chesapeake & Ohio Railway Company and the Louisville & Nashville Railroad Company as night gate operator, and was engaged at his business in the watch tower at the railroad crossing on Monmouth street, in Newport, Kentucky. In the watch tower there was what is called in the record 'a block signal telephone box,' which is a part of a line of railroad telephone used by the above mentioned railroad companies for their private business, but which is owned and operated by the Citizens' Telephone Company. The telephone line had sagged on John street until it rested upon the highly charged electric wire of the Union Light, Heat & Power Company, and had by this contact become itself dangerously charged with electricity, which it conveyed to the telephone box station in the watch tower. As soon as the dangerous current reached the telephone box it burned out the fuse and manifested itself by a buzzing sound. This unusual condition of affairs attracted the attention of Wescott, who said to John Shaw, the telegraph operator, who was with him in the tower, that 'the thing had a fit'; he thereupon began a series of experiments by placing his finger lightly against the box and withdrawing it so quickly as to make the sparks fly from the highly charged box. He also obtained a short piece of insulated wire, and, holding it by the insulated part, he placed the uninsulated ends to the box, making it emit a shower of sparks. This was begun in the early part of the evening, about dusk, and was continued at various times from then until about twelve o'clock, when he was killed. Early in the evening—two young men, who saw that the telephone line was crossed with an electric light wire at John street, came to the tower and informed the inmates, of whom Wescott was one, of the fact that the wires were crossed, and that the condition resulting was dangerous. Two policemen, who came into the watch tower during the night, before the accident, saw Wescott experimenting or playing with the charged box. Afterwards, as said before, he placed his hand upon the box in such a manner as to receive a shock that caused his hand to grip the box, and at the same time he was hurled to the floor, tearing the box from its fastenings on the wall, and killing him instantly." Upon these facts as brought out by the witnesses for the plaintiff the supreme court said there could be no recovery and accordingly set aside the above judgment, saying: "The courts have gone a long way in saying that the highest possible care should be used by those who manufacture and sell electricity, because the electric current being invisible and silent is difficult to discover and guard against in advance of its fatal effects, but the rule is so well established that it needs no citation of authorities to support it that where one knows of a dangerous condition, although it is brought about by the negligence of another, he cannot idly or wantonly experiment with it at the risk of that other."

*Citizens' Telephone Company v. Wescott's Administratrix*,  
99 S. W. 1153.

GRANT FOR LIMITED TELEPHONE PURPOSES TO WATER COM-  
PANY GAVE RIGHT FOR COMMERCIAL PURPOSES AS WELL.

A New Jersey case arose out of the following facts: In 1891, one Henry Hepburn made a deed to the East Jersey Water Company conveying as follows: "The right of way, over, through and across the lands hereinafter described . . . in and upon which to lay, operate and maintain a water pipe or pipes for the purpose of transporting water to the city of Newark . . . with the right to set up and maintain and operate a telephone or telegraph line or lines thereon and with right of egress and ingress for all purposes." The possession was retained in the grantor. Later this right was assigned by deed to the city of Newark and by it to the Northeastern Telephone and Telegraph Company. When the last grantee became the owner of the easement referred to in the foregoing conveyance it immediately went to work with the business of enlarging the number of wires and erecting new poles, etc., preparatory to engaging in a general commercial telephone business. Arrangements were made by which all the abutting owners excepting Hepburn were settled with in the matter of added burden by reason of the increase of the number of wires and height of poles; the latter refused a settlement and thereupon began cutting down the wires added by the telephone company. The matter reached the courts in an injunction proceeding brought by the telephone company in which it was decided that the above conveyance was general enough in its terms to permit the assignee, the telephone company, to make the additions it had planned and that notwithstanding the fact that the settlement had been made with other abutting owners, nevertheless, since there was no lawful right of objection by Hepburn to the action of the company, he had no claim to compensation or consideration. "The conduct on the part of the company (in settling) ought not and will not prejudice its right to the relief it asks in this court if such right is clear under its contract." Objection was made to the fact that there was an increase in the burden caused by the stringing of additional wires and the replacing of the old poles with larger ones and longer cross arms. The court said on this point that "by a telephone line or lines is meant a line of poles carrying an unlimited plural number of wires, and that such a line is not rendered plural in nature by having more than one wire stretched on it. It still remains a single line." The water company had only had two wires strung on the poles but the court held in answer to the allegation that the use of the words "line or lines" in the grant of authority was to be confined to a use within the scope of the wants of the previous grantee, the water company, that the telephone company being a purchaser of the grant in good faith, not having notice of any oral agreement or arrangement, was not bound in any way thereby and could proceed in any manner with the business of erecting a general commercial telephone system over the right of way which had been originally conveyed for the limited use above referred to. While the oral arrangement was to limit the use to the purposes of the water company for laying water mains and for stringing such telephone wires as it might need in its business, nevertheless the purchaser of the grant in good faith, not knowing of any such restrictions, was not limited thereby. "They (defendants) contend that the East Jersey Water Company had no power to take and accept a grant of a right of way to maintain a telephone or telegraph system. The answer to this objection is simply that it does not lie in the mouth of the grantor

of real estate or an interest in real estate, to set up that the grantee was incapable of receiving and accepting the title or right so conveyed. Only the public authorities can take advantage of this disability." The injunction prayed for was granted.

*Northeastern Telephone & Telegraph Company v. Hepburn, 65 Atlantic 747.*

DAMAGE FROM LIGHTNING BROUGHT INTO HOUSE OVER TELEPHONE WIRES REMAINING AFTER INSTRUMENT HAD BEEN REMOVED.

Another recent Kentucky case calls to mind the necessity of care in seeing to it that telephone wires left after the service has been discontinued are so protected that no damage can result from the above source. One Lewis Evans is the owner of a house and lot in the town of Proctor, Lee county, Kentucky, and in 1902 had telephone connection over the system of the Eastern Kentucky Telephone and Telegraph Company, which service was discontinued in 1903. The wires were left in the house after the instrument had been taken out. This condition continued another year and in the summer of 1904 during a severe electric storm lightning struck a tree upon which these wires were fastened and as a consequence was carried into the house, causing considerable damage. At the trial the court instructed the jury that there was no negligence and that there could be no recovery. An appeal was taken and the following statement of the law applicable was made by the Kentucky court of appeals: "It is insisted that the loss was due to the act of God, and that the plaintiff was as much responsible for the trouble as the defendant. While lightning is the act of God, the carrying of the lightning into the plaintiff's house was the act of the defendant, and it was a question for the jury whether the defendant had used such care as might be reasonably expected of a person of ordinary prudence under the circumstance. The plaintiff had ordered the defendant to take out both the box and the wires, and it was a question for the jury whether he, by his want of care, contributed to the loss, or acquiesced in the wires remaining in the house when he knew, or by ordinary care should have known, the danger. He had once notified the company to take out both the box and the wires, and though he knew that they had not complied with his request, he may not have known that they had so left the wires as to be a source of danger. In 27 American and English Encyclopedia of Law 1017, the rule is thus stated: 'In placing wires for conducting electricity into a house, a telephone company owes the persons living there the exercise of reasonable care, proportioned to the known dangers of the conditions, to prevent the wires acting as the conductors of lightning into the building, and it is liable for damage resulting from neglect to provide against this danger. Especially is it liable where damage from lightning occurs through its failure to remove its wires when the person living in the house has ceased to subscribe for a telephone.'" The case was therefore reversed and sent back for trial before a jury.

*Evans v. Eastern Kentucky Telephone and Telegraph Company, 99 S. W. 936.*

FIREMAN TAKES HIS OWN CHANCES WHILE ENGAGED AT FIRE FROM DANGERS OF CHARGED WIRES WITHIN THE BUILDING.

In a Nebraska case it was shown that a fireman was engaged in putting out a fire in a certain building and that in the progress of the work it became necessary for him to place a ladder between certain wires of an electric light company. While so engaged he received assurances from one Brinkman who was present to look after the property of the electric light company that the wires were "dead." In removing the ladder from between the wires he received

a shock which caused his death. Suit was brought for damages. Brinkman was present merely for the purpose of seeing to it that no more of the property of his company was destroyed than was necessary. The question arose whether this statement of Brinkman that the wires were "dead" placed actionable negligence on the company. The court held that no duty rested on the company under the circumstances to warn the fireman of the danger and that in removing the ladder, even after the statement that there was no current in the wires, the fireman was still bound to take his own chances on the consequences. While the case was against an electric light company it serves to emphasize the proposition that under such circumstances firemen must rely on their personal knowledge of dangers from currents from wires at such times. The statement of Brinkman was a mere opinion and not coming from a person in authority in the company, the latter was in no way at fault.

TELEPHONE CONVERSATIONS IN EVIDENCE ADMISSIBLE IN ILLINOIS THOUGH WITNESS DOES NOT KNOW OTHER'S VOICE.

In a suit to recover for certain drafts paid by the Ham National Bank in favor of the Godair Commission Company, the testimony of one Peavey, the cashier of the bank, was to the effect that an agent and stock buyer for the commission company had been in the habit of calling on the bank for the payment of drafts drawn by him on the credit of the commission company; that on the occasion in question he called up the commission company and asked for Mr. Godair, who lived in East St. Louis, and was informed that Godair was not at his office; that later the commission company called up the bank and said that the party wanted was in, whereupon Peavey inquired if the drafts would be paid and was notified that same would be done. Peavey testified that he did not know the voice of Godair and on this ground objection was made to the admissibility of the conversation. The supreme court of the state said as follows in deciding this proposition: "In the case of *Wolfe v. Missouri Pacific Railway Company (Missouri)*, 11 S. W. 49, substantially the same question presented here was passed upon by the supreme court. It was there sought to introduce a conversation had by telephone between a witness and some person in the business place of one of the parties to the suit. The evidence was held admissible. The court said: 'When a person places himself in connection with a telephone system through an instrument in his office, he thereby invites communication, in relation to his business, through that channel. Conversations so held are as admissible in evidence as personal interviews by a customer with an unknown clerk in charge of an ordinary shop would be in relation to the business there carried on. *The fact that the voice at the telephone was not identified does not render the conversation inadmissible.*' While the weight to be given to such conversation is to be determined by the jury, we think the reasoning of the Wolfe case satisfactory, and in our opinion the court did not err in admitting the evidence." It will be noted that the rule on this point is different in some other states, notably Washington and Pennsylvania.

*Godair et al. v. Ham National Bank, 80 N. E. 407.*

One of the strongest Independent telephone companies in Canada, La Compagnie de Telephone de Bellechasse, has changed its name to "La Compagnie de Telephone Nationale." Dr. J. F. Demers, of Levis, Quebec, secretary and treasurer of the company, writes TELEPHONY that the concern has obtained an amended charter from the provincial parliament, which grants enlarged powers and authorizes an increase in the capital stock. The new charter gives the capitalization as \$1,000,000, and limits the future issue of capital stock to \$5,000,000.

# CONVENTION PAPERS

## Some Interesting Addresses Made at Recent Independent Meetings.

### DEPRECIATION.

THE question of depreciation is one that requires our most careful consideration. It is one of the most important factors in calculating the earnings and success or failure of our investments. There is a wide difference of opinion as to the proper percentage to be placed to the credit of this account and the proper method of handling the account. Depreciation is the loss upon your assets, which are diminishing in value from year to year.

When our plants were first constructed for about 500 to 800 subscribers (which was usually a fifty per cent increase over the Bell list), the cost per subscriber's line complete was about \$55 or \$60, including the switchboard. By adding to this plant in the way of overhead cables and wires, additional switchboard and operators, it was possible to use this equipment and construction with fair results until the 1,000 mark was reached, when it was found necessary to entirely rebuild the system, in most instances placing cables underground in the business section, replacing the outside pole construction with heavier and longer leads, put up new cables and take down the old. The exchange, having outgrown its usefulness, must be discarded and an up to date, common battery, lamp signal, multiple switchboard installed, with all the necessary expensive apparatus entering into its construction and operation. The old equipment, while not being worn out, if sold at all, would only bring about ten per cent of its original cost. One reason for this heavy depreciation is owing to the rapid improvement in telephone apparatus, which makes second hand equipment practically worthless. About the only material that can be used again is the poles themselves, and most of them must be changed or taken down and reset in another place, making them cost about two-thirds as much as new; and if the shortened life had been taken into consideration, the cost could be figured at about the same as new. The overhead iron wire which has been in the air subject to the city smoke for five or six years has been practically destroyed by corrosion and rust. Aerial cables that have been up for six or seven years are found in most instances to have depreciated to such an extent from crystallization, improper handling and wear and tear as to preclude the possibility of their being used again. The crystallization of the lead sheath is caused by the vibration of the pole line, due to wind and other causes, such as street car overhead construction, when same is directly or indirectly attached to the pole line. In this connection it might be well to call attention to the very rapid deterioration of aerial cables crossing and attached to bridges. The vibration is so great as to cause an absolute destruction of an entire cable in as short a period as two or three years.

In order to properly house this new and expensive central office equipment and insure it against fire, it is necessary to abandon the old quarters and construct in most instances a fire proof building as a central office. This entire rebuilding of the plant for an exchange of 2,500 to 3,000 will cost on an average of about \$120 per line, so that it is safe to say that almost the entire original investment has been lost through depreciation. Depreciation enters largely into your maintenance expense, and should be very carefully taken in your calculation when you are figuring on your dividends and net earnings. The methods of ascertaining the proper amount to be placed to the credit of this account are many and productive of very different results, as to the correct charge. Owing to different conditions, the difference in construction, and handling of the several properties, it is impossible to lay down invariable rules. I believe all practical telephone engineers maintain that from ten to twelve per cent should be allowed.

It is safe to say that on plants of first-class construction the telephone leads them all in the matter of depreciation. It is calculated that on electric railways the figures are from five to eight per cent, on electric light plants five to ten per cent, but on telephone construction eight to twelve per cent.

When the plant is new the percentage is probably considerably less than ten per cent, but as the construction grows old, it increases from year to year until it is considerably more, and probably reaches as high as fifteen per cent, so that if the actual depreciation charges were ascertained, and made from year to year, the rate would so increase as to become a burden upon the property in the latter years of its operation almost too heavy to bear. Reconstruction due to rapid increase, enters very largely into this calculation, as the depreciation upon material taken down will average from fifty to one hundred per cent, if it has been in service any length of time.

Whatever rule or method is determined upon should be very closely adhered to for several years in order to demonstrate its

accuracy. If we determine that the life of our plant is ten years and therefore the depreciation ten per cent, we should use practically the following table (for which we are indebted to Keister's "Corporation Accounting"):

On original cost—

Depreciation percentage	YEARS:									
	1	2	3	4	5	6	7	8	9	10
10	10	10	10	10	10	10	10	10	10	10
Repairs	1	2	3	4	5	6	7	8	9	10
Total ann'l charge	11	12	13	14	15	16	17	18	19	20

That which leaves a residue of value under any circumstances should be depreciated upon its diminishing value, and as our plants will leave a very material value at the end of ten years, we should consider carefully the following table:

On diminishing value—

Depreciation percentage	YEARS:									
	1	2	3	4	5	6	7	8	9	10
10	9	8.10	7.29	6.56	5.90	5.30	4.78	4.30	3.87	3.51
Repairs	1	2	3	4	5	6	7	8	9	10
Total ann'l charge	11	11	11.10	11.29	11.56	11.90	12.30	12.78	13.30	13.87

For illustration: If our plant costs say \$1,000 with a determined life of ten years, depreciation ten per cent, we make the following deduction:

"That which expires in 'life,' leaving no residual value should be divided by the given number of years for that life upon its original cost."

This \$120 with the residual value of \$34.89 makes up the total charge of \$155. You will see that depreciation on the original cost is therefore a writing off of the actual capital without having the residual value.

We believe that the general practice with most companies is to charge off to depreciation a sufficient amount of the surplus earnings to cover whatever per cent they may decide as the proper amount to charge to this account. This earning has, however, in nearly all instances been used in extensions and renewals and does not represent actual cash. It is very convenient to be able to use this fund and then dispose of the excess earnings in this manner, without declaring additional stock in dividends, but the question arises, is it the proper procedure. I maintain that it is not; there is only one safe way in which we can possibly provide for our future, and that is to establish a reserve fund and annually or semi-annually set aside to the credit of this fund a certain amount of the gross rental from each instrument in service, or carry to this fund a certain percentage of your total investment not less than three or four per cent in actual cash, the same to be held as a reserve, to be drawn upon in extraordinary emergency or to reconstruct your plant in ten years. This reserve will stand as a protection against your investment. Your securities would take a standing among the best because they would be guaranteed by a cash backing that would insure their value.

If there are those that object to the cash reserve fund, I would suggest that a certain percentage of the amount of earnings expended on new work every year, be charged to betterments which would reduce the apparent earnings and at the same time keep down the maintenance and repairs expense, enable you to make a good showing and fortify yourself in a manner against the future. If something of this kind is not done, the inroads made by depreciation will put your balance on the wrong side of the ledger.—*Paper read by H. A. Douglas before the Iowa Independent Telephone Convention.*

### OUR RURAL FRIENDS.

We all have our rural friends or subscribers, and I think we can all honestly say that our farmer subscribers give us less trouble, in the way of kicks and complaints about the service, than any of our town or city subscribers. So we can truly say they are our rural friends.

But the trouble occurs with our mutual farmer companies and in some cases we are unable to call them our friends, and the question we are constantly asking each other is, how shall we deal with the mutual farmer companies? And I wish to say to you that this is a very hard question to answer, for each locality has its own conditions to meet and what would answer for one company could not be made to meet the requirements of another, but what we all want is that the mutual farmer companies do not lose sight of the fact that it was through the efforts of the Independent telephone

companies of the state of Michigan that made it possible for the people of the rural districts to be able to talk to their neighbor, town or city, and until the farmer companies have this fact firmly fixed in their minds it will be up-hill work dealing with them.

The trouble with farmer companies is that they get what is commonly termed "the big head." When I say this I do not mean each individual member of the company, but only as an organization, for in each farmer company you will find men of good sound judgment who know what is just and fair as between man and man. They think because they have one hundred to two hundred members or even a less number that the eyes of the whole state are fixed upon their little company and they think they can dictate any terms and that there shall be no deviation from those terms whatever. They simply lose sight of every legal or moral obligation they owe to the Independent telephone companies.

Our farmer friends as a class are a peculiar people with which to deal, their independence and remote positions making it all the harder, and our success depends on our ability to get and keep close to them and make them feel that we are their friends indeed and not from purely selfish motives.

It is useless to enumerate the difficulties that have come up to disturb our business relations, as we are all more or less familiar with them; but the question is, how shall we overcome these difficulties to our mutual advantage? The country telephone problem is very much different from the town or city; as much so as any two different lines of business. We must, therefore, make a close study of both conditions, but more especially the rural, and try and work out some plan whereby we shall be able to keep our farmer friends with us and not let them be led astray by our enemy, for as we all know it is the rural business that the Bell people at this time are making a special effort to secure and they are doing this with misrepresentations and false statements which our farmer friends find out when too late.

So let us all make a closer study of rural telephony and see if it is not possible to find some way and formulate some plans whereby we may induce the farmer companies to join with us, for it is an old and true saying that it is better to have them with us than against us.

What the Independent telephone companies do not want to lose sight of is that the agricultural interests of a country are pre-eminent; prosperity on the farm is prosperity in the town or city. The season of good crops is the season in which all trades and industries are active and profitable.

Before the manufacturers can work up to full capacity, they must have supplies of the raw material which come from the farming sections. The wool, the cotton, the lumber and the wheat come from the farm lands to the feeding and housing of the overcrowded cities and towns. All these products brought to the market, our farmer friends receive the ready equivalent in the money which will buy for them the conveniences, luxuries and necessities, made possible by the skill and genius of this advanced age.

Is it any wonder that the first thought of our farmer friends is the possession of that combination of convenience, luxury and necessity, the telephone and telephone service? And if they wish telephone service, let us see to it that they have it, if there is not as much profit in this kind of service as some others. Build, own and control the lines built out to our farmer friends and we shall find less complaint about service, less petty annoyances and no danger of lines being connected with those of our competitor, the Bell. And to our farmer friends who own their telephone lines, remember to whom you owe the credit for making it possible for you to enjoy the privilege of telephone service which you now have and co-operate with them and not with the people who tried to keep service from you.

My farmer friends, do you know what co-operation is? Co-operation is like charity and begins at home. Co-operation between two companies is facilitated by success, pleasantries, mutual understanding, close acquaintance and overlooking each other's faults, eliminating all shams, underhanded dealings, sharp practices, autocratic manners and other elements of human nature and you will be "it" with a capital I. Do not be afraid that the Independent telephone companies are trying to get the best of you, for that is not so. We want you with us. Do unto others as you would be done by and you will have no cause to regret it.

Several years ago the Bell telephone company controlled the whole territory in the United States, but developed only the larger cities and towns. The demands of our farmer friends for telephone service were given no attention. Not until the Independent movement had become so popular did the Bell company try to develop the rural territory; not until thousands of telephones were installed by the Independents did the Bell company sit up and take notice. But now this wolf in sheep's clothing, finding he cannot harm the larger Independent companies in the cities and towns, has turned his attention to the rural districts, spreading discord and strife, and is offering our farmer friends sub-licensee contracts and renting them instruments at sever dollars per year and other schemes to make a break in our territory. If our farmer friends will stand by us shoulder to shoulder, back to back, and co-operate and help, each with the other, we shall surely win the victory, remembering that no one ever really succeeded who climbed over his

friend's shoulders to get there. But carry your friend up with you, and should our friend be somewhat unreasonable in his demands do not turn him down cold without careful investigation, for what is done in haste is sometimes repented at leisure. Ever bear in mind the old maxim, "A thing well begun is better than a thing overdone."—*A Paper read by A. B. Fishback before the Michigan Independent Telephone Convention.*

#### DEVELOPMENT OF LONG DISTANCE BUSINESS.

In presenting this paper to you, I do not make the claim of originality, but that the condensation of methods, if carried out, would aid in increasing the revenue from the long distance lines. I will not dwell on the conditions of the toll equipment, lines, number of circuits, etc., as it is an old adage that "a wise mechanic does the best job possible with the tools in his possession"; therefore, I take it for granted that a wise traffic manager will try to build up his business to the points he can reach the most satisfactorily, not trying to induce subscribers to use lines to points to which they will be unable to talk, as it is very difficult to get business back after being lost through poor service.

The method we have used in introducing new connections is as follows: I find that it is less difficult to advertise new lines from the smaller city or town, as there are fewer people to reach, so when you have a line in first class condition, it is well to give free service for a few days from the smaller city or town. The people there will take advantage of it and call up those in the larger city who are in the habit of calling them, thereby advertising the fact that there is a new line to talk over. You will have some one calling up to ask the state of the weather and other unimportant things, but if the connection is satisfactory it will do no harm, as they may say a good word that will be beneficial at some future time. The next thing to do, after the free service is over, is to have one of your pleasant voiced operators call up each subscriber who may have cause to use the line. She should use good judgment in getting some one in authority to talk to, and should be well posted as to what to say, which should be something along this line: "Is this Mr. Jones? This is the long distance department of the Home Telephone Company. I wish to inform you that our new lines to Allentown have been completed and we can give you first class connections with Allentown, Scranton, Wilkesbarre, Wayne and all other points in eastern Pennsylvania. Would be pleased to have you try our lines the next time you talk to any one in that locality." This will usually start them asking questions about other points, so the operator will have to be well posted as to all points reached. She should keep a record of all questions of importance asked her, turning this into the manager. This will give very good material for the solicitor to work on later. This method of calling up the subscriber I consider a very beneficial, effective and economical way of advertising.

Now comes the circular letter. This should be typewritten and addressed properly to each person or firm and should say what lines have been completed to various points, stating briefly anything of special interest, and should be as short as possible to insure reading. You should always have something catchy in the way of advertising slips to inclose in each letter mailed by the company, no matter to whom it goes. The usual newspaper, bill boards and street car advertising may be used at the manager's discretion, as this runs into money fast and will have to be governed by the conditions and the results expected. The work of the solicitor now follows. In introducing new lines it is well to use the message pass, this to be given out by the solicitor or manager. I think this system of giving free service works more satisfactorily in larger cities than the universal free service mentioned before for smaller cities, as you are enabled to place them where they do the most good, and also to ascertain to whom they converse. The passes should be in book form, about twenty-five in each book, with stub attached. On the stub should be the number of pass and to whom issued. To go with this you should have a test call ticket printed for the toll operator. This slip or ticket when filled out gives the solicitor something to work on when he makes his return visit. There are many other styles of advertising that are beneficial, but I have not the time nor space to elaborate on each separately. As you are familiar with the coupon system, I will not discuss that in detail, but will give our way of handling it. The first work for the solicitor to do is to induce the subscriber to use the lines, however little it may be, keep close record as to the extent used, and as soon as the amount justifies, call and sell him a small coupon book, increasing the size as his business increases. I have made out monthly a statement covering the amount of toll used by subscribers using in excess of one dollar per month. This statement covers six months, always dropping one month as the new month is added. In this way I can tell whether each subscriber's business increases or decreases. This is valuable information as to the size of the coupon books they should have.

Careful records should be kept of the amount of traffic over each line outgoing, incoming, through and the maximum day. These records are of great importance, as they show whether you are getting the proper amount of business over your circuits and when you require new circuits, so as to invest the money you have to



spend in improvements where it will do the most good. There is one peculiarity about the telephone business—it will not stand still. It is bound to go ahead or back, so with the best of methods and the best of tools on earth for conducting business, there is still one element necessary to insure against your being classed with the "also rans" and that is covered by the one word "hustle."—*Paper read by Frank Hart before the Pennsylvania Independent Telephone Convention.*

#### STANDARDIZATION OF TOLL LINE EQUIPMENT.

The question of standardization has occupied a prominent place in the minds of telephone engineers and operators since the advent of the Independent movement. There are few problems in connection with the telephone business so full of possibilities both for good and for evil as those which confront us under this head.

When we speak of the standardization of toll line equipment, there immediately arises in our minds the idea of telephones and switchboards all built of uniform design, with similar parts of various makes interchangeable; and without hesitation we plunge into the argument as to the advisability of such an arrangement. A second thought, however, gives us a broader vision. When we speak of "toll line equipment" we have to do with things other than switchboards, circuits and telephones. We have to deal with all the physical accessories necessary for the carrying on of toll line business.

A short time ago a very significant interview took place between the general manager of the Chicago Telephone Company and a number of Chicago Aldermen. The manager was defending the Chicago Telephone Company's right to a monopoly of the telephone business in the city of Chicago. His principal argument was that the Chicago Telephone Company was the only company qualified to give efficient long distance service. Why? Because they were affiliated with the American Telephone and Telegraph Company. And why could not other companies compete with this company for long distance business? Because the American Telephone and Telegraph Company was able, because of its monopolistic power, to control its terminals and by means of "standardizing" its equipment to "harmonize" its service. His answer was pregnant with meaning. Every clause could be made the subject of a text book. Standardization was the means, "harmonization" was the end and monopoly the agent.

King George scoffed at the thought of harmony among the colonies just as the "dictator" in Boston scoffs at the possibility of harmony among Independent telephone companies; but history has demonstrated the fact that the path of progress lies in the direction of harmony without a dictator.

Toll line equipment naturally falls under six distinct divisions:

1. Central office equipment.
2. Station equipment.
3. Line equipment.
4. Accounting equipment.
5. Advertising equipment.
6. Miscellaneous equipment necessary for the efficient organization of various companies for the purpose of handling inter-company affairs.

It would be utterly impossible under the limitations of the present occasion to enter into the details of each of these topics. Therefore, I must be satisfied to endeavor rather to impress upon the minds of my hearers the importance of further discussion and careful consideration of the problems set forth.

Early in the history of railroad engineering it was found necessary to standardize along a few fundamental lines. For instance, the tracks must all be of the same gauge, the trucks of the same height, the couplers so constructed that all kinds of cars could be coupled together. In the same general way must we standardize switchboard and station apparatus. Absolute standardization of this apparatus would do for telephony what Buddhism did for China. However, such fixed principles should be laid down as a basis for construction of toll line, switchboard and station apparatus, governing circuits and mechanical accessories, including the quality of the material entering into the construction of such equipment, as would preclude the possibility of cheap apparatus being palmed off upon the unskilled purchaser, and thus destroying the efficiency of a service which otherwise might be excellent. It is true that the leaks due to low resistance coils bridged across the line at the terminal points cause a far greater loss of talking efficiency than the actual resistance or capacity of the line. I have found that at least seventy-five per cent of the chronic cases of toll line trouble at the stations belonging to and connecting with several of the largest toll line companies in the state have been caused by circuit trouble that could be easily avoided by following a standard set of circuit specifications.

The standardization of line equipment is easier of accomplishment from the standpoint of the engineer. It is absolutely essential at the present stage of development. During the Russian-Japanese war the Trans-Siberian railway service failed because of one weak point, causing untold disasters at the front. Just so a toll line is no stronger than its weakest point.

Standard construction is necessary before there can be any just apportionment of profits between connecting companies. At this time,

when the Independent companies throughout the state are combining to build toll lines and heavy trunk lines for carrying long distance business, it is especially necessary that they immediately confer and agree upon a set of standard specifications, and thus avoid the injustice and the almost endless trouble and controversy sure to result unless standard construction is employed by the different companies which are parties to long distance traffic arrangements. Such an arrangement is not new or unheard of. The Long Distance Telephone Association has adopted a set of standard specifications for long distance lines which it has published in book form. Such a publication indorsed by the state association and agreed upon by all of the long distance companies doing business throughout the clearing house would, when put into practice on all new lines, work wonders in the way of increased efficiency of long distance service, and greatly increase the capacity and earning power of long distance lines.

When we think of station equipment, in the light of our past experience, it almost makes us weep. By station equipment I mean not only the telephone bridged on the toll line, but all of those devices used by long distance companies to get connections through the smaller exchanges of Independent and mutual concerns. All kinds of arrangements are in vogue. A collection of the apparatus now in use by a large number of companies would be a valuable addition to the national museum, provided each were tagged so as to indicate to the telephone man of the future the use to which it had been put.

It is this apparatus more than any other that has crippled Independent long distance business. To any one not familiar with the results being obtained by the various companies over the state, the amount of "failed business" due to imperfect station circuits and local conditions is almost unbelievable.

The superintendent of a company controlling a number of long distance lines and exchanges recently had occasion to inquire of one of his station agents why a certain extensive user of long distance lines did not give the Independent company more of his long distance business. The agent replied that he could not give first class service to the stations most used by his patrons and consequently the business went to a competing company. Thereupon the superintendent immediately required the local agent to furnish him a list of the parties called by the patron and immediately notified the agents at those stations to place the lines of the particular parties wanted in first class condition, soldering all connections, and giving the lines and instruments a thorough overhauling. He also instituted a careful inspection of the office equipment and all defective circuits and equipment were rearranged or replaced. The results were all out of proportion to the effort.

Stations whose agents or managers had been for months complaining of poor lines suddenly found that the old and supposedly worthless circuits were giving a fair grade of service. The business at the station referred to was nearly double. Letters to connecting companies in some cases met with prompt and cordial response; in others a curt denial of any existing trouble at that station. Where co-operation and to a certain extent standardization was secured excellent and in some cases surprising results were obtained, bringing about great benefit to all concerned. Where co-operation was refused, the same old story continued, and the local companies are still "roasting" the long distance company and its lines, which are giving excellent service to all but the "kicker."

Here is a lack of harmony, due in the first place to a lack of standardization and, secondly, a lack of standardization, due to a lack of harmony. And here, too, is a loss of thousands of dollars annually to the companies represented at this convention.

Standard accounting has already received considerable attention, and the result is the clearing house. There remains but one other subject—standard advertising. There are but two "systems"—the Independent and the Bell. Systematic advertising pays. If you doubt it just follow the policy and the results obtained by our competitors.

Iowa has the name of being the foremost state in the Union in its wonderful telephone development, yet we see our sister states, Missouri, Illinois, Indiana and Ohio, taking the lead in an effort to standardize and harmonize. Thus far we have only scratched the surface, but we have discovered traces of hitherto unthought of sources of wealth. Present properties may be increased in usefulness and consequent value, and undeveloped resources may be uncovered by a concerted effort in this direction. It is my firm belief that all companies interested in Independent long distance business would receive large returns on their investment by referring these questions to competent and energetic men, with instructions to work out the details and prepare for action.—*Paper read by W. J. Stanton before the Iowa Independent Telephone Convention.*

#### THE STERILIZATION AND PRESERVATION OF TELEPHONE AND TELEGRAPH POLES.

In maintaining telephone, telegraph, electric light and inter-urban railway companies, one of the greatest problems that confronts the management is the inevitable depreciation of the outside construction work of the plants. One of the largest items of this depreciation account is that caused by the rotting of poles.

The importance of this subject will be appreciated when we say

that there are 250,000 miles of telegraph pole lines and about 500,000 miles of telephone poles in the United States, making a total of 750,000 miles. It is safe to say that these lines average thirty-seven poles per mile, making 27,750,000. The poles used for electric railroads and electric light plants will make an addition of 5,000,000, or a grand total of 32,750,000 poles. This is in accordance with the government report of 1902. It is estimated that there were over 40,000,000 poles in use by the above companies in the United States at that time. The value of these poles, placed in the ground ready for use, will average from \$5 to \$7 each, or about \$200,000,000. This vast amount of property is exposed to the weather and is constantly decaying; this decay goes on day and night and is as certain to cut the pole down as death is certain to overtake man and cut him down.

It seems strange that, with all the boasted scientific knowledge and great inventive genius of the American people, they allow over \$200,000,000 worth of property to remain exposed to the ravages of these destroying bacteria and fungi with scarcely an effort made to find a remedy. It is evident that if some means can be found to destroy this germ at the soil line, and at the same time protect the pole from the attack of those which remain in the surrounding soil, at a reasonable cost, the great problem of the depreciation of telegraph and telephone poles is solved. If the life of the pole from the surface of the ground up and down a few inches can be prolonged ten or twelve years, it will add millions of dollars to the values of our telephone plants, and the stocks and bonds of all companies that use poles will be vastly increased in value.

The average life of a white cedar pole is said to be from twelve to fifteen years; it varies, however, owing to its condition when placed in the ground and the nature of the soil and climate. All poles and posts rot off at or near the soil line. The decayed portion extends a few inches above and about three or four inches below the soil line, the depth below being governed largely by the nature of the soil. The portion of the pole from the soil line to the top will last many years. Indeed, there is reason to believe that it will last three times as long as the portion that goes into the ground. Again, millions of poles are being used each year to replace the ones that rotted off. The Bell company used over 500,000 poles in one year to replace old ones. Vast areas of forest are being denuded of poles each year, and they are constantly growing scarcer as well as more expensive. Where the telephone and telegraph companies are going to procure their poles in the next ten or twenty years is indeed a problem worthy of the most careful consideration.

It is a singular fact that it is only of recent years that the true cause of the decay has been discovered, although there have been experiments made for the past forty years to preserve poles. It would be interesting, if time permitted, to follow the many experiments in Europe and America in this line of investigation. Indeed, our own many failures and successes in the past six or seven years would not be uninteresting. In many ways we have been fortunate. We have had the benefit of the experiments of the most learned scientists that have preceded us in this line of investigation; their mistakes as well as their successes have aided us. There is no lack of literature on the subject of preserving timber, covering the past seventy-five years. Since the germ theory of disease was recognized as true, the subject has engaged the attention of some of the most accomplished bacteriologists and microscopists in this country and in Europe. The United States department of forestry in the past two years has been experimenting with the co-operation of the Western Union Telegraph Company in the preservation of telegraph poles. The result of their work has not been made public on account of the time engaged being so short. The great trouble with most of the work done is the experimenters have been endeavoring to sterilize the pole before placing it in the ground. Our endeavor has been to sterilize and protect the poles already in the ground.

It has been proved beyond question that the decay which takes place at or near the soil line of the post or pole is caused primarily by living organisms—namely: bacteria or fungi, and in some rare instances by insects. Bacteria and fungi are low forms of life; they multiply when once they attack the pole with great rapidity, and since their action on the fiber of the wood is practically the same, they will be considered in this paper together. They attack the walls of the cells and the result is the familiar decay or rot under consideration.

There are two conditions necessary for the existence and rapid growth of those living germs of destruction: First, there must be a certain amount of dampness or water; secondly, there must be a certain amount of heat and, some scientists claim, a certain amount of oxygen. This, they claim, is shown by the fact that bacteria and fungi do not ordinarily affect the pole more than a few inches below the soil line, unless the soil surrounding is very loose or porous. It has been observed that a line of poles running through a pasture field where there is grass growing will be more quickly attacked than in any other situation. Again, a line of poles situated on the north side of a hill will be more quickly attacked than if on the south side, provided the soil is loose and porous. A pole under water will not be attacked by fungi and bacteria, neither will it when surrounded by soil containing certain chemicals. A few years

ago it was thought by telegraph and telephone companies that, if the dirt was heaped up around the pole, thus leaving a certain amount of drainage away from it, no decay would take place at the soil line. Experience has shown that this was a mistake, as the pole was attacked just the same, only a little higher.

It will be observed in passing that the great enemy of the telephone pole is the same that attacks millions of railroad ties. The conditions surrounding a railroad tie are more favorable for the rapid growth of the bacteria and fungi than in the case of a pole. They lie flat on the ground, constantly absorb moisture, and, being exposed to the rays of the sun, have the two necessary conditions for rapid growth. The problem of protecting and sterilizing railroad ties is a much more difficult one than we have to contend with in the case of telephone poles, although it is generally supposed by experimenters that this is not the case.

Realizing the great importance of this subject, we began our experiments in the use of antiseptics six or seven years ago, although some of our experiments in the preservation of posts and poles have extended over a period of nearly twenty years. We directed our attention to poles that were in the ground and already infected. We believed if it were possible to save the life of a pole which had already been attacked and was partially rotted off, it would be a comparatively easy task to sterilize and protect a pole which had lately been placed in the ground. We believe we have found a means to sterilize poles in the ground that is practicable and certain, and that, too, at a cost which is reasonable and much less than the natural depreciation will amount to.

We cannot better explain our process and give you the results of our experience than by relating some particular instances of our experiments. We were very desirous of making a thorough test, one that would conclusively demonstrate the efficiency of the process. It having been demonstrated by a long line of experiments that the cause of decay at the ground line was a bacteria or fungus growth induced by a certain amount of moisture and heat from the sun, it was obvious that in order to sterilize and save the life of the pole, we must use an antiseptic that would penetrate the pores of the wood. We selected a class of poles that had been in the ground for about eight years and which were thoroughly infected with germs; indeed, some of the poles upon which we experimented were over half rotted through, and could not have lasted two years under the most favorable conditions. They were so weak that they would not have survived one severe storm. We dug down around the pole about eighteen inches and with a pointed instrument scraped out and away all the rotted wood; we then applied our antiseptic chemicals in a plastic form with a trowel, filling all the holes and depressions even with the surface of the pole. We next placed around the pole an especially constructed asbestos jacket that would resist the action of the elements, such as rain, snow, freezing and thawing. We filled in between the jacket and the pole antiseptic material in a powdered form, to the top of the jacket. We allowed the top of the jacket in some instances to remain open so that it received all the rain and snow that fell and which might run down the pole. In others we placed a cap over the top of the jacket. We were careful in mixing our antiseptics to use none that would cause the pole to become brittle and thus weaken it. We found that in all instances after a period of over six years, our antiseptics had completely sterilized the poles where applied and the decay was entirely arrested. In fact the poles were in as good condition as when the treatment was first applied. We carried our experiments further and treated a class of poles that had not been in the ground more than two or three years, the surface indications of which showed only slight infection, but the sappy portion had begun to scale and the cracks exhibited unmistakable signs of decay. We did not attempt to clean off the decayed portion of this class of poles, but treated them by placing the jacket around the pole and depositing between it and the jacket our antiseptics and then sealed and fastened the collar above referred to. The jacket on these poles was about eighteen inches wide, extending below the ground about fourteen inches, and above the ground about four inches. Upon examination of this class of poles six years after treatment they were found to be completely sterilized free from the effects of the bacteria and fungi. No signs of living fungi could be discovered under a powerful microscope.

We are fully aware that the success of this process depends very largely upon the question of expense. We have made some figures based upon our experiments which show that the cost is within the reach of all companies and can easily be paid out of the depreciation account and still leave a handsome surplus.

Suppose we take a plant of 5,000 poles costing \$5 each, in the ground fully equipped. Their original cost would be \$25,000. At the end of twelve years they will have to be renewed at a cost of \$25,000. Counting interest for twelve years on the last \$25,000 at \$18,000, it would make a total cost for twenty-four years of \$68,000. Suppose we take the same plant and apply the treatment. We find the original cost of the 5,000 poles to be \$25,000. The cost of sterilizing them after they have been in the ground two years would be \$1.25 each or less, amounting to \$6,250. The interest on this amount for twenty-two years would be \$8,250, making a total cost for twenty-four years of \$39,500. It will be seen

then that the cost for twenty-four years without treatment would be \$68,000, while the cost for twenty-four years with treatment would be but \$39,500, showing a profit in favor of treatment of \$28,500. It will be perceived that if the pole is preserved intact, with full strength for ten or twelve years by means of the jacket and chemicals, and it is removed or entirely gone, at the end of that time, the pole will be in the same condition to resist the fungi that it was when first treated, and will have its original strength and life.

Again in our calculations we have not taken into account the increased amount of trouble that always accompanies the use of old poles the last few years of their lives. This item of the maintenance account always increases as the poles grow older and weaker, and should be placed on the credit side, where the process is used. Then again, in all human probability, poles will be at least twenty-five per cent higher in value twelve years from this time. If that be the case, the cost of the new poles when they have to be renewed would be \$6,250 more and the interest on this increased amount for twelve years would be \$4,500, making \$10,750 more to be added to the profits of sterilizing, or a total of \$40,375 in twenty-four years.

In all candor we ask this convention of business men if this is not worth looking after.

The telegraph and telephone companies have been taught and led to believe that the life of a pole is about twelve years; they have been taught to believe that the decay at the ground line is inevitable, and the time of its usefulness cannot be extended. We have demonstrated that the life of a pole can be nearly, if not quite, doubled by the use of the above method of treatment.

I will add that Dr. Howard Jones (my coworker in these experiments) expects to publish at no distant day an account of his studies of the bacteria and fungi which cause the decaying telephone poles. The scope and technical character of his experiments make it impossible to give an account of them in this paper.—*Abstract of a paper read by H. P. Folsom before the Ohio Independent Telephone Convention.*

#### SHOULD TROUBLE MEN BE EQUIPPED WITH A TECHNICAL EDUCATION.

If I had been asked to confine myself to one word, yes or no, in answering this question, I would, without hesitation, say yes. But as the only limitations placed on my answer are my ability and your patience, I will endeavor to expound, expostulate, elucidate and explain my reasons for arriving at the above conclusion.

To begin with, the duties of a trouble man are to locate and remove trouble from lines, cables, telephones and switchboards. After the trouble is located, its removal will depend as much on his mechanical skill as on his technical education, but to locate the trouble is sometimes the harder part. In order to properly diagnose a case the doctor must know something of the nature of the disease and anatomy of his patient. It is just as necessary for the telephone doctor to know something of the nature of electricity and to have a knowledge of the general construction and "modus operandi" of the apparatus under his charge.

There are some who pose as trouble men who do not know the first principles of telephonic transmission and this is no argument against my position. Of course they know how to produce electricity; everybody knows that; all you have to do is to turn the crank. Such men destroy more apparatus than they repair.

Some of these men in time make successful trouble shooters. They get their education in the school of experience. This is one of the most popular schools in the country. Among its students are many bright, successful men and many dunces. It has no faculty and gives no diplomas or degrees, and only graduates its students at their death; yet tuition is apt to be high. All honor to the school of experience. The man who gets his education there—if he gets it—is as worthy as though he acquired it in a school of technology. Nevertheless my advice to young men that have an ambition to become telephone men is to equip themselves by taking a course in some good technical school. If they get to know too much for the position of trouble men their employer will no doubt promote them or fire them according to whether he places the same estimate on their abilities that they do themselves.

This brings me to the point, how much education should a trouble man have? And I would answer, all he can get. He never will know it all. He ought to have enough at least so that when a complicated case of trouble arises his knowledge will enable him at once to reason out the cause of the trouble and the remedy. He ought to understand the use of testing apparatus and know how to make all necessary tests. He ought to learn to first locate his trouble before he begins tearing things to pieces. He ought to learn his own limitations and know what to let alone. He ought to know what to do in case of trouble and why he does it. If he should learn something more than all this, he need not be alarmed, it will not hurt him any. But some may ask, "What is the use of learning a lot of things that we never use?" The same question might be put to any of the students in our schools and colleges. A certain professor in one of our colleges lately told his class he wanted them to forget everything he taught them as soon as examinations were over. He said education was not a mere accumu-

lation of facts, but rather a training of the mind, a developing of the reasoning faculties, a broadening of the intellect. Nature has done much for us in giving us two hands; many wonderful things can be done with them, yet a fine tool placed in them will enable many things to be accomplished that could not have been undertaken without it. So also nature has done much for us in giving us a mind; many wonderful things can be done with it, but an education pushes back the horizon of its possibilities as the tool does for the hands. What is true of education in general is also true of a technical education for the trouble man. He can do things with it that he could not do without it; he is a better man and worth more to his employer because of it.

On the other hand, how often it is we see a young man with exceptionally bright talents along some particular line, yet so filled with conceit that he thinks that nature has done all for him that is necessary, and no one is more surprised than himself that he remains all his life in the ranks. He has refused to avail himself of the opportunities of education, and his ignorance has blinded him to his own possibilities.

I once knew a civil engineer who quit smoking because he thought it tended to dull his mind. He said he could not afford any habit that would weaken his powers. Neither can a trouble man afford to miss any opportunity to add to his knowledge or increase his usefulness. Yes, trouble men should be equipped with a technical education.—*Paper read by P. R. Crouthers before the South Dakota Independent Telephone Convention.*

#### BETTER TOLL LINE SERVICE.

I fear the time will never come when we will not feel a pressing need for better toll service in some localities in the state of Iowa, for on account of the rapid increase of toll business, lines that could handle all toll messages satisfactorily twelve months ago, are overtaxed to-day which causes a congested condition of toll service in nearly every part of the state.

The facts are, we live in an age of progression in all things and in nothing more so than in the telephone field.

The time has been when the farmer was content to ride to town with his family in a lumber wagon, using bed quilts for robes with which to keep warm, but times have changed as they rightly should, and now the farmer must have a covered carriage for the boy to take his sister out riding and if he has no sister, then some other boy's sister; there must also be a two-seated surrey and a fine, young team for the family at large to go to town and church, etc. Now there was a reason for this change.

First, the old lumber wagon and span of heavy horses were too slow and too much valuable time was lost in making the few short trips they were in the habit of making, and as their business increased their so-called trips increased also; hence they found it necessary to change from the cumbersome lumber wagon and heavy horses to lighter and easier riding vehicles.

The same condition holds good in telephony. There was a time when the old wood back transmitter, single pole receiver and grounded toll line were perfectly satisfactory to telephone users for with the aforesaid equipment we could talk fairly well to our nearby towns, and if we desired to talk farther some operator on the line had plenty of time to repeat our message for us and on account of this repeating process the line was used but very little and there was no danger of the same becoming congested, consequently if it took thirty minutes to get a message through it was the best we could do and no one could find fault; but like the case of the farmer, as our toll business increased we found the old way too slow and too much valuable time was lost by this repeating process and the necessity of more and better facilities for handling this ever increasing toll business and telephones better adapted for the required service.

The manufacturers have certainly done their part in giving us the solid back transmitter and double pole receiver, equipment second to none for long distance service, but however good the telephone may be, we found the grounded toll line too slow and too indistinct to satisfy our necessities and we again felt the pressing need for improvement.

The next step forward is the copper metallic line. We run one copper circuit perhaps and say, now surely our trouble will cease, but ah! how soon are all our hopes blasted, for some day as we step into the toll office we find the toll operator with from three to six messages lying on the table, and she, poor girl, trying her best to get the line just for one moment, but is informed that the line is busy. This shows a clear case of toll line congestion and causes us to lose many messages to our enemy, the Bell, which should and might be handled satisfactorily by the Independent companies.

What we need to-day is to discontinue the use of all grounded toll lines and place in lieu thereof copper circuits and more of said circuits in congested districts.

Of course, I know that it requires capital, labor and brains to build good, serviceable copper circuits, but Iowa, the best state in the Union, has plenty of each of these requisites and some to spare.

It is true that some of the Independent companies have done nobly along these lines, but a few companies cannot build the necessary lines for the state and we are so selfish that should they

offer so to do we would object to their crossing what we term our individual territory. This disposition is all wrong, for if for any reason we do not wish to cover our so-called territory with necessary metallic circuits, let us welcome Independent companies that will do so, extending to them the right hand of fellowship and help the good work along by renting or giving to them toll line privileges over our telephone pole lines.

You will notice that whenever the Bell's agent approaches an Independent exchange owner to induce him to become a sublicensee of the Bell, his great argument is the better toll line facilities he has to offer over the poorly constructed, grounded line in some localities, and in others the congested condition of the Independent toll service, and the facts are that this toll business presented in this light to the struggling exchange owner by the Bell agent (whether true or not) appeals to the whole five senses of his nature, and too often if he is not a deep, dyed-in-the-wool Independent, he makes the sad mistake of his life by joining his force with that of the enemy.

I say these things appeal to the whole five senses of his nature, which are hearing, seeing, feeling, tasting and smelling, for when he talks with his neighbor he wishes to hear him if he is at all interested in his business; he wants to see his business keep pace with the requirements of his patrons and in this way he hopes to be able at some time to taste of a few of the good things of this life, and he realizes that in order to do this he must feel a few honest dollars coming his way and he has no desire for the smell of brimstone which is liable at any moment to come from his patrons over poor toll line service.—*Paper by O. F. Blasler read before the Iowa Independent Telephone Convention.*

#### SHOULD INDEPENDENT AND MUTUAL COMPANIES CO-OPERATE.

I believe the telephone business has increased more rapidly than any other business. It has grown from the business man's convenience to the farmer's necessity. In 1902 the report of the United States census bureau shows that the state of Iowa had 710 exchanges, sixty-eight of which were Bell and 642 Independents. The figures submitted to the executive council for taxation purposes for the year ending July 31, 1905, show there are 138,818 Independent telephones and 27,260 Bell telephones. According to clearing house reports the farmers are among the largest users of telephones in the state, and through their demands the greater service developed. To the credit of Iowa she has twenty-two per cent or nearly one-fourth of the rural telephones in the United States.

I have been a member and director of our farmers' mutual company ever since its birth and feel interested in the farmers' movement, and know that farmer mutual companies in general over the state are not supplied with as satisfactory service as we. Possibly this is true because they themselves and the Independent companies operating the exchanges in the towns where they desire switching do not for the benefit of each other realize the necessity of the square deal plan.

One thing more than any other that is keeping the farmer and Independent companies apart is the inducements the Bell company is throwing out. A few years ago they were burning Independent telephony at the stake, destroying the property of any one who dared build a competing system and claiming that they alone had a right to the tree of life, but the law of justice prevailed giving other men the right to build and maintain competing systems which have outgrown the monopoly system five times. A short time ago they would not look at a farmer, they would not even give him a hearing, but somehow they have recently discovered that he is the backbone of the future telephone business as well as the backbone of the nation. Now they are breaking their necks to get that bone, they know their body can't stand firm without it. They are offering switching service at the loss of the entire cost of giving same and my farmer friend, who is not apt to think twice before he jumps, is apt to think "that looks good" and step in. But to me it sounds like this: "Will you walk into my parlor," said the spider to the fly, 'tis the prettiest little parlor that ever you did spy.'" Remember the tale?

We know the Bell's rates before they had opposition and where they have opposition now. Patrons are getting both telephones as cheap or cheaper than they were getting the Bell service alone. Should it be necessary to have two telephones to get the service? I say no. Then what is the solution? As the state of Iowa has about as many rural as Independent companies, let us set the example by uniting with the Independents on the square deal plan, working together as one Independent company and helping ourselves by helping each other, instead of striving for position to plant our field artillery so that we might knock the stuffing out of each other.

The Bell argument is that if we would connect with them we could talk to Boston, New York, etc. True, we can if we have money enough to pay the bill, but telephone service is not valued by the number of miles of naked wire we have at our disposal, but by the number of patrons in our immediate vicinity who have the same switching connections as we. If we will endeavor to work out the square deal plan that our state agent is promoting, we will establish a system whereby we can talk to each other from coast to

coast. It may be as necessary for us to suffer a few inconveniences as it was to use the old flint lock of 1812, but Independent telephony will reign.

What is necessary for us to do to get together? First let all of us make up our minds to get together then stay together till we get together. Be fair with each other. Don't charge your farmer patron a rate that will make him feel sore every time he calls some one, he is the half of your existence. Farmer friends, don't ask your city exchange to give you the earth free. I know by experience that he can't do it and you will have better service if you don't get it. Don't ask for less than a ten cent rate between switching stations. He can't keep his system in shape and give good service for a less rate. Give him the assurance of getting reasonable compensation for his time and investment. Encourage an Independent long distance toll service, be willing to pay a reasonable rate for it and it will come. Then we will enjoy the fruits of the square deal plan and Independent telephony.

Should we co-operate and remain Independent, and why? This would seem like a foolish question to put before the generations that have lived under the banner of the Stars and Stripes that were saved at Bunker Hill, when the British yoke was thrown off forever; when free thought, speech, church, press and liberty were proclaimed; government for the people by the people, nor will the American people ever submit to a monopoly or sovereign rule. Then why should Independent telephony mean less than telephony by the people for the people, when all the companies can meet and adjust their differences? We must have a uniform toll and rental rate that is reasonable to the patron and will insure the investor proper compensation for his time, investment and maintenance of a first-class service.

There is one thing sure if we do not co-operate and maintain Independent telephony, we will be dependent on a monopoly system for our service and we know what that means. I hope the farmers' mutual and Independent companies will grasp the situation and take hasty steps to work out the square deal plan, which if carried out will solve the problem of one service, one telephone.—*A Paper read by William Crownover before the Iowa Independent Telephone Convention.*

#### THE TRAFFIC ASSOCIATION.

In the work of the traffic association this year there were no very decided changes from our work of last year. The amount of business has shown a very gratifying increase each month over the corresponding month a year ago and acts as an automatic register, which shows what companies are gaining and how much and also what companies are losing and how much. Needless to say there are very few of the latter class.

At a traffic meeting held June 15, 1906, I made a report to the traffic committee, showing the work which had been accomplished during the fiscal year, which closed May 31, 1906. In this report I stated that during the year the association had cleared 212,524 messages, an average of 17,710 per month; the amount of traffic cleared being \$53,850.79, an average of \$4,487.81 per month.

The cost of clearing our first year's business was two and three-tenths cents per message or nine per cent of the cost. At the Battle Creek convention I predicted the cost for the second year one and two-thirds cents per message. The actual cost, however, was \$3,005.67, which equaled one and two-fifths cents per message, which is considerable less than five and three-fifths of the gross interchanged toll line earnings.

At a previous committee meeting, Mr. Howard, chairman of the auditing committee, gave a report on the check error account which showed a balance not accounted for of \$2,465.64; the cause of this large balance being that certain companies were totally ignoring their error reports as they were sent from time to time. Action was immediately taken which resulted in the balance becoming less and less until at the close of the fiscal year, May 31, 1906, there was only \$1,253.61 to be accounted for.

Out of a total of \$10,843.20 check errors, which have been accounted for, \$4,886.78, or forty-five per cent have been acknowledged and pro-rated. So far for the third year we have cleared seven months' business with a total of 145,370 messages amounting to \$35,496.87. Taking this as a basis we will have cleared at the close of the year business amounting to \$62,566.08 or a total of \$9,000.00 more than the preceding year. Out of this \$36,496.87 we have cleared \$2,666.15 which has been the result of our check error work and has been pro-rated to the companies.

Michigan, with its 100,000 telephones, 10,000 circuit miles of toll line, handled during the year 1906 about \$270,000.00 worth of toll business; twenty-two per cent of which will pass through the clearing house. For the fiscal year of 1907-1908 the indications are that the amount of business will be greatly increased, because of the development which has taken place in all parts of the state. The proposed development of the Home Telephone Company of Detroit and its long distance company, the Peninsular Telephone Company, I believe will add directly or indirectly about 25,000 telephones to Michigan's total. The development of the property of the Southern Michigan Telephone Company will probably add several thousand more, which, of course, will cause



more trunk toll line circuits and more local and interchanged business. The connections for Michigan-Indiana business, which we have every reason to believe will soon be completed will enable a great deal of interchanged business between the two states, which has heretofore, of necessity, been turned away; and as soon as we receive the Chicago connections, which are now promised us there will be still a great deal more. I merely mention these few indications because the larger the amount of business handled by the traffic association the less will its cost per message be.

The reports of the several companies have shown a steady improvement throughout the year, first, in getting the reports to the association on time; second, the routing and third, the accuracy of reports. The improvement on accuracy of the report is shown in the amount of toll business as greatly increased, while the amount of check errors has remained about stationary, if anything has decreased somewhat. In regard to the routing, we still find considerable confusion each month; one company reporting business to a certain point via a certain route and the receiving company reporting the same business by all together a different route, which makes it hard for the association to know just what to do. In most every case we have taken the originating company's routing, but in some cases the difference has caused a question to arise in our minds, which after investigation has caused us to change the routing on the reports. We would therefore urge that every company give this part of the work as much attention as possible.

In closing I wish to thank every company for the co-operation and help which they have given me so freely at all times during the past three years and to urge upon you that you are welcome to examine the records of the association at any time you may desire. We are always glad to receive friendly criticism or suggestions.—*A Paper read by W. S. Vician before the Michigan Independent Telephone Convention.*

#### ECONOMICAL FINANCING.

The economical and successful financing of the modern telephone plant is a matter which should be considered carefully and with a view to the future by all who engage in the business, for in the careful building of the financial foundation on which the superstructure of the business is to stand depends the ultimate success of the enterprise. Without this adequate preliminary financial preparation the chances are strongly against the success of the business, for it is a peculiar fact that the larger the growth of the telephone exchange, the greater the cost of maintenance per telephone, bringing with it an ever increasing demand for capital to carry it along.

Before engaging in the construction of a telephone plant the ground should be examined carefully as to what will be required for present needs in the way of equipment, and in addition to this due consideration must be given to the probable growth of the future. Having determined as accurately as possible the size and cost of the plant which will be required for present service and also what may be necessary in succeeding years, it is a wise plan to incorporate for at least double the amount which it is planned to put into the plant at the start. On the organization of the company it is well to distribute the stock as widely as possible among the local investors. Every stockholder is a friend of and active worker for the company. Each man so interested exerts his influence in its favor.

The fifty per cent of the stock not sold should be kept in the treasury with the view of being used if required for additions and improvements to the plant as the growth of the business demands.

As an additional means of financing the company, it is well to issue bonds to the amount of about half the stock issued, and so far as possible these bonds should be placed with local investors, thus further strengthening the local feeling in favor of the company. These bonds should bear six per cent interest and may be made to run the usual length of time for such securities.

In the construction of the plant none but the best and most approved telephone appliances should be used. In the long run the best is always the cheapest, and with the plant equipped in the modern manner, the service which is rendered to patrons of the exchange will be far more satisfactory and freer from complaint than if a cheaper and a less approved apparatus is installed.

Rates for service should be placed at a figure that will allow the company to operate with net annual earnings of from fifteen to twenty per cent. Of this sum the stockholders should be paid semi-annual dividends of three per cent and the balance should be used as a fund from which to pay extraordinary repairs, such as are occasioned by sleet storms and other unfavorable weather conditions, and with which every telephone company is called upon to contend. From this fund must also be taken renewal repairs and it must also carry the item of deterioration, it being a well known fact that the life of the average telephone plant does not exceed fifteen years.

In this paper it is not my province to enter into a discussion of detail management of the company, but so far as this branch of the business relates to the financing of the plant I would say that if the labor of the men who organize the business and who make the outlay is to be successful and the stockholders are to have a satisfactory return on their money invested, there must be a most

careful and practical management on the part of those entrusted with the daily work of the plant. The manager must be a man of ability and one who has a thorough knowledge of every detail of telephone construction and management. He must select his assistants with the view of getting the best service and hold them to strict account for the conduct of their various departments. In the business office a complete and systematic, yet simple, system of accounts should be kept, from which regular statements showing the condition of the business and the amount of business transacted, with its receipts and expenditures, may be made. The matter of collecting quarterly rentals should be followed up closely. All telephone rentals should be collected quarterly in advance and all toll line charges should be collected each month. In short, the auditing department of a telephone company could be conducted along clear cut, well defined business lines.

One other point suggests itself to me and that is, if Independent companies are to make a complete success of their business and hold the field against the encroachments of trust telephones, they must devote special attention to the toll business, extending their toll lines in all directions, making good connections with other exchanges, and covering the field so thoroughly that there will be no opportunity for competition. These toll lines should be built in the best and most permanent manner, using copper whenever possible and certainly on all main leads. Every effort should be made by the management to give the public a prompt and satisfactory toll line service, and in this, as in all other matters affecting the common good of the Independent companies, they should work harmoniously together.

If the telephone company is given careful thought and planning in its preliminary financing, and its operation is conducted along the business lines which I have indicated, coupled with an intelligent effort to secure new business and to take care of that which is in hand, the success of the enterprise is assured from a financial point of view.—*A Paper read by A. T. Averill before the Iowa Independent Telephone Convention.*

#### FAIR EXCHANGE VS. FREE EXCHANGE.

Is the fair exchange plan, as used by the Blackhawk Association, more profitable to the farmer company than free exchange, in point of service, finance and otherwise? We will first endeavor to define fair exchange and free exchange.

What is fair exchange? Our definition is equal or proportionate division of tolls for messages transmitted over the lines of two or more companies, between or among said companies. To illustrate equal exchange we will take for example our Farmers' company exchange at Finchford and the Corn Belt company's exchange at Cedar Falls. We have a toll line connecting the two, each company having built and owning one-half of it. All tolls for messages transmitted both ways over this line are equally divided at the end of each month between the two companies.

This is fair and equal because each company owns one-half of the line and performs one-half of the service.

Proportionate division of tolls may be classed as of two kinds: First, through immediate exchange of two companies, and, second, among several companies over whose lines the messages are transmitted. To illustrate the first: The Corn Belt Telephone Company owns all of a toll line connecting our Finchford exchange with its Waverly exchange. All tolls for messages transmitted both ways over this line are divided proportionately, the Finchford Mutual Telephone Company receiving one-fourth because it does not own any part of the toll line and the Corn Belt Telephone Company three-fourths because it owns all of the toll line. Again, the Finchford Mutual Telephone Company sends messages to Des Moines or to some other point beyond our immediate exchange. All tolls for these messages originating with Finchford are divided proportionately, Finchford receiving one-fourth of all out tolls and the other company or companies three-fourths, each other company receiving its proportionate share. This in our part of the state we consider fair exchange.

Free exchange, what is it? Briefly, it is talking from one exchange to another without paying a direct toll. Notice the words "direct toll." We will try to explain them later on.

Financially there is no comparison between free exchange and fair exchange. Fair exchange gives to every company, large or small, an income which free exchange does not. It puts money into the treasury and helps greatly to pay expenses which must come to each one. It adds life and interest to the business of every company, creating independence and helping to place them upon a substantial foundation for growth and progress. No business can be successfully transacted upon a free basis, not even the telephone business. There must be some source of income to meet expenses. In the telephone business the fair exchange plan gives one important source of income which every company needs, and should and may have. Here let us emphasize this one important fact, that we must, or every telephone company must have an income, and that the toll business between each and every company on the fair exchange plan is of vital importance to the suc-

cess of every company as well as to the success of Independent telephony throughout our country.

The successful farmer well knows that he cannot conduct his business without expense or without some loss, and wisely provides means to meet them. So also should every telephone company provide means to meet expenses and make up losses, and in connection with this let me say: Consider well the fair exchange plan. It will please you, not only the large company, but the small company as well. It cannot fail to bring us all into right and pleasant relations and unite us in one great family whose home is our country. Harmony, peace and good will to all are three important factors in the progress of mankind. We have these in Blackhawk and immediately surrounding counties since we adopted fair exchange.

In speaking of free exchange we wish to say that our company started out with a strong free exchange idea. We thought everything ought to be free after building the exchange. We did not then know that it costs to maintain an exchange even after it is built. Personally, I clung to the free exchange idea for some time or until something better was offered, that of fair exchange. By this time we had learned that an income was needed to keep up the exchange, and having attended our district association meetings and become acquainted with our neighboring telephone companies whose representatives were advocating the fair exchange plan, we readily adopted it.

Financially and from a business standpoint, so called free exchange in general is a failure. It gives no income and, in general, unsatisfactory service. It is unfair, because one man pays just as much for sending five messages as another man does for sending twenty or more messages. How does it come that we pay for messages when we have free exchange? We told you before that free exchange was talking from one place to another without paying direct toll. However, an indirect toll is paid in the form of assessments which are made to meet expenses. Do you call this free? An assessment of one dollar per member is made for expenses. Some of the members have used the lines once perhaps, while others have used them ten times, but the former pay just the same for one message (\$1) as the latter do for ten messages (\$1). Do you call this fair? The same expenses come to every company, whether adopting so called free exchange or fair exchange, and let me impress upon your minds the fact that the fair exchange plan is far ahead of the free exchange or assessment plan, and especially so to farmer companies. Our own farmer company at Finchford has tried both plans, first free exchange, and the last year and a half fair exchange. Since adopting fair exchange we have had no assessments and we have plenty of money in our treasury, whereas before we had none. If our company wishes to make any improvements to better its service (and it is not in any rut) it does so at any time and is not obliged to beg its patrons for money as it had to do with free exchange.

In regard to service a well equipped exchange, which is always possible with the fair exchange plan, will give far better service than a poorly equipped exchange too often found where free exchange prevails. Let us sum up free exchange in the following words, which we give you from our own experience: Lack of funds, poor equipment, poor service, overloaded trunk lines, discontent, lack of best interests of the company. My farmer friends, if there are any of you here to-day who have free exchanges, we want to recommend to you the fair exchange plan. When you go home from this convention, talk it over with your people and your neighboring companies, if any there be that are not represented here to-day, and endeavor to secure its adoption, so that unbroken toll line connections may obtain throughout our state on a fair and practicable basis.

To any other Independent company, large or small, we recommend also the fair exchange plan, if you have not already adopted it. It seems to us that it is the best plan upon which we can all unite to form a complete network of telephone connections from north to south and from sea to sea. Let us remember that the telephone interest of each company is not alone within its own border but far beyond, and that every company desiring to aid the Independent telephone movement now in progress should so adjust itself as to meet the most practical conditions as they arise.

Let us all stand together for Independent telephony. Let us give to one another the hand of friendship and good will, adjusting any differences that may have arisen or that may arise at any time, in a spirit of fairness, and with kindly consideration. Life is what we make it, and so is the life of every organization what its members make it. If we wish Independent telephony to grow, if we wish it to prosper to its fullest extent, each one of us must make its interests our interests. If we do this success will crown our every effort; if not, our efforts will be put forth in vain and little will be accomplished.

In business life as in the individual life we must go up or down; we cannot stand still. It is the eternal law and we cannot change it. Let us all so conduct ourselves in our relations with one another, and put forth our best efforts, that the tendency of Independent telephony will be upward, and that peace, harmony

and success shall be ours.—*A Paper read by G. A. Evenson before the Iowa Independent Telephone Convention.*

#### IMPROVING TOLL LINE SERVICE.

We believe it a safe assertion that no branch of the telephone business has been considered so much a matter of course, looked upon so much as something that would follow as a natural result, as the toll business. Despite the fact that all recognize it as the harvest after seed time, the profit getter, no department has been left to shift for itself to the same extent. We do not mean to imply that no attention has been paid to the promoting of the toll field, but we do mean that it has not had the same thought and attention that other branches of the business have had, the natural results of which have led to a condition which to-day demands serious thought from our best minds.

When we consider the heterogeneous mass which makes up the fabric of our system throughout the state, we are forcibly reminded of the old saying that "no chain is stronger than its weakest link." We are also compelled to acknowledge that we have a few weak links in our chain. It is exceedingly fortunate for many of our companies that such a large percentage of the toll business is purely local. The results might have been disastrous if this were not true.

The time has now come, in fact we have passed the point some time ago, when the toll business in its broadest sense needs our attention. Our efforts to-day should be directed to the upbuilding of an adequate system for the handling of a large volume of through business. With the successful accomplishment of this object, each company will have inevitably and automatically built up a local system that will much more successfully take care of the present business and afford sufficient capacity for the natural growth sure to come.

With the present trend of business we do not believe it possible to provide more lines than can and would be used to advantage for toll purposes. It would almost seem that the parable spoken at the seaside twenty centuries ago had direct application to our business, when the great Teacher said: "For whosoever hath, to him shall be given, and he shall have more abundance. But whosoever hath not, from him shall be taken away even that he hath." The literal application of the parable is not far to find. If your toll facilities are up to date and good in every particular, people are mighty glad to avail themselves of their use, but poor service quickly costs you your business. There is something more to the toll business than simply connections between towns.

One of the greatest joys of our boyhood was to watch the gathering of the waters at the foot of the hill when spring began to throw off the cloak of winter. The glorious sun would start a rill here and another there, and as they would work their varying course through the fields, being constantly fed by other streams, finally finding entrance to the brook, now banks full, it was an interesting sight. The lessons learned at the brook side have never left us, and in later years their applications have often reoccurred in thoughts of the similarity to our business.

The little message from the obscure hamlet to the village makes it necessary for the message from the village to the town and thence to the city. Like the trickling stream of water, the first successful course opens a channel for the larger and ever increasing stream. We said at the outset that the toll business had been taken too much as a matter of course, too much as something found. That as a principle is wrong. The possibilities of the toll field have scarcely been opened. We believe if it is carefully studied and judiciously managed, it can be made a veritable mine of wealth. What condition in the affairs of men can you imagine, when the toll facilities will not be of inestimable value? Absolutely none. In the time of prosperity they are needed. In the time of adversity they are needed still more. All this but leads to the main question. There are two paramount things needed to bring about an improved toll line service. First, system; second, facilities.

With a uniform system of operation, it would be possible to do at least one-third more business with our present facilities. With few exceptions, no great attention has been given to any special methods of handling the toll work. The result is that one through message is very likely to pass through so many different methods of handling that, had it a head, it certainly would become bewildered. One poor system, universally adopted and developed, would give far better results than several good methods all dissimilar. Of course this is no argument for a poor method, but it is strong argument for uniformity. A uniform method will accomplish many results. In the first place it will do for the toll business the very thing it has already accomplished in the construction field.

Necessity is the mother and uniformity the father of our business, and our association is the healthy child of this union. The demands of the business very quickly made it apparent that we needed education in the field and it has been the office of this and kindred associations to furnish it. We as owners and managers meet in conclave as frequently as may be, to discuss the best methods of our business in general, teaching each other the better ways of getting contracts and franchises, building lines and exchanges, but how many of us have ever held schools for the in-

structing of toll operators here or at home? It is our opinion that right here lies one of the greatest of our duties, and one that is calling for this association to perform. This association should appoint a committee to perfect and adopt a toll system. They should appropriate sufficient funds to carry out the work and should then see that every member of this organization adopts and lives up to the plan.

We believe this plan could even be carried farther with success. A system that carried with it a competent paid traffic manager, who should have control of operating methods in the toll field of every company that is a member of this association, whose salary should be paid by an equitable assessment based upon the toll earnings of the several companies, would be an investment which would pay large dividends.

So long as we move as separate units, we can accomplish no great things in the toll business. A uniform system with the necessary machinery to work it and enforce its laws is the only solution of the greater problem. When you have this, the second great requirement, facilities, will follow as the night follows the day, because it must. It will then be possible to go into the toll field and develop the business. This will bring to the surface an equitable method of handling coupons and make it an object to push that branch of the business.

While Michigan is rich in the number of its Independent companies and its local development, it is poor in toll line facilities. There are but two companies in the state which devote their energies to toll business, and one of these is in its infancy. As a result, interstate business is almost an unknown quantity. Every through line is loaded 'way past its greatest capacity. No trunk line is left to the control of even its two ends, but must also be subject to the behests of several junction points, each of which is clamoring for it with the persistency and artfulness known only to an overworked Independent toll operator.

Seventy-five per cent of the toll business of the state handled by the Independent companies must pass through junction points where the operators are also expected to care for anywhere from 100 to 250 local subscribers. Every toll operator is a small sized autocrat, clothed with the power to tie up business that may and does mean many dollars to connecting companies, honestly working on the assumption that the business of the people who pay her salary is of paramount interest.

A brief resume of the present conditions induces the query of not how much we can do but how in heaven's name do we do so much. A little study of the conditions as they exist only lends force to the argument for a better direction of our energies. Well directed team work on the part of our operators would work wonders. A few short lines to trade and junction points, concentrating the switching and putting the management of lines into the hands of better trained and better paid toll operators would work a miracle. A united effort on the part of the more able companies looking to helping the smaller ones to improve their facilities and work on a uniform basis would pay back an hundred fold on the investment.

This, gentlemen, may be a radical theory, but it has never yet been conceded by enlightened man that we are not our brother's keeper, and certainly it has been our providence many times and in many ways to keep our brothers in the telephone business, and we are not sure that the rule has not often been stretched to include cousins once removed. We do not pose as being competent to bring order from chaos, but this we do know: Nothing has ever yet been accomplished without the first step; therefore we say, do something. Do it concertedly, and do it now.—*A Paper read by H. T. Clough before the Michigan Independent Telephone Convention.*

#### IMPORTANT LESSONS IN RURAL SERVICE.

The needs of the people in the small towns and in the country were never given consideration by the once great and only telephone company, the Bell. The farmers and small merchants were not considered a factor to any considerable degree in the business world a score of years ago, when the telephone was first introduced to the people, and the great monopoly was a monopoly in every sense of the word.

At that time only the well to do in thickly populated districts were able to lease the forerunner of what was to be one of the greatest conveniences and time savers the world has ever known. What a change! To-day the telephone is in every hamlet, and every merchant and every farmer in the rural district is able to enjoy its benefits. The credit for all this will probably be claimed by the Bell telephone company and its sublicensed "tubs of water." After all, a claim of this sort by the Bell people would be nearer the truth than usual, for there is no doubt about their being the pioneers; but where? Not in the rural districts. There wasn't sufficient prospect of their getting their money back to warrant the expenditure in these locations; so, of course, it was not necessary to develop this class of business so long as they had a cinch; and until the Independents or the people themselves took the matter up no effort was made in this direction.

We in the Independent field have had a few lessons to learn, however. There was a time when we thought a farm line ten

miles long with twelve or fifteen telephones connected, at a rate of twelve dollars per year, was a good paying proposition. There was a time when we thought (as the farmer does now) that all the expense attached to the business was the installation of the telephone and the salary of the central girl. To our credit be it said that we have seen the folly of such reasoning, and most of us are looking at the matter as a business proposition, and giving every situation cool and deliberate consideration before going ahead with the work.

To most people who have been in the telephone business for some time, the suggestions made herein will be received with a "I know that," "Them's my sentiments," etc. However, in our midst maybe there are some who are interested, but not actively, and who still lean toward the notion that small poles and cheap construction are good enough for this class of business.

First of all, our country districts are becoming more thickly populated ("they are not all going west"), and those who are now living in them are becoming educated to having things handy (for that matter, this is the tendency all along the line), and because of this, no telephone company has built a line that the requirements have not exceeded their expectations; and, this being the case, most of the companies are up against the proposition of building new and heavier construction before the life of the present construction is half over.

Many of the more experienced telephone men have found it advisable to make a map of the proposed line, showing the actual and the probable subscribers and counting upon seventy-five to ninety per cent of the probable subscribers being actual subscribers before many months have rolled by. Careful estimates of the cost of construction should be made before proceeding to build. Materials should all be on the ground and telephones ready to install before anything is done toward actual work.

Arrangements should be made in the country for board, etc., before construction crews are sent out; the foreman should know just what is going to be done and how, and above all use the best of materials and workmanship—it is economy in the end.

Contracts should be taken which should state distinctly what service is to be given and for how much. Nothing is so unsatisfactory as doing business with the general run of farmers when there is no record of what is required of the subscriber or company.

It is surprising how much easier it is to make your collections when you can show the farmer you know all about what service he has had, for he is usually a procrastinator in paying his telephone bill, and when he is in arrears and you have urged him pretty hard to pay up, he is liable to come back with a cry of poor or unsatisfactory service.

To show him a record of the condition of his line and telephone has a very quieting effect, and it is important that such record be kept for this purpose, if for no other (although there are many others, like keeping in touch with the work of your trouble men).

Some situations make it necessary that the company require the subscribers to build their own pole lines. From experience I would suggest that under no circumstances would it be advisable to build without a contract giving the company exclusive possession of these poles upon the placing of their wires upon them, as in many instances the subscriber feels he owns these poles and should be paid for them, should you wish to take on other neighbors just beyond.

There are few companies that are making the mistake of allowing their subscribers the privilege of free county service, but to those that are and to those that have a mind to I say "don't." I happen to know of a locality where this class of service is in practice and has been for so long that the people have become educated to it to that extent that they cannot see what use they would have for a telephone if it were not for the county service.

You have no idea what it means unless you are actually doing it. Recently my attention was called to the matter and I was surprised to find that there were over five hundred conversations a day on a system of slightly over 1,600 telephones. That means 150,000 a year of 300 days, and at ten cents each would prove a handsome income. Of course the ten cents would cut out about sixty to seventy-five per cent of the connections and you would have circuits enough to handle the business without being tor- ever subject to the kicks of the business man who thinks the operator's "Line is busy" is simply to keep him from talking. Free county service is an evil and one of the greatest ones there is in the business.

In closing I want to add that I find in my experience the most important thing to keep in mind is to have no misunderstanding with your subscriber as to what his duty is when you have performed yours. He must be made to understand that it takes money to operate a telephone plant and that no matter whether the telephone is used little or much it has been at his service all the time and you are entitled to your money promptly and as agreed.

Prompt pay puts you in position to give prompt service, and these are, to my mind, the all important features in the telephone business.—*A Paper by Thomas Bromley, Jr., read before the Michigan Independent Telephone Convention.*

# THE MODERN TELEPHONE SOLICITOR

*An Article Giving Practical Hints How to Obtain New Business*

By Royal Matlock

THE man at the head of the contract department who is able to keep abreast of the demands of telephone users to-day for unique arrangements for the consummation of some pet idea, has to lie awake nights revolving the suggestions over and over in his mind in the effort to make them practical. We can all remember when these same people hesitated about having even one wall telephone installed, yet now they are constantly demanding greater conveniences, up-to-date appliances, and novelties galore.

In one of the northwestern towns there were recently installed portable sets on thirty odd dining tables in a restaurant. Above these sets hang small electric bulbs and colored shades harmonizing with the general color effect of the room. If the Woman's Club gives a luncheon they have pink shades, on St. Patrick's Day green ones can be supplied, and so on. Instead of a bell a light is displayed on the marginal disk, when some one at the table is wanted and it is operated by the head waiter pressing a button at the entrance. So short has been the time, that it seems scarcely a day since it was necessary to use a great deal of patience and argument to secure a residence contract, yet in the larger homes we now find telephones installed in the basement laundry, kitchen, living room, housekeeper's room, and the private apartments of the mistress as well as the stable, so that "my lady" issues her daily instructions to the housekeeper, orders up her breakfast, or calls for an early drive before leaving her apartments. These, together with the various systems of private branch exchanges in hotels, offices and factories, seem to relegate the old time house to house soliciting into the past, as was recently demonstrated in the state where they have to be "shown." A solicitor answered a want advertisement in person, and, on being asked if he had had experience in soliciting for, and thoroughly understood, private branch exchanges and intercommunicating systems, admitted that the only knowledge he had of them was secured by reading articles in telephone journals. It is not sufficient that the manager and the general contract agent should be familiar with these systems and various innovations, but each solicitor, outside of making estimates, should thoroughly understand and be able to figure on any of the ordinary systems, especially in cities where the opposition is strong, for if there is anything that will spoil a prospect quicker than all others, it is the remark, "I'll see So and So and let you know later." True, the time is not past for house to house soliciting, but the day is already here when in addition to the qualifications required for this class of work, a solicitor must be equipped for handling the latest appliances and be able to explain and figure on any proposition presented to him.

Among the latest uses to which the telephone has been put, its assistance in solving the servant girl problem has attracted much attention, especially in domestic circles. In Minnesota an apartment house is fitted up with a large general kitchen in the basement with tray elevators running to each apartment. In the morning the wife calls up the manager of the kitchen over the intercommunicating system, gives the family breakfast order, and in a few minutes lifts the steaming viands from the elevator to her table. Of course, there are numerous details connected with the management of this general kitchen, but they are nothing compared to those existing before "Bridget" ceased

to rule. The canvassing for common business, rural soliciting, and calling upon the grocer who does not yet see the necessity of a telephone will always be necessary, but the strides of telephony in the last ten years—and even in the last five—prove that it is necessary to anticipate the needs and wants of the public in advancing ideas and suggestions of an unusual character as well as assisting in maturing half-formed ideas of their patrons.

A solicitor was sent to a town of seven thousand population where the foreign speaking element predominated. In canvassing he found it impossible to reach these people solely because they could not speak English. Instead of leaving the territory he induced the management to secure a relay of operators who could handle this class, secured an interpreter to assist him in again covering the town and was rewarded with over three hundred additional subscribers. This plan was not original, as it has been employed on the western coast for some time, but it is doubtful if ten per cent of the solicitors to-day know of this. We are learning, too, that, like the commercial traveler of old, who spent his time in running down the other fellows instead of presenting the merits of his own goods, our interests are best advanced by allowing the opposition to do its own advertising and using the time allotted us in demonstrating the advantages of having a telephone and directing attention to the principal points of merit of our service, instead of knocking the other company's business.

We do not, as yet, know just what effect, if any, recent court decisions relative to contracts signed for one or more years, in which it was held that collection could be made only for the time of actual service, will have on the contract department; but, in the opinion of the writer, it will, if the law is generally so interpreted, lead to the necessity of making a charge for installation, which ought to have been done years ago. Take, for example, a case when it is necessary to set several poles and string several spans of wire in order to reach a subscriber at a cost equal to a yearly rental. If the service is discontinued in two or three months, what recourse has the company with no installation charge and a worthless contract? Then, too, if these decisions are upheld, this same subscriber can later demand service, the only stipulation being that he must pay in advance for service, and this also applies to those who formerly were subscribers but are in arrears. In such matters as these the solicitor of to-day must be informed to aid him in handling parties who are in arrears or new subscribers who do not, from a financial standpoint, "look good." There is one company in southern Missouri which has been charging for installing for about three years, and while the charge (\$1.50) does not cover the entire cost of labor and material, it relieves the company of a part of this expense, and assists in educating the public up to the fact that the material used in installing is practically worthless when removed even if used only for a few months. The company has made this charge in the face of very strong opposition and increased the rental list from 789 to over 1,400 in three years, which proves that this plan can be successfully carried out anywhere with proper representatives among the people to explain and justify the proposition. A solicitor who is qualified to meet and satisfactorily handle these and numerous other conditions is the kind in demand to-day, and upon him and his efforts rest largely the success of the company employing him.



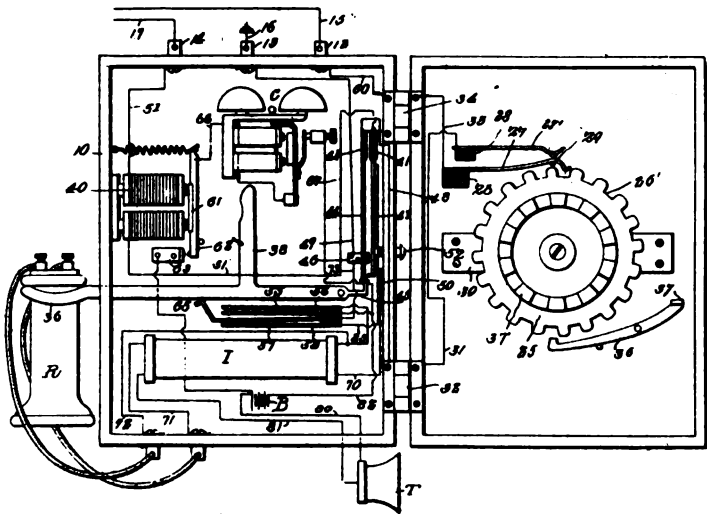
# DIGEST OF TELEPHONE PATENTS

By Edward E. Clement

847,305. Telephone Set. Atwood. This set is used on shipboard and utilizes a hand telephone set comprising a transmitter and a receiver connected together with a flexible connection to the box so that the user may have considerable freedom of movement while using the instrument. The transmitter when not in use engages in a cup-shaped socket inside of the box and a lug on the receiver hooks under a lever which operates the switch contacts. Patent assigned to the Western Electric Company.

847,316. Telephone System. C. L. and T. P. Carr. In this system each subscriber is provided with a signal which indicates to him that his line is cut out and that all other stations are similarly cut out except the two which are in use. The operator is provided with means for signaling any one subscriber to the exclusion of all others and to synchronize the controlling mechanism of all stations. Patent unassigned.

847,355. Signaling Apparatus for Telephones. Munson. The central office is provided with a register adapted



to operate on a number of impulses and a sender is used at each sub-station having a disc with a notched periphery. A ratchet wheel on one face thereof is controlled by an arm carried on the receiver hook so that it is necessary to replace the receiver or to depress the hook before the device is operated. Patent unassigned.

847,356. Automatic Telephone Switchboard. Monson. The calling circuits of this system have multiple connections with a series of independent magnets arranged to control independent contacts, one for each sub-station, and means are provided for bridging the multiple circuit when anyone magnet is energized and thereby preventing the energization of the remaining magnets and locking out other sub-stations. Patent unassigned.

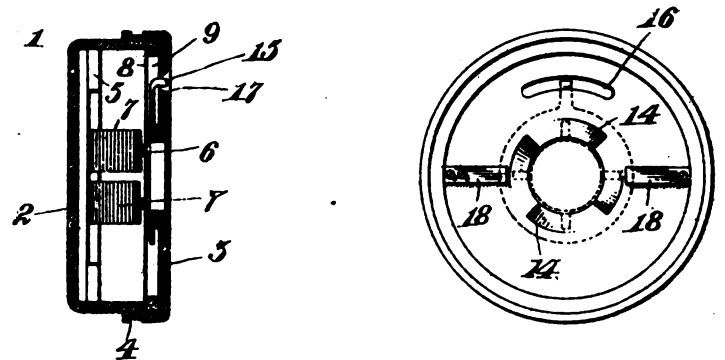
847,367. Telephone Switch Operating Mechanism. Potter. This device comprises a revoluble shaft with a spiral spring surrounding it and adapted to return it to normal position. A laterally projecting stud carried thereby operates the switch spring and an arm at each end of the shaft is engaged by the extension of the switch hook so as to revolve the shaft and work the switch contacts. Patent unassigned.

847,385. Telephone Trunking System. Webster. This system improves on the Dunbar two-wire type and uses

three or four wire type terminating at the A office in lines of the Dunbar type. The A circuit is provided with bridged batteries at the end of each trunk with one pole grounded. The relay at the incoming end of the trunk is normally legged to ground from the tip side, the metallic circuit of the trunk, being at the same time open, and a relay responsive to current in the line when the called subscriber answers, disconnects the trunk relay and completes the metallic circuit at the outgoing end of the trunk. Patent assigned to the Kellogg Switchboard & Supply Company.

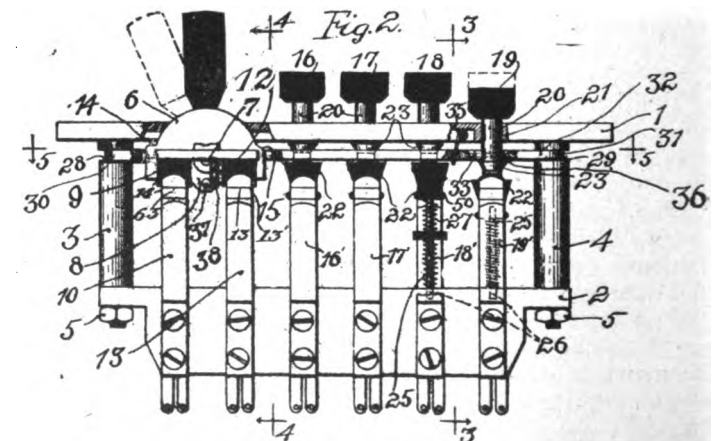
847,691. Telephone Attachment. Rector. In this device the inventor arranges a speaking tube attachment so that the receiver thereof may be placed in engagement with the ear opposite the one against which is placed the magnetic receiver. An attachment to the magnetic receiver gives a sort of megaphone effect and diverts part of the sound into the speaking tube. Patent assigned to himself, Daniel A. Sprague and Arthur P. Smith of New York.

848,073. Modulating Telephone Receiver. Turner. A plurality of adjustable cam lugs are arranged beneath the



diaphragm and are provided with dampening pads arranged so that they may be made to press more or less effectively against the diaphragm and thereby regulate the sound produced. Patent unassigned.

848,283. Switching Device. Birfield. This is a three-position ringing and listening key, and is practically the

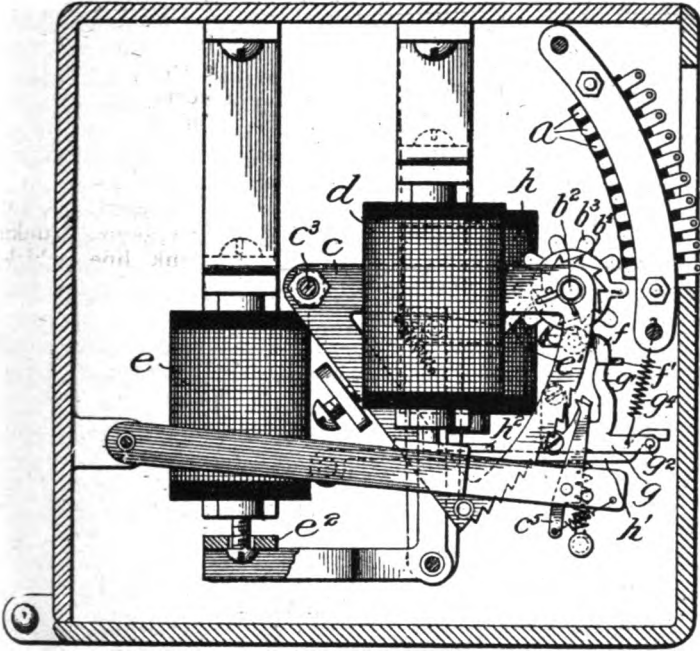


same as keys of this type now in commercial use, but employs an operator's listening key, which, when operated,

throws the ringing keys back to normal. Patent assigned to the Stromberg-Carlson Manufacturing Company.

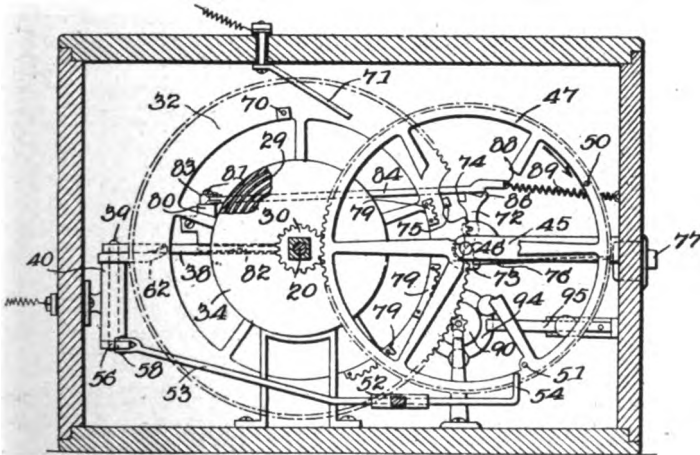
848,120. Automatic Trunking Device and Selective Signaling Apparatus. Monson. This system employs an automatic switch connected in multiple at the switchboard and controlled by any one of the subscribers in a particular group. The switch also operates to cut off communication between all of the other subscribers and the trunk line. Patent unassigned.

848,398. Automatic Exchange Selector. Roberts. A plurality of contacts arranged in arc rows are so arranged



that a star wheel governed magnetically and connected to a rotatable shaft may step itself over the contacts to the one selected by a given number of impulses. A star wheel for each arc row is provided. Patent assigned to the Western Electric Company.

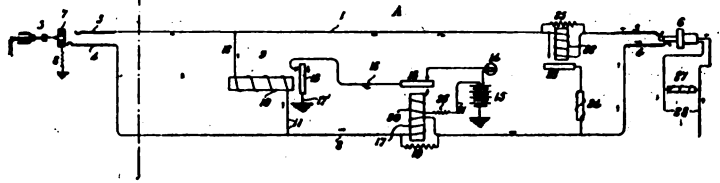
848,568. Telephone Detector. Piehn. In this system means are provided for detecting an intrusion on the part of the subscriber when his line has not been called and to



also find out the number of said subscriber. Patent unassigned.

848,636. Fire and Police Signaling System. Condon. The boxes arranged at outline points in the system are provided with doors which, upon being opened, operate the signaling transmitting mechanism. The key used for unlocking the door operates in conjunction with certain mechanism and determines the speed of movement of the make and break signal transmitting device. Patent assigned, one-half to Albert Barrett of Kansas City, Mo.

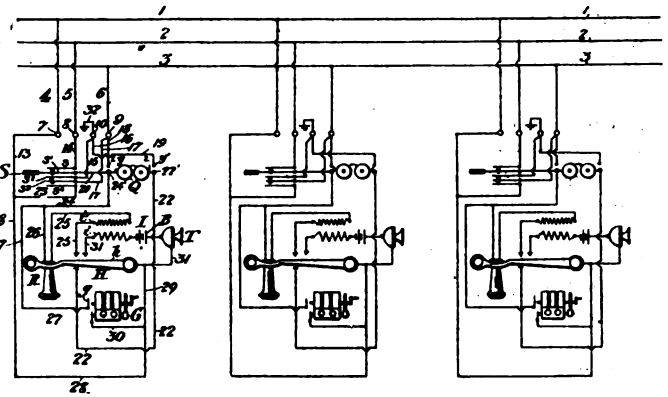
848,749. Trunk Circuit for Telephone Systems. Kelley and Heaford. This system employs a trunk circuit provided



with a toll board signal, relay controlled, the relay being bridged across the trunk circuit and actuated by current received from the main battery. After once being operated a lockout circuit is closed so the signals cannot again be actuated until restored to normal by the removal of the operator's plug. Patent unassigned.

848,814. Telephone Trunking System. Dean. The trunk signal of this system operates only on the actuation of the pair of relays, one being worked by current, from the outgoing end of the trunk and the other being initially actuated over a local circuit. A locking circuit maintains the last mentioned relay actuated and keeps the trunk signal operative until the subscriber responds. Patent assigned to the Kellogg Switchboard & Supply Company.

849,032. Telephone System. Wardner. Three line wires are used in this system and all are connected to the



terminals of each sub-station. A subscriber may either ring grounded or full metallic, thereby increasing the number of bells on a given line and preventing interference. A switch is provided for this purpose which locks itself on the receiver hook and is released upon the depression of the receiver hook. Patent unassigned.

849,250. Combined Telephone Desk Stand and Call Bell. L'Hommedieu. The base of this desk stand has a bell secured to it which surrounds the standard. The magnet for operating the bell is arranged in the base and has its clapper projecting therethrough in position to engage the bell. Patent assigned one-third to William A. L'Hommedieu of New York City and one-third to Harry L'Hommedieu of Buffalo, N. Y.

849,336. Signaling Systems for Telephone Exchanges. McBerry. The line of this system terminates at the central office in a ground branch from one conductor which includes the line relay for controlling the visual signal. A branch leads to earth from the other conductor and the sub-station telephone switch unites said line conductors when closed and completes the circuit for the line relay. A connecting switch at central unites the link conductors of the operator's cord circuit with the line and applies current thereto from an associated battery which effects the energization of a relay controlling the withdrawal of the visual signal. Patent assigned to the Western Electric Company.

849,353. Electric Ear Telephone. Clarke. This is a telephone for deaf people, the battery thereof being carried in the pocket and having contact terminals which engage

the sockets of the transmitter terminals. The receiver is connected by a flexible cord to the sockets of the transmitter and both may be disengaged at will. Patent assigned to the Globe Ear Telephone Company of Boston, Mass.

849,375. Telephone System. Dean. This system comprises a line circuit having a cut off relay, a line relay or other signaling device and a source of current associated therewith, the arrangement being such that the taking up of the subscriber's telephone operates the line (not relay) but does not operate the cut-off relay, the latter being operated to render the line relay inoperative until a conversational circuit is established by the operator. Patent assigned to the Kellogg Switchboard & Supply Company.

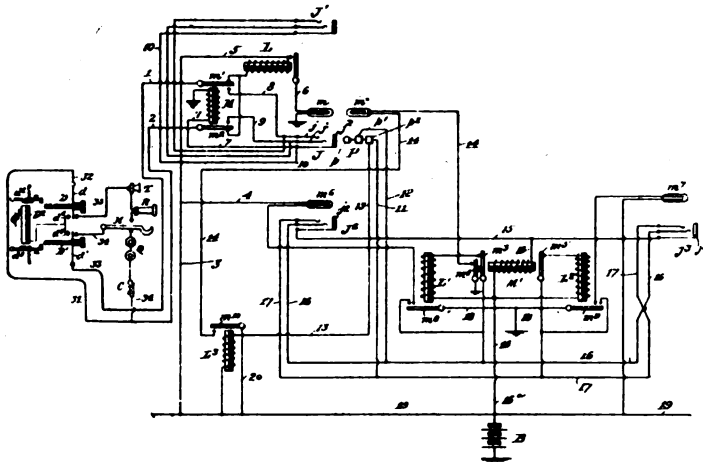
849,464. Telephone Trunking System. Dean. The cord circuit of this system is provided with a connecting plug and a connection from ground through a retardation coil to one contact of the plug whereby a path for current is provided which allows steady current to pass and to actuate the supervisory signal relay during connection, but which obstructs voice currents. Patent assigned to the Kellogg Switchboard & Supply Company.

849,615. Telephone Switch Box. Houghton. In this switch box there are arranged a plurality of contacts one set operated by the switchhook and the other set operated by a plug flexibly connected to the combined transmitter and receiver. Patent unassigned.

849,850. Telephone System. Muller. When the subscriber presses a button for a particular station he throws ringing current upon the line and both his and the called subscriber's bell rings and rings continuously until the receiver at the desired station is removed. At this time ringing current is taken off the line and talking current put on. Patent unassigned.

850,079. Telephone Repeater System. Warth. This invention consists essentially in the association of two repeater instrumentalities forming a double or twin repeater apparatus and with auxiliary apparatus and local circuits connecting them for operation in combination with the line circuits whereby the initial currents are received and relayed unidirectionally. This maintains a constant balance and prevents howling. Patent unassigned.

850,344. Telephone Exchange System. Clement. This is a divided multiple system of the same general type as those generally installed at St. Louis and Cleveland, but with this important difference, that a very large percentage



of the apparatus required in those installations is done away with. In this case each line has a single answering jack and line signal lamp, and the call is initially answered by an operator who plugs up a line to a trunk. These trunks extend to the different divisions of the board, or to the different exchanges in the system, and the selective act at the subscriber's stations, which is shown as pressing a particular button, results in setting some one of the trunk sig-

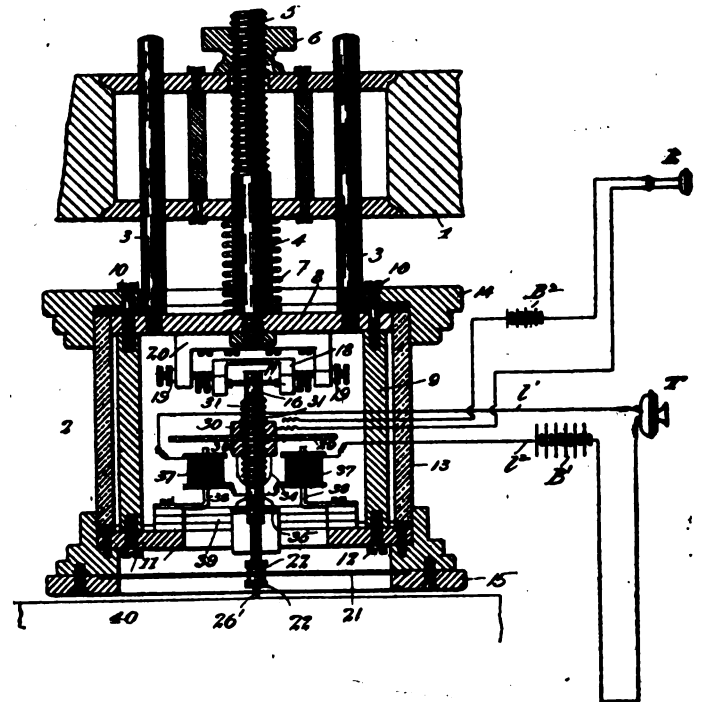
als at the particular division or exchange wanted. In other words, the invention lies in putting the division signals into a small number of trunks instead of tying them onto all of the lines. Patent unassigned.

850,433. Telephone Apparatus. Kohn. In this system the sub-stations are provided with polarized and unpolarized magnets working together to control open receiver circuits at the calling station and to transmit current over the line to operate devices for preventing the closure of all other receiver circuits except the one called. Patent assigned one-half to Louis A. Ksensky.

850,434. Telephone Apparatus. Kohn. This system is very similar to the one just described to the same inventor, but when the subscriber sends a current to close his normally open receiver circuit, he also closes the circuit of a generator at the sub-station which operates a relay at central to close a circuit which operates devices at the other sub-stations and prevents the closure of their receiver circuits. Patent assigned one-half to Louis Ksensky.

850,470. Telephone Trunking System. Dean. In this system the trunk line which extends between different switchboards has multiple switch sockets at one end for establishing connection therewith and a call signal at that end is placed under control of the operator at the opposite end of the trunk. The sockets are normally disconnected from the trunk but adapted to be connected therewith when the talking circuit is established with one of said sockets. Patent assigned to the Kellogg Switchboard & Supply Company.

850,484. Reinforcing Telephones. Newman. In this invention there is employed a vibratory member which is set



in motion by the telephonic currents through a suitable magnet and which has its vibrations strengthened in one direction and otherwise assisted and controlled by a wax cylinder and stylus similar to those used on phonographs. Additional energy is supplied to the circuit by local batteries in the secondary or relay circuit. Patent unassigned.

850,558. Attachment for Telephones. Black. In this device a band surrounds the transmitter and has pivotally attached thereto a forked arm with an adjustable extension carrying a clamp to hold the receiver. This arm may be swung around in any direction and the clamp may be turned so that the receiver may be used by either the right or left ear. Patent unassigned.

# SPECIFICATIONS FOR RUBBER COVERED INSULATED SIGNAL WIRES

*As Adopted at a Recent Meeting of the Railway Signal Association*

THE committee of the Railway Signal Association having in charge the compilation of specifications for rubber-covered signal wires, recommended at its recent meeting in Washington the adoption of the following rules for testing wires for signal purposes, carrying currents of 600 volts or less:

1. *Conductors.*—Conductors must be of soft-drawn annealed copper wire having a conductivity of not less than ninety-eight per cent of that of pure copper. Each wire forming a conductor must be continuous without splice throughout its length, must be uniform in cross section, free from flaws, scales and other imperfections and provided with a heavy uniform coating of tin.

2. *Rubber Insulation.*—The vulcanized rubber compound shall contain not less than thirty per cent nor more than thirty-three per cent by weight of fine dry Para rubber which has not previously been used in rubber compound. The gum itself shall not contain more than three and one-half per cent of resinous extract. The remaining seventy per cent of the compound shall consist of mineral matter only. The insulation must be tough, elastic, adhering strongly to the wire, must be homogeneous in character and placed concentrically about the conductor.

3. *Taping and Braiding.*—(a) The rubber insulation must be protected with a layer of cotton tape thoroughly filled with a rubber insulating compound, lapped one-half its width and so worked on as to insure a smooth surface.

(b) The outer braid must consist of one layer of closely woven cotton braiding one thirty-second of an inch thick, saturated with a black, insulating, weatherproof compound which shall be neither injuriously affected by nor have injurious effect upon the braid at a temperature of 200 degrees Fahrenheit.

4. *Tests.*—The manufacturer must provide at his factory all apparatus and other facilities needed for making the required physical and electrical tests and must provide the manufacturer's representative with all facilities for assuring himself that the thirty per cent of rubber as above specified is actually put into the compound. The inspector shall not be privileged to ascertain what mineral ingredients are used in making up the remaining seventy per cent of the compound. The manufacturer shall give free access to the place of manufacture and opportunity to test at all necessary times. Tests will also be made upon the finished product after delivery, and the wire will be rejected if it fails to meet the requirements of the specifications. The manufacturer must pay freight charges for return of all wire that may be rejected by the railroad company.

5. *Physical Test of Copper Conductors.*—Each solid conductor must stand elongation of twenty-five per cent of its length in ten inches before breaking. In torsion it must stand before breaking thirty twists in six inches. It must be capable of being wrapped six times about its diameter and unwound without showing signs of breakage after the process has been gone through twice. The tension and torsion tests will be made on separate pieces of wire.

6. *Conductivity Test of Copper.*—The conductivity of the copper shall be determined by measuring the resistance of a length of the wire and comparing with Matthiessen's standard of copper resistance.

7. *Tests of Tinning.*—Samples of the wire shall be thoroughly cleaned with alcohol and immersed in hydrochloric

acid of sp. gr. 1.088 for one minute. They shall then be rinsed in clear water and immersed in a sodium sulphide solution of sp. gr. 1.142 for thirty-two seconds and again washed. This operation must be gone through with four times before the wire becomes clearly blackened.

8. *Tests of Braiding.*—Six-inch sample of wire with carefully paraffined ends shall be submerged in fresh water of a temperature of 70 degrees Fahrenheit for a period of twenty-four hours. The difference in weight of the sample before and after submersion must not be more than ten per cent of the weight of the sample before submersion less the weight of the copper and vulcanized rubber.

9. *Physical Tests of Rubber Insulation.*—A sample of the vulcanized rubber insulation not less than four inches in length shall have marks placed upon it two inches apart. The sample shall be stretched until the marks are six inches apart and then at once released. One minute after such release the marks shall not be over two and three-eighths inches apart. The sample shall then be stretched until the marks are nine inches apart before breaking and must have a tensile strength of not less than eight hundred pounds per square inch.

10. *Chemical Tests of Rubber Insulation.*—The vulcanized rubber compound shall contain not more than six per cent by weight of acetone extract and not more than seven-tenths of one per cent of free sulphur.

Size B. & S. gage.	Area in Circular Mills.	Thickness of Insulation.	Insulation resist. Megohms per mile.	Test voltage Alternating Current.
0	105,592	1/8" wall	1200	10,000
1	83,694	1/8 "	1300	10,000
2	66,373	1/8 "	1400	12,000
4	41,742	3/32 "	1300	9,000
6	26,250	3/32 "	1500	9,000
8	16,509	3/32 "	1700	9,000
9	13,090	5/64 "	1700	7,000
10	10,380	5/64 "	1800	7,000
12	6,530	5/64 "	2000	7,000
14	4,107	5/64 "	2100	7,000
16	2,583	1/16 "	1900	4,000
18	1,624	1/16 "	2000	4,000

## DANGERS OF THE TELEPHONE.

The announcement is made in a dispatch from Washington that the principal telephone system at the national capital is seriously crippled, owing to an epidemic of mumps, which has affected practically all the operators at the central exchange. The cause of the epidemic is not given, and the question naturally arises whether the patrons of the exchange have been exposed to the disease. It has been claimed by many believers in the occult that there is a closer connection between subscribers on telephone lines than appears in the scientific literature of the telephonic industry. It is known, or at least strongly suspected, that this telepathic influence, if such it be, has caused the graduation of many telephone operators from the switchboard to the blissful or otherwise state of matrimony. It is also held by many authorities that mumps may be acquired by suggestion; hence the apprehension that the troublesome disease may be communicated by wire.

It is stated that when important officials of the Pennsylvania railroad go to Pittsburg by private car a telephone in the car is connected up immediately on arrival with the railroad exchange and the local exchange.



**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done. TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

*Copyrighted, 1907, by The Telephony Publishing Company. All rights reserved.*

# Telephony

With which is incorporated The Telephone Magazine.  
Published on the first of every month by  
**THE TELEPHONY PUBLISHING COMPANY**  
301-306 Manhattan Bldg., Chicago, Ill.

H. B. McMeal	President
E. M. McMeal	Vice-President
H. D. Fargo	Secretary and Treasurer
W. H. Graffis	Advertising Manager
H. A. Downey	Subscription Manager

Edited by H. B. McMeal and H. D. Fargo

VOL. XIII.	TELEPHONY	No. 5.
VOL. XXIX.	THE TELEPHONE MAGAZINE	No. 5.

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each. In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

*Entered at the Chicago Post Office as second class mail matter.*

## EDITORIAL DEPARTMENT

*THE CHICAGO TELEPHONE REPORT.*

**I**N NO city of the United States has the telephone question attracted more public attention than in Chicago. For that reason, if no other, the report of the special commission of experts on the Chicago situation, made to the city council, deserves a careful study, and to enable its readers to give such TELEPHONY has decided to print the document in full. None of the newspapers, nor other journals, has essayed this formidable task, for the length of the report was sufficient to render a verbatim reproduction no ordinary feat. The importance of this exhaustive review of telephone conditions, however, induces TELEPHONY to make a special effort to enable its readers to study the entire proposition. With that end in view this issue contains the first half of the report, including the introduction, Part No. 1, dealing with the feasibility of the proposed project of the Manufacturers' Telephone Company, and Part No. 2, relating to the relative advantages and disadvantages of flat rates and measured rates for telephone service.

In the June issue of TELEPHONY will be printed the second half of the report, embracing Part No. 3, dealing with the application of the Chicago (Bell) Telephone Company for an extension of its franchise; Part No. 4 covering the desirability and practicability of universal toll connections with the city of Chicago, and the conclusions of the commission. The charts and tables will be found helpful in studying the result of the inquiry made by the experts.

This report was made by D. C. Jackson, William H. Crumb and George W. Wilder to the council committee on gas, oil and electric light, to which was assigned the important duty of passing on the ordinances which seek telephone franchises for the Bell company, now in possession of the field, and the Manufacturers' company. With regard to service, rates and the regulation of rates the commission report is most comprehensive, and no doubt will be of great interest to everybody engaged in the telephone business. The report contains 124 pages in its printed form, and there

has been a demand for copies which has far exceeded the supply. Subscribers to TELEPHONY in possession of the May and June numbers will have the complete report, which will be a valuable addition to any library covering telephone subjects.

*BELL REBUFFED AT ROCHESTER.*

**T**HE Bell interests which have been striving to absorb the United States Independent Telephone Company of Rochester, N. Y., have met with a setback which promises to defeat their plans about which the Bell has been gleefully chuckling for weeks past. Attorney-General Jackson of the state of New York filed a suit to prevent the merger, and now the Bell leaders have withdrawn their proposition. This effectually checks the scheme of the American Telephone & Telegraph Company to seize the United States Independent, and is hailed as a signal victory for the Independent forces.

It was a hard fight, for the Bell had claimed a victory early in the proceedings, and was loath to admit itself defeated. No stone was left unturned to put the deal through, as the Bell hoped thereby to deal the Independents a hard blow. Political aid even was invoked to help the octopus, but the Independents made such a united fight that the Bell was forced to withdraw.

*GENERAL BUSINESS OUTLOOK.*

**W**E HEAR a great deal these days about the likelihood of a business depression. The country is prosperous, the nation is at peace with all the world, and, in short, "times are good." Yet croakers are abroad who say "Watch out for a panic." We scan the horizon and only those of us who are inclined to be pessimistic can see any storm clouds. Everybody seems to be busily employed, failures are few, the manufacturers have orders on hand to keep their plants running for months to come, and, in brief, his majesty the American citizen appears to be as flush with

### TABLE OF CONTENTS

Chicago Telephone Report.....		Economical Financing.....	A. T. Averill	310
.....D. C. Jackson, W. H. Crumb and G. W. Wilder	279-297	Fair Exchange vs. Free Exchange.....	G. A. Evenson	310-311
Ohio Telephone Convention.....	H. S. Cranfield	Improving Toll Line Service.....	H. T. Clough	311-312
Kentucky Telephone Convention.....	E. C. Long	The Modern Telephone Solicitor.....	Royal Matlock	313
Decisions Affecting Telephony.....	G. W. Hand	Digest of Telephone Patents.....	E. E. Clement	314-316
Depreciation.....	H. A. Douglas	Rubber Covered Signal Wires.....		317
Our Rural Friends.....	A. D. Fishback	Editorial Department.....	H. B. McMeal and H. D. Fargo	318-321
Development of Long Distance Business.....	Frank Hart	New Types of Apparatus.....	R. A. Wilson	322-323
Standardization of Toll Line Equipment.....	W. J. Stanton	Questions and Answers.....	H. P. Clausen	324-325
Sterilization and Preservation of Poles.....	H. P. Folsom	Ironton (Ohio) Automatic Exchange.....	R. C. Butler	326-329
Should Troublemakers Have Technical Education?.....		Modern Toll Switchboard Equipment.....		
.....P. R. Crouthers	308-309	.....J. E. Hilbish, J. B. Thiess and J. A. Joy		329-331
Should Independent and Mutual Companies Co-operate?.....	William Crownover	New Uses of the Telephone.....	E. M. Rotherle	332-334
.....	309	Manufacturers' Section.....	W. H. Graffis	335-343
The Traffic Association.....	W. S. Vivian	In the Rural Districts.....	O. H. Brandenburg	344

the coin of the realm to-day as he ever was during the 131 years of his existence. And still, from time to time, certain bilious financiers shake their heads and wisely say "Watch out for a panic."

The very prosperity of the country has tightened the money market recently. There is so much business that many manufacturers have been tempted to go ahead on insufficient capital. More money is required now for the purchase of raw material than has been the case in years, which, of course, makes it necessary to have more capital to produce the same amount of goods.

The wise financiers are not shouting "Wolf!" nor do they anticipate any serious trouble, but they are advising that, as the machinery of industry cannot safely be run without a safety valve, a little slackening in the rate of speed may prove a wise precaution at this time.

There is every reason to expect years of business success if no serious obstacles are placed in the way of those who are developing the resources and industries of the country. The presidential election next year may make the business world trim its sails somewhat, but, after all, there isn't a cloud the size of a man's hand in sight to warrant any grave fear of a business stagnation of material importance.

#### A KELLOGG TWIN.

IT IS apparent that the idea that it is poor policy for Independent telephone operators to buy apparatus from concerns having Bell affiliations is taking a deep root throughout the field. That is an encouraging sign, for when one fully realizes who are his enemies he is very likely to stick to his friends, and not make a mistake by confusing the two dissimilar characters.

A prominent telephone man, in a letter to TELEPHONY, says:

"In the April issue of TELEPHONY I notice under the heading, 'The Kellogg Again' an inquiry from a man in Missouri wanting to know the relationship between the Kellogg Switchboard & Supply Company and the Bell people. I notice the good work that you are continuing to do along these lines, but it appears to me that while our friends—or rather our enemies—the Kellogg people are 'getting theirs' it would be well to hand out corresponding information relative to the Western Electric Company, which, without any attempt at concealment, as to its Bell affiliations, is working hard for the Independent trade. I know in this particular territory they are making an aggressive campaign for the business of the Independents, and they are not only getting a portion of the supply business but are also selling telephone equipment direct to some Independents.

You will bear me out when I say that the Western Electric Company in a way is a greater menace to the Independent movement than the Kellogg company, for the reason the Western Electric Company in many cases goes to the Independent telephone companies and makes them a proposal to connect with the Bell company, using the Bell talking circuits on their instruments and also making them a confidential proposal to the effect that they need not use and pay for any more Bell talking circuits than they care to and that the Bell company would arrange for the Western Electric Company to supply whatever the operator might need in the way of apparatus and supplies, giving them an advantage over the man who is in no way affiliated with the Bell company. There is no question as to this, nor is there any question as to the strong effort of the Western Electric Company is making among the Independents to place its apparatus and supplies.

Now, if it is a mistake for the Independents to buy from the Kellogg company because the profit is diverted to the Bell company, why is it not just as grave a mistake for them to buy from the Western Electric when there is no question whatever as to the ultimate disposition of profits received

Our correspondent takes the right view of the situation. Independent telephone operators should beware of buying apparatus and supplies from the Western Electric Company, because it is a Bell concern. TELEPHONY has pointed this out before, and reiterates the belief now that it is the height of folly for Independents to patronize a Bell company and furnish the monopoly with means to fight the Independent movement wherever there is competition between the two forces. The only difference between the Kellogg and the Western Electric is that the latter is

confessedly Bell, whereas in some sections of the country apparently the Kellogg still pretends to be a friendly ally of the Independents—as the inquiry from Missouri answered last month plainly indicates.

No matter what name it may bear, it behooves Independent telephone operators to steer clear of any manufacturing concern which has affiliations with the Bell. There are so many Independent manufacturers making a superior line of equipment that it is folly to purchase from Bell controlled factories.

#### TELEPHONY'S 1907 DIRECTORY.

TELEPHONY announces the publication in the early part of May of its 1907 "Directory of the Telephone Industry." This work is one of the natural developments of TELEPHONY'S widely known mailing list, being the latter adapted to the buyer's standpoint, instead of to the seller's, and being also embellished with such additional features as a very complete and reliable classified list of the manufacturers and dealers of the telephone field, a list of its contractors, engineers, patent attorneys and experts, and a list of the principal toll line companies, together with a list of all the state and national telephone associations and their official rosters.

This volume, containing some 200 pages, will also give detailed information concerning the leading Independent operating companies, as well as present a list of all the Bell companies and their operating exchanges.

In brief, it is TELEPHONY'S purpose to make this work all that it purports to be—a complete directory of the telephone industry; a book, in fact, which will reflect creditably the magnitude and importance of this great and growing field. In addition to making this book one of high merit from the standpoint of its contents, it will be distributed to more than 10,000 of the best buyers in the telephone trade, embracing the purchasing agents of every operating company upon TELEPHONY'S manufacturers' mailing list.

Advertisers, whose attention has been called to this proposition, unhesitatingly pronounce it the best and cheapest, one-time advertising opportunity which the telephone field has yet produced, and the indications are that the forthcoming volume will fully reflect the prosperity of the industry in a most comprehensive manner.

TELEPHONY invites suggestions as to how to make this directory of the greatest value to its recipients, the managers and purchasing agents, for whom it is especially designed.

#### INDEPENDENT SECURITIES UNSHAKEN.

IN THE recent Wall street flurry, when the most stable railroad and industrial stocks were bobbing up and down in hysterical fashion, Independent telephone securities were affected comparatively little. The gyrations of the speculative ring caused the most substantial industrials to fluctuate more or less—some of them a great deal—but the Independent stocks held their own. This fact should be extremely comforting to men in the Independent ranks.

One of them, E. L. Barber, has the following comment on this development:

"It is a matter of gratification to the men who are back of the Independent telephone proposition to note that during the recent slump in stocks Independent stocks did not suffer nearly as much as other securities. Not in a single place have I been able to discover a considerable shrinkage in the price of telephone stocks, and they have more than held their own. The Independent telephone business is as yet only in its infancy and the securities must, of necessity, grow in value as the business develops throughout the country. Each new subscriber to an Independent telephone, no matter where it is, makes that much stronger the securities all over the country."

It should be a source of deep satisfaction to investors in

Independent telephone securities to know that the capers of the Wall street bulls and bears do not make their holdings wobble. It has come to be a common saying that the antics of the New York stock gamblers do not affect the real prosperity of the country at large, but the fact remains that what occurs in Wall street influences most stocks throughout the United States. No better testimonial of the staunchness of Independent securities could be offered than the failure of Wall street stock flurries to affect, disadvantageously, their standing.

#### VALUE OF CONVENTIONS.

**I**NDPENDENT telephone men derive a vast amount of good from attending district, state and national conventions, and it is wise for them to be present at all such gatherings. In union there is strength, and inevitably men go home from such meetings encouraged and fit to do better and more earnest and successful work in their respective fields. It is impossible for men engaged in the same industry to meet, exchange ideas and compare notes without each going away better fortified for the work in hand.

At telephone conventions valuable discussions add to the general knowledge, and the members separate feeling better equipped and more interested in their particular branches of the business. The fraternal spirit is developed, and a sentiment of co-operation is inspired that makes the work of the succeeding year easier. The papers read on various topics help those who study to prepare them, and the practical ideas advanced furnish food for thought to those addressed. Most of them are based on actual experience, and prove materially helpful to those not so well acquainted with the subject handled. Their influence is wide, and accomplishes more genuine good often than the writers themselves realize.

The Independent telephone conventions have been a source of real strength to the movement. In this connection it is well to remind the field that the 1907 annual convention of the International Independent Telephone Association will be held in Chicago June 4, 5 and 6. Let there be a full attendance, for matters of vital importance will be up for settlement.

#### THE BELL AS A TAX DODGER.

**T**HE charge is made in the rural districts of Illinois that the Bell subsidiary companies are evading payment of their rightful taxes in a manner calculated to stir the wrath of the ordinary farmer. That it is stirring his wrath is demonstrated by the indignant comments in the country press. Of course, it is traditional that the average property owner is expected to fight to the last gasp to hold his taxes down as low as possible, but for all that the unblushing course of the Bell in a number of Illinois counties in the matter of assessments has staggered even the most easy-going critics.

As an example, in Bureau county the Bell company last year paid in taxes a total of \$1.67, and this year it will pay \$2.07, a tremendous gain of fifty cents. The Bell has thirty-eight miles of telephone lines in Bureau county, and boasts that it is the most expensive construction in that section. The Bell has asserted that one equipped pole costs \$2 and that there are thirty-five poles to the mile. Inasmuch as the Bell people have thousands of dollars' worth of wire, cables, exchange equipment—to say nothing of franchise rights—the honest farmers of Bureau county think that \$2.07 is ridiculously low taxes for the big monopoly to pay. The amount of the assessment was fixed by the state board of equalization, which has a name for being easy on corporations, and not by the local assessors. In some townships in Bureau county where the Bell has between \$500 and \$1,000 worth of property the obliging board of equalization scheduled the assessed value at \$1. No wonder the

other taxpayers complain, and the Independent telephone men declare the Bell octopus needs to be checked.

In the same connection it is interesting to note that in Minnesota the state public examiner has discovered that the report of the Northwestern (Bell) Telephone Company for taxing purposes is "shy" over \$45,000 in the gross earnings, and that the state is entitled to \$1,400 more from the Bell license than it was willing to admit. Apparently the octopus has no restraining prejudices that keeps it from dodging taxes in one state as well as in another.

#### INDEPENDENT GROWTH IN CANADA.

**T**HE Independent telephone movement in Canada is making great strides, and especially in the development of rural lines. The farmers of the Dominion are clamoring for the telephone as never before, and the experience of those who have the benefit of a line is so favorable that their neighbors are demanding the same advantage.

Independent telephone companies operating in York and Ontario counties are meeting with a generous response from the agricultural element. This year they propose to construct many miles of new lines. They hope to enter East Toronto with a service and to extend their lines from Pickering towards Audley and Kinsale. Oshawa Town has sent them an invitation to enter that place and operate a local plant.

The Toronto World in pointing out the possibilities of the Independent movement in Canada urges the necessity of Independent companies making their rates so low as to attract the people generally. In urging "a moderate and living charge," that paper says:

"We have become so accustomed to the extortionate rates of the Bell monopoly that this is an end much to be desired. These extensions of the Independent lines will add a wider usefulness to this system and will be the beginning of much activity among our rural friends. The farm home can be made so much more desirable by the introduction of the telephone that every farmer ought to have one installed for the social benefits alone. But it is essentially a financial question to the farmers, and he who grasps its advantages is the one who will make the quickest money. As is to be expected, the Bell company is performing some peculiar somersault policies at the various points of competition. For instance, it is offering telephones near Pickering for \$3 a year. The Bell offers other prices elsewhere. Its charges from Green River and from Brougham to Toronto bear no correspondence of rates. The embargo upon commerce, public enjoyment and farm comforts, placed by the extortionate charges of the Bell company, is enough to compel all these tempting baits to be refused with disdain. The Independent company will do well to push the good work and the farmers should see to it that they protect their own interests by crushing the Bell monopoly."

A "moderate and living" rate is what Independent company's competing with the Bell should establish, but at the same time they should exercise care to see that the rate is not so unwisely "moderate" as to be outside the "living" definition. In other words, Independents should not adopt rates at the outset that will be ruinously low, and thus encounter serious trouble later on. The emphasis should be laid on "living" as much as on "moderate" in the adjustment of telephone rates.

#### A SMOOTH BELL SCHEME.

**T**HE following Associated Press dispatch sent out from South Bend, Indiana, under date of April 20, is being heralded in some quarters as being an Independent victory over the Central Union (Bell) Telephone Company in Indiana. The dispatch states:

If the proposition submitted to the Independent telephone people of northern Indiana by the Bell company at the meeting held here

to-day is accepted, it will mean practical elimination of all opposition in the state and abandonment of the field to the newcomers. The plan of the Bell is to merge toll business, giving twenty-five per cent of each originating message, but not to exceed five cents for any paid minute. On all messages over the lines of the American Telephone and Telegraph Company fifteen per cent is to be allowed on each originating toll, but not to exceed ten cents on any one message.

The agreement offered refers to the cities included as follows:

First district—Connections for toll business will be made with the Independent exchanges at Atwood, Bremen, Bristol, Dunlap, Knox (through Winona exchange), Ford, paying in addition to commission a standard rate for use of lines; Nappanee, Pierceton, Plymouth (ceasing to perform any switching at this point), Rochester, Talma, Wakarusa, Warsaw (establishing a toll switch station here and cutting out all local service), Burgan, Etna Green, Leesburg, Claypool, Silver Lake, Palestine, Milford and other points as may be decided upon.

The plant at Elkhart, Goshen, Michigan City and South Bend will be sold to the home telephone companies now operating at those points, or leased at figures based upon their present value, the Bell first removing all such property as can be used elsewhere without loss; or it will merge the properties in those cities with the home companies at figures based upon the relative values of the two plants. The Central Union will then connect its toll lines with these exchanges, thus affording the use of all its long-distance lines.

The second and third districts cover the central part of the state and include Fort Wayne.

The effect of an arrangement of this kind, as can be seen, would be to exempt the long-distance company from threatened opposition, while the Bell company would in all probability be willing to unburden itself of the heavy loads caused by opposition at lower prices than it claims it can furnish satisfactory service.

While this all sounds very well and shows that the Bell in Indiana has acknowledged defeat, it would be a poor move for Independent companies to enter into any agreement of this kind. The Bell has ridiculed the idea of competition for many years, and has made a hard fight against what it calls the "opposition." It would not recognize Independents when the anti-Bell forces were weak and scattered. Now, however, when the "opposition" has captured the entire country, the very wise Bell managers come out with a statement that they will withdraw from the local field, if they are given the toll and long-distance business. The Independents in Indiana are strong in the number of their exchanges, stockholders, subscribers, and toll lines, and can gain nothing through Bell affiliations. The proposition of the Bell should be declined for the reason nothing can be gained to the Independents, and much may be lost.

#### BELL FINANCIERING UNDER FIRE.

STRENUOUS objection is being made by stockholders in the Bell corporation to the financial policy of the monopoly's directorate, but this fact is not receiving much attention from the Bell publicity bureau. At the annual meeting of the stockholders of the American Telephone & Telegraph Company, held recently in New York, J. S. Fay, Jr., who is the fifth largest stockholder in the corporation, entered a vigorous protest against the method of the directors in disposing of its latest bond issue. Attorney Sturgis, representing Mr. Fay, declared that ever since 1881 his client has been a stockholder of the company, that he had never sold any of the stock and had always backed the actions of the management until the issue of the convertible bonds. He stated that in the report of March 27, 1906, it was said that the directors had sold \$100,000,000 convertible bonds of the \$150,000,000 authorized on terms favorable to the company; and that this amount would be sufficient to supply funds to the company until 1908, and would include the retirement of \$20,000,000 notes due May 1, 1907.

The representative of Mr. Fay went on to say that according to the last report dated January, 1907, the company sold \$25,000,000 three-year 5 per cent notes at a reasonable price to pay off their floating debt. The directors sold this \$25,000,000 notes to the same bankers, viz., J. P. Morgan & Co., at a reduced price, and reduced the option price of the

remaining \$50,000,000 convertible bonds to a figure far below that at which they were offered to the public. Mr. Fay believed that this was unfavorable to the best interests of the company, and showed poor financial judgment.

In justification of the directorate's action, President Fish stated that the development and extension work of the corporation had progressed more rapidly than had been anticipated and that this had made it necessary to adopt the course pursued. He declared the directors had acted to conserve the interests of the stockholders as seemed best in the judgment of the management of the company. Whereupon the objectors were expected to retire and hold their peace. It is a characteristic of the Bell monopoly that whereas its press bureau has taken infinite pains to spread broadcast the report made at the annual meeting where this stockholder's protest was filed, there has been a significant silence with regard to that emphatic complaint, made, it should be remembered, by the fifth largest stockholder in the corporation. Family jars like this are not welcomed by the Bell managers, who—if they had their way—would relegate them to the "Forget it" department. Should there be such a discordant note in any Independent meetings, however, how the Bell would crow and emphasize the incident as positive proof that there were revolt and discord in Independent ranks! It all depends, of course, where the family quarrel occurs.

#### "THE STORY OF THE STATES."

TELEPHONY has deemed it advisable to suspend the series on "The Story of the States" until after the International convention. This issue contains the first installment of the report of the Chicago Telephone Commission, which, in many respects, is the most important document of its kind ever prepared relating to the telephone question in cities. With this vital treatise occupying so much space—and the important subject could not be adequately handled in less—and the usual wealth of other material, TELEPHONY found it impossible to include "The Story of Iowa," which was to appear in the May number, and keep within even ordinary bounds. June, too, will be a crowded month on account of the convention report, and as we have no intention of slighting the story of Independent telephony in Iowa, it was considered wise to postpone the publication of that feature of the series until the rush is over.

For this reason, the announcement is made that "The Story of the States" will be suspended until the July number. Iowa will be covered in that issue, and Wisconsin in the succeeding month. As a fertile field for Independent growth Iowa has proved to be a wonder, and readers may expect an interesting narrative of the movement in the Hawkeye state. The hiatus of two months should only whet the appetite for the Iowa number of the series.

The Rocky Mountain Bell Company is growing decidedly unpopular among telephone users in Montana. Citizens of Great Falls held a mass meeting recently and adopted resolutions condemning the Bell for inefficient service, unfair wages for the operators, and the exorbitant rates for the use of telephones. A committee was appointed to confer with the company and bring about a settlement, and if this failed it was the sense of the meeting that all telephones be ordered out within twenty-four hours. If the company fails to act the patrons are to take them out themselves.

The *Telephone Securities Weekly*, which aims to cover the financial field of the telephone world, made its first appearance April 13. Paul Latzke, author of "A Fight with an Octopus," is the editor. The new publication is issued from New York and devotes its energies to distributing news relating particularly to stocks, bonds and other telephone securities.



# NEW TYPES OF APPARATUS

*Suggestions That Prospective Buyers Should Keep in Mind When Considering Untried Devices*

By R. A. Wilson

A NEW TYPE in the telephone trade, so far as this article is concerned, is a device intended to embody in mechanical form an idea or principle which will perform the regular telephonic function and at the same time prove more advantageous than the regular apparatus of the day. To do this it must be either more economical in cost, require less expensive line construction, be more durable, operate more rapidly, be less complicated in construction, or be more attractive in appearance. If it accomplish any one of these purposes it is, of course, worthy of consideration, but the conservative buyer will wish to have the fact demonstrated beyond a reasonable doubt before paying out his good money for it. Further, he will also want to be sure that even though it have the advantage claimed, it does not also necessarily carry with it some disadvantages which will more than offset the claims of the salesman. As the telephone art is so new and the march of invention has been so rapid, we have grown accustomed to witnessing the displacement of older forms of apparatus by these new types, and the trade in general recognizes that the most familiar types are only accepted conditionally until something better may be invented to take their places.

On the other hand, the whole history of the trade is strewn with wrecks of new types that went wrong. How many readers of this magazine have escaped? It would be interesting to know how many have purchased equipment supposed to be a step in advance of the state of the art, but which proved to be so full of trouble or so disadvantageous in other respects that the purchaser was glad to discard it and return to that which time had tried and proved useful. Along this line I think the experience of the average telephone man will show that even though the progress of the art has been almost miraculously swift, nevertheless for every distinct step forward there have been many stumbles which brought disaster to both the purchaser and the manufacturer.

It is not in accord with human nature that such should be the case, for time is already the source, the means and the final arbiter of human judgment. Time alone thus tells us that something better is demanded; time alone enables the inventor to develop an idea of something better, and time alone proves whether or not that idea accomplishes its purpose. So long, therefore, as only the need and the idea have been developed, it is utterly impossible to forecast, with certainty, the result. Furthermore, since human judgment is limited wholly to the past, it is not in accord with its nature that the future should be opened to it. Inferences, of course, may be drawn, and, fortunately for human progress, many of these inferences have proved to be correct; but, nevertheless, since they are based wholly upon the past, any new combination which they suggest is more likely to be wrong than right. For there are many ways to go wrong but only one way to go right.

For these reasons it is, in my opinion, desirable that a few general principles be established if possible by which new types may be judged. By such principles, if they can be established, the buyer will be protected in a degree and will avoid the unpleasant dilemma of either rejecting all new things or falling a victim to every new claim of enthusiastic salesmen. Thus he will be able to investigate new types on their merits and to choose those which are necessary to keep step with the march of progress. On the other

hand he will unhesitatingly dismiss from consideration those types which do not conform to the established principles, and in this manner will be saved from unfortunate purchases which affect unfavorably his bank account and his patronage.

For these reasons let us consider the many claims which are made for new types and then also consider how far the conclusions reached should carry. To do this I think the list of claims given above will substantially cover the subject, and the first of these is that a new type is cheaper than the established type. Whether such is or is not the case is at once disclosed by the price asked. But if it be cheaper what are the reasons? These I think can be enumerated without difficulty. First, the new design may be constructed along new lines. If so, naturally these questions arise: How does it differ from the regular type? What new features have displaced the older forms? In what different ways are the necessary functions performed; and, last but more important than all the others, has time recorded its verdict? In other words, where has a sufficient number of the new type been in use under all conditions of service to demonstrate its superior efficiency and durability. It must be remembered that both the efficiency and durability are essential factors and that the latter takes much time to be demonstrated.

It would, therefore, be unwise to adopt a new type simply because it works. Testimony respecting its durability should therefore be demanded, and such testimony should come from so many sources and testify to such long continued use under such varying conditions of service and climate as to leave no doubt as to the truth of the testimony and the disinterested character of the witnesses.

When, therefore, a new piece of apparatus is offered which operates efficiently and to the durability of which a large number of widely scattered purchasers will testify, then the buyer is reasonably justified in purchasing for his own use. He will then be reasonably secure from making a mistake, whereas without these precautions his best judgment is only a guess made under the influence of an enthusiastic advocate. If the claim, however, be the second in the list, namely, that less expensive line construction is required—the same considerations should govern, for a saving in expense is the same in character whether it be in the instrument or the line. In this connection, however, it may be added that all testimony should be most carefully scrutinized to determine not only whether it is disinterested, but also whether it is based upon a trial for a sufficient length of time to be the result of experience rather than enthusiasm.

The third kind of claim is that the new apparatus while similar in form and performance of function, is simply more durable than that in use. This claim is hardly worth consideration, for in these days all time-tried types of apparatus of standard makes are so durable that the ordinary telephone or switchboard will outlive the state of the art in which its form expresses the highest perfection. Years ago this claim had weight, but I think the experience of purchasers will warrant them in agreeing that the regular apparatus (not novelties) of all standard makes which has been bought within the last four years is in practically as good condition as when first installed. Durability may therefore be accepted as a foregone conclusion, respecting regular apparatus pur-

chased from any one of the old-established factories whose size testifies to the extent of its business and the range of its experience. This applies, of course, to the regular types which such factories have had on the market for years. It would not and does not apply to new types of any kind or character. And the reason is obvious, for just to the degree that the new type varies from the time-tried regular type, it must await the verdict of time for approval or rejection.

The next claims are that the apparatus operates more rapidly and is less complicated in construction or less expensive to maintain. Here again must the verdict of time be consulted. Again must the testimony of users be sought and the purchaser must assure himself from a variety of witnesses that the claims are based on experience rather than enthusiasm. Of course, the experience of the purchaser will be used so that inferences may be based on it to justify or reject the claims. But the fact must never be lost sight of that all human judgment is based upon the past, and that no inference respecting the untried can be much more than a guess.

The last claim, that of being more attractive in appearance, requires no such testimony, because here is the accomplished fact, already historical when the purchaser has looked upon it. In such a case it is not a question of what its various complicated parts will do in the future, but simply how it looks, and in this type of claim each purchaser requires no testimony or other aid to assist him in forming a judgment. The old and the new are side by side and the sense of sight is all the aid required by the understanding to reach a decision.

If what has gone before is true, it will be seen that two things, and two things alone, are required to judge the merits of any new type of apparatus, aside from the question of appearance. First, a series of inferences based upon the experience of the purchaser or his technical expert with apparatus where the different features of the new type have been present but not combined. If these inferences are unfavorable, then further investigation is unnecessary. But however the opinion formed may be, it must always be remembered that at best it is little more than a guess, until confirmed by the experience of others who have used the particular novelty for a sufficient time, and under sufficiently varied circumstances to demonstrate every claim made for it. Such testimonials should not be taken at second hand from the salesman. The purchaser should rather write to users of the new type in all parts of the country and on these replies together with his own opinion, a decision should be based. And now having developed principles to guide the investigation of new types of apparatus, let us consider how far favorable conclusions should carry.

In the first place it should be remembered that most of the leading factories carry a varied line. They make apparatus of all types and kinds that circumstances and conditions demand. Nearly all of these are standard and regular, have been tried by time and the verdict of users is available. If, therefore, a new type is considered and approved, it does not necessarily follow that the other types and kinds of apparatus made by that factory are also superior to the same types and kinds of apparatus produced by other factories. It has sometimes happened that when a factory has been fortunate enough to have developed by its engineering department a distinct advance in the art it has reaped an illogical harvest from that fact. Under such circumstances the sales department has argued that here is one type which is superior to existing similar types, therefore all types produced by this factory are superior to similar types produced by other factories. This assumption is, of course, illogical, as it does not follow that because a man is tall, he also has long hair. He may in fact be bald. Likewise, a factory which has produced a most useful inven-

tion in one branch of the art may or may not be abreast of the times in other branches of the art.

I have often noticed the contrary to be true. And the reason is illustrated in every branch of industry. This is an age of specialization, and genius which is capable of rising to great heights is usually narrow in its scope. If you want the best plow you can buy you do not go to a department store. Do you not, on the contrary, go to a dealer who makes a specialty of plows and whose experience in plows is therefore in itself a guarantee of quality? Likewise, with respect to telephone factories. If a factory specializes in some particular field of the art and products superior equipment in that field, it does not follow that it is equally superior in all branches. On the contrary, it may be that the effort to excel in one branch has been made at the expense of effort that might have been put forth in other branches. If a factory specializes, well and good. It may, and sometimes undoubtedly does, excel its competitors in that specialty. But that is no reason why it should command a premium on its other products which are not in the field of its specialty.

On the contrary, purchasers apply to all apparatus when presented for consideration the principles outlined above. If two or more types are wanted, each should receive the same scrutiny, whether they have the same or different nameplates. And it is always well to remember that every factory usually makes the most noise about that type of apparatus which is its specialty, and therefore in which it probably excels.

#### BLIND GIRLS FOR OPERATORS.

In the October (1906) issue TELEPHONY printed the portrait of Kirk S. Thompson, a blind telephone operator who manages the switchboard at the Erie (Ill.) exchange. The idea of employing blind persons as operators is being taken up in New York to a remarkable extent.

Miss Hanna Isaacs, the blind telephone operator of Lebanon hospital, the Bronx, has undertaken to teach a class of blind girls the art of manipulating a telephone switchboard. She is doing this at the suggestion of an officer of the telephone company, who agreed to hire the blind operators if they show anything like Miss Isaacs' proficiency.

Miss Isaacs was taken to the hospital some time ago to have an operation performed on her eyes. At that time her sight was failing. Before the operation could be performed, however, she suffered from blood poisoning, and it was necessary to take out both of her eyes.

The unfortunate young woman had neither relatives nor friends. She had become a general favorite at the hospital, and Superintendent William Daub planned to keep her and make some easy berth for her. At that time the hospital did not have a telephone switchboard, and as one was going to be put in one of the surgeons suggested that the blind girl learn to operate it. The switchboard was put in and it now has ten trunk wires and forty extensions.

The girl learned to operate it in two days with such skill and splendid precision that everyone who watched her work was amazed. Like Mr. Thompson she also learned to operate a typewriter, and now handles all the correspondence for Superintendent Daub.

Recently the young woman was invited to attend one of Helen Keller's lectures at the Waldorf, and after Miss Keller spoke she told of her experience as a telephone operator. Before this Superintendent Tucker of the telephone company had taken a deep interest in the girl, and proposed that she teach a class of blind girls to become telephone operators. She was delighted with the idea, and has undertaken the work with enthusiasm, as she believes the telephone work will furnish lucrative employment for many sightless women.

# QUESTIONS AND ANSWERS

By H. P. Clausen

ONE of the questions which should be discussed in these columns pertains to the individual experiences of our readers in the matter of connecting the negative terminals of storage batteries to the earth where a common battery system is used for supplying current to the line circuit, both for signaling and talking purposes. It is perfectly safe to start out with the assumption that there is only one correct way for grounding storage batteries when used for telephone service; for the positive side of the battery should be grounded and under no circumstances should the negative side be grounded instead. The experience obtained after years of observation absolutely proves that when the negative side of the storage battery is grounded it is certain to result in a gradual deterioration of all circuit portions of the exchange equipment which connect to the positive side of the battery. In other words, the air is never perfectly dry, and whenever any dampness exists in the atmosphere a layer of moisture is present between the different terminals of the relays, impedance coils, line wires, etc., and when this film of moisture is present there is a constant tendency for the current to flow from the positive side of the circuit to the negative, and if this negative terminal is connected to earth, it is obvious that an electrolytic action must be constantly present. That is to say, we are using circuit material as the anode and depositing metal from the circuit material onto the negative side of the battery, which, in this case, is the earth. We cannot deny that this action does take place, for current always flows from positive to negative. If the positive side of the storage battery is grounded, it is obvious that we are plating from the positive side of the storage battery—or earth side—onto the negative side of the circuit, and owing to the fact that the wires which are connected to positive side of the battery are at the same potential as the earth, it is easily understood that but very little tendency exists for a plating action from the positive side of the circuit wires to the negative side, and as far as the writer has been able to determine, no electrolytic troubles have been observed to take place from the positive side of a telephone circuit to the negative side while the positive side of the circuit is grounded and the apparatus is mounted upon the frame work which also is grounded.

This brings up another question, and one which can be discussed with considerable profit. Whenever the positive side of a storage battery is properly grounded what is the result when the framework upon which the relays, etc., are mounted is not connected to ground? It is thought that with an ungrounded relay frame, electrolytic troubles are sure to occur in the course of years and that on general principles all relay frames should be grounded, even if it is done only for the purpose of preventing an accidental negative cross to remain on the frame for a sufficient length of time to introduce electrolytic troubles.

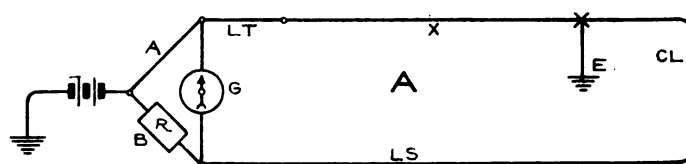
Another question which can be touched upon relates to the grounding of the switchboard iron frame work.

The writer shall endeavor to follow up these matters from time to time and trusts to hear from TELEPHONY's readers, especially those who have gone through a siege of open relay windings, open bridle wires, etc., which troubles finally were found to be due either to the negative side of the storage battery being connected to earth, the relay frame not having been grounded, or owing to neither side of the storage battery being grounded. It is only by obtaining a record of these experiences that we can hope to

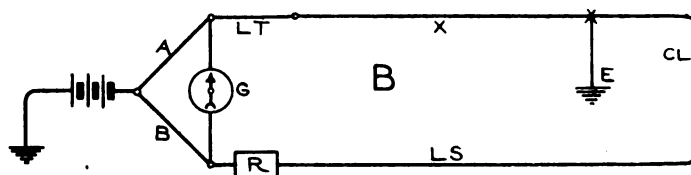
bring out the different points and help to educate each other.

I have been a reader of TELEPHONY for a number of years, and am much interested in "Questions and Answers" and beg to ask a favor of you. I wish to know how to make a Murray loop test in a bad cable with a Wheatstone bridge. I can make the Varley test all right, but do not know how to set the bridge arms. The bridge arms read one, ten, one hundred, in A, and ten, one hundred, one thousand, in B.—S. A., Arkansas.

Owing to your failure to state the type of Wheatstone bridge that you have available it will be impossible to give you an exact diagram of the connections which are required, but as you appear to understand the execution of the



Varley and Murray loop tests, it need only be stated that with the Murray loop shown by Diagram A, the Diagram B shows the Varley loop test circuit. You will notice that



the chief difference between the two methods lies in the fact that with the Wheatstone bridge used in the Varley tests, the bridge arms A and B are used as ratios, and that the rheostat arm R connects in series with the circuit being tested, which means that the galvanometer connects across the bridge arms and that the rheostat is connected to the outside.

The diagram clearly shows the connection, and as the different calculations for making these tests have appeared a number of times in TELEPHONY, they are not repeated here.

Could you recommend any work on the telephone which deals any way extensively with composite telegraph and telephone systems? If so, would you kindly let me know price posted direct? I am a constant reader of TELEPHONY and have been since the beginning of 1903. I would ask whether you can recommend any work on the telephone which deals extensively with composite telegraph and telephone systems? If so, would you kindly let me know the price? I am in the employ of the commonwealth government and in charge of telephones and switchboards in the western district of New South Wales. This district has an area of over 36,000 square miles and contains towns at which small exchanges have been established. There are twenty-two switchboards and connected to them are 2,000-odd telephones. Several of the telephones are connected together by means of the composite telegraph and telephone system, or, as we call it here, the condenser system. I wish to study things up a bit and try to improve the existing service.—M. B., N. S. W., Australia.

A series of articles dealing with the problem of telephony and telegraphy will shortly appear in TELEPHONY. This series of articles undoubtedly will give you the information that you want. There are no books published in the English language which exclusively treat the subject of com-

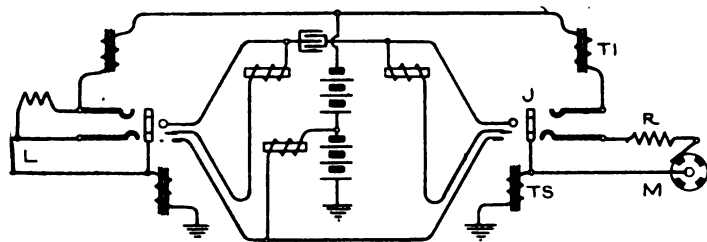
bined telegraph and telephone work. There is a French book entitled "Simultaneous Telephone and Telegraph," published in Bruxelles, 1885, by Ed. Buels of the French Telegraph Administration. This book contains numerous diagrams, and the subject is covered in 226 pages, but it may be added that most of the data found in this book is pretty generally known, although if you are able to read French it may be an excellent book for you to obtain.

If you will direct a letter to the French Telegraph Administration, they will undoubtedly be able to supply you with a copy of the book. We suggest that you watch the columns of TELEPHONY and you will obtain more information on this most interesting subject.

Will you please give me in your next issue of TELEPHONY a diagram of a good howler circuit to be used on an American Electric Telephone Company's common battery switchboard? I have tried using forty volts on a buzzer through the primary of an induction coil with the secondary on the tip and sleeve of the plug and so on to the line, but it does not seem to serve the purpose. Can you suggest something better?—S. S., Texas.

The system which you are operating is of a type in which the line current supply is fed through impedance coils connected to each side of the line as shown by the diagram below. The cord circuit is of the two-conductor type in which a supervisory relay connects across the first and second tips of the plug. The sleeve side of the cord circuit being supplied with battery whenever the plug is inserted into a line jack.

In order to install a howler circuit in connection with this system, a plan shown by the diagram is submitted as one which will probably meet with your approval. *TI* and



*TS* are the regular impedance coils used on a line circuit. *J* may be one of the line jack. *M*, however, is a make and break wheel attachment which may be operated at any required speed. *R* is a limiting resistance to prevent your obtaining too severe a signal. You will further observe that another jack, *J*, is so arranged that only during the period that you have a plug in the jack does the battery current flow through the make and break arrangement. This resulting in a material saving of current, and at the same time eliminating the possibility of inductive noises due to the howler current effecting the normally quiescent condition of your line.

Will you kindly tell me through the columns of your paper why the "kick coil" magneto call telephone is not more popular? Is this scheme not a practical one, and, if so, why is it not taken up by all telephone manufacturing companies? Is it not a success on local lines? If not, why not? Do you think the transformer cuts down the talking efficiency, or is the signaling not perfect?—B. A. P., North Dakota.

All "kick coil" telephones are based on the principle that the battery which is in the telephone is utilized for the purpose of signaling the central. This is the first objection to this kind of telephone. The batteries which are at the telephone are subject to a considerable drain whenever the transformer is operated, and owing to this drain of battery current, it is obvious that the telephone must be equipped with new batteries in perhaps one-third the time that it would otherwise call for renewals. The time stated is merely an opinion and not based on actual experience, although some of our readers may be able to give information on this point. The fact remains, however, that it is

impossible to conceive that a "kick coil" telephone battery will last as long and give as good service from a talking standpoint as a telephone not equipped with an arrangement for consuming battery current other than that called for by the transmitter.

This question of renewing batteries is further emphasized by remembering that the only way you can signal the central office is by the use of the "kick coil" arrangement, and if the batteries at the telephone are weak either through a long continued use of the telephone while talking or through a run-down battery, what means have we for reaching the central office? Absolutely none other than renewing the battery or going to some other station or awaiting for a chance to "get at the operator," which could only occur when the station is called from the exchange. Another objection to this kind of instrument is that the hook switch contacts must be very carefully adjusted and kept adjusted to a proper point, for it is only while the hook switch passes from one position to the other that the battery is connected to the primary of the transformer, for a short period, and if this period is not long enough the signaling is not satisfactory.

As to the advantage of the "kick coil" telephone, there is no question that it is a great convenience to be able to remove a receiver from the hook switch and obtain connection with central, and it is a great saving in time at the central office when the replacing of the receiver to the hook switch automatically clears out the connection. The talking service of the telephone is not affected materially by the secondary of the transformer constituting the "kick coil."

Your question as to why all manufacturing companies do not make the "kick coil" telephone, can best be answered by suggesting that when the telephone purchaser demands an instrument of a certain kind the manufacturing company generally stands ready to supply it, but owing to the probable limited demand, the manufacturing companies are not extensively advertising this type of an instrument.

### A STORY FROM BUTTE.

The conjunction of a wild cat, telephone wires and a heavy electrical storm played havoc near Butte, Montana, recently. A telephone message from Big Hole River brought word to headquarters that a pole supporting a line near that village was on fire and endangered that section of the system. The foreman of construction, with several helpers, started for the scene of trouble to investigate the cause and fifteen miles from Butte came across a pole nearly consumed by fire. After extinguishing the flames the linemen looked around for the cause and discovered on the ground at the foot of the pole the badly torn fragments of what once had been a half-grown wild cat or young mountain lion. Tangled in the wires were its tail and shreds of flesh, giving a good clue how the beast had met its fate. Either through curiosity or fright the big cat had climbed the pole, and while on the cross-bar had created a short circuit or received a severe shock during the storm of lightning. The bolt had put the animal out of commission and ignited the pole. The linemen brought several claws back to Butte as souvenirs of the unique accident.

### TELEPHONE INCREASE.

Should the ratio of increased use of the telephone keep up the wires will soon be carrying more messages every day than are handled in the mails. In the last three years the number of subscribers has doubled over the total of the previous twenty-four years, and because of the extended use of the telephone the average cost of every class of messages has been reduced to 2.2 cents, but little more than that required by the average mail.



# IRONTON (OHIO) AUTOMATIC EXCHANGE

*Description of Equipment Installed by the Home Telephone Company*

By Rudolph C. Butler

WHAT is generally regarded as a fine example of a modern automatic telephone exchange has been installed at Ironton, Ohio, for the Home Telephone Company of that city. This up-to-date plant has been equipped by the American Automatic Telephone Company of Rochester, N. Y., and begins operations with flattering prospects of success. This company was incorporated in January, 1906, under the laws of the state of New York, to manufacture and sell automatic telephone switchboards, with the right to engage in the general manufacture of telephone apparatus, if desired. Suitable preliminary factory quarters were at once selected, and the necessary machinery and dies acquired. The company preferred to begin operations with a new automatic system, based upon entirely new principles in the automatic art. The system has been developed and perfected by careful and severe tests of parts, painstaking experiments, and practical applications. The first application was in the Ellis Hospital, Schenectady, N. Y., which was soon followed by a system in the Eastman Kodak Works, Rochester, N. Y. The latest application is the exchange of the Home Telephone Company, at Ironton, Ohio, which is equipped for four hundred direct lines and one hundred four-party lines, making in all eight hundred telephones.

The switchboard frame, of which there are two sections, is shown in Figure 1 without the encasing cabinet. Figure 2 shows the switchboard frame with its encasing cabinet. The latter is made of highly polished golden oak, with glass. There is an entrance door at one end of the enclosing cabinet, and the sides are provided with sliding doors, so that the switches and wiring are readily accessible, and are at the same time thoroughly protected against dust. In addition

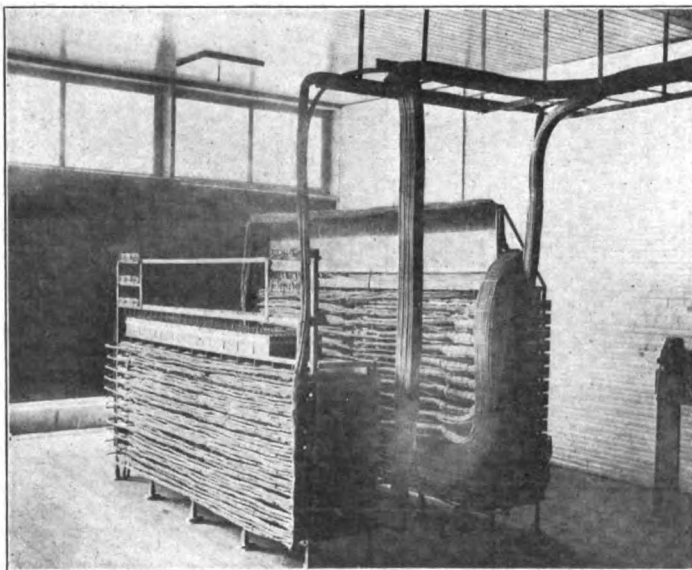


Figure 1—Switchboard Frame, Without Encasing Cabinet.

to the dust protection afforded by the cabinet, it should be noted that the construction of the switches and their arrangement in the frame is such that they are self-protected from dust. All contact springs are horizontal, and no contact is exposed to dust settling by gravity. Figure 3 shows the relay rack, with a polished golden oak glass encasing

frame and the wire chief's desk, while Figure 4 shows the power equipment.

The company claims that it is the first to have adopted a central energy system of automatic exchanges, and in doing so it has developed the same along manual lines in methods of operation as closely as possible, wherever it was desirable, thus making the scheme readily understandable by manual men, and less difficult to educate attendants. The advantages of secret, uniform, quicker, more reliable and cheaper service are claimed. It is the only automatic sys-

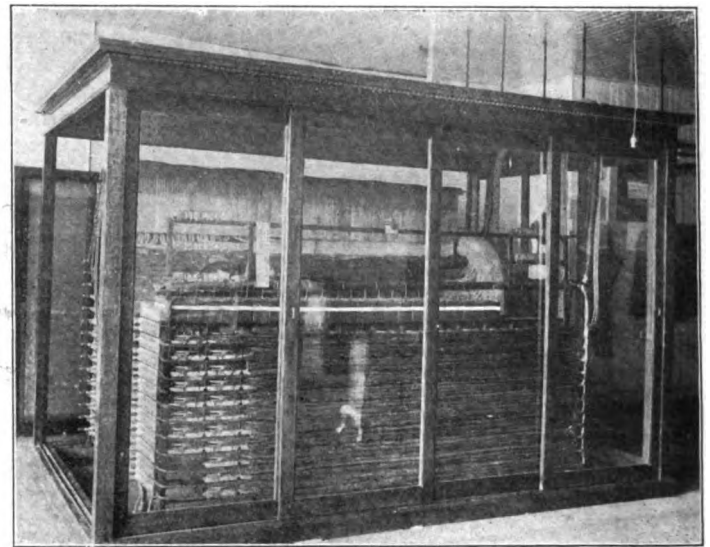


Figure 2—Switchboard Frame, With Encasing Cabinet.

tem using two wires, and making no use of the ground for selective purposes, therefore, it is said, there can be no failures from change of earth potential, as is the case in other systems where earth is used. The two wire system has also made it possible to develop an exceedingly simple sub-station selector, there being only one electrical contact, and that with a commutator arrangement similar to a dynamo, except, of course, that there is but one segment on the commutator. It has thus been possible to eliminate all fine adjustments, and greatly reduce the cost of sub-station maintenance, to say nothing of the increased reliability.

At Ironton the system is provided with Dean harmonic party lines, but any system of selective ringing can be used, and party lines may be equipped with look-out attachments of simple design, if desired, making secret service possible on party lines as well as on direct lines. Automatic pay stations may be provided, if desired, in which coins are automatically taken, or returned, depending only on whether the called party has, or has not, answered. If the called party does not answer, the coin is returned to the calling party. The instrument will also discriminate between rates automatically, and measure the time for both original and fractional periods, compelling the payment of proper amounts if conversation exceeds a pre-determined period. Under certain circumstances coins will be returned after service has been rendered, for example, where a party is called who has advertised to pay for all incoming calls, or where a subscriber desires to use a pay station to report trouble to the management, in which case the coin is always

returned. If more coins are deposited than are required by time of conversation, the remainder of such coins is returned to the calling party when the receiver is hung up. All coins collected at pay stations are automatically recorded on a meter in the central office, affording a check on collections.

Metered service may be provided, where it is desired to operate a service on a metered basis, arranged to register in the central office every call that has been answered. This is done mechanically and electrically, and is not dependent upon an attendant. Meters can be arranged to register all calls, either out-going, incoming, or both. Furthermore, the registers may be arranged so that they will not record calls which should not be recorded, such as, for example, a call to the company's management to report a defect in service. They can also be arranged to record at different rates, depending upon the rate determined for the place in which the called party is located; or they may be arranged to record on the basis of elapsed time in the use of telephones.

Figures 5 and 6 represent respectively the switch base and

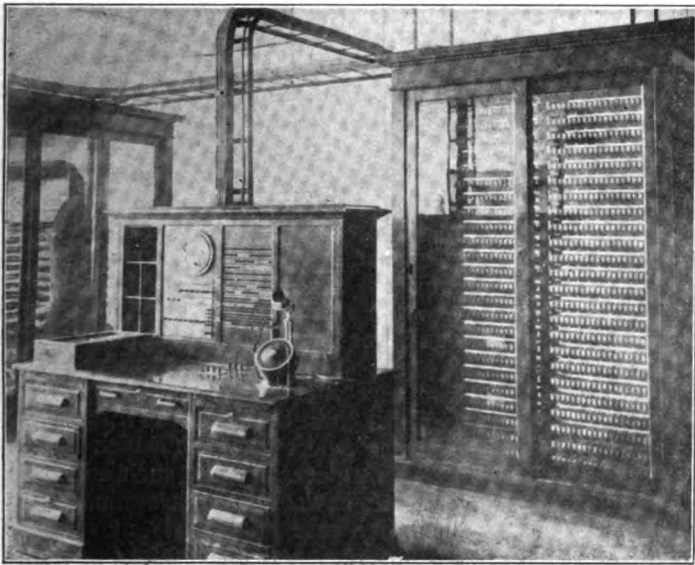


Figure 3—Relay Rack and Wire Chief's Desk.

bank base, with operating mechanism, consisting of the motor magnet shown at the right of switch base; release magnet is shown at the left; and a ratchet wheel carrying brushes for making connection with the bank contacts. The motor magnet has a spring steel driving pawl attached to the upper extremity of its armature, which engages with the teeth of the ratchet wheel and serves as the means of moving the wheel forward one step each time the motor magnet is energized. It is possible to drive this wheel forward over its entire course in one-half second, and to stop it with precision while moving at that rate with its brushes resting upon anyone of the bank contacts desired. Just back of the driving pawl there is another spring steel pawl, which also engages with the teeth of the ratchet wheel. This pawl serves, when the switch is in operation, to retain the ratchet wheel in any position to which it may have been advanced by the driving pawl.

To the armature of the release magnet there is attached a steel release spring, the upper end of which normally rests against the left hand end of the driving pawl. This spring is provided with a notch just below the point at which it rests against the driving pawl, the arrangement being such that when the release magnet is energized the release spring is moved forward until the notch passes over the end of the driving pawl, thus when the release magnet is de-energized, the release spring draws both the driving pawl and the retaining pawl from engagement with the teeth of the ratchet wheel, allowing the latter to return by its spring ten-

sion to its zero position. The first following movement of the motor magnet displaces the release spring, and permits the driving and retaining pawls to again engage the teeth of the driving wheel. It will be noticed that there are no cords to become entangled. Current is fed to the brushes by the feeder springs attached to the right-hand end of the bridge which supports the shaft of the ratchet wheel. The ends of these feeder springs press upon segments at the lower end of the brushes.

The switches are equipped with male jacks, as shown at the top, and the banks with female jacks, located to coincide with each other. All switches of a certain class are interchangeable. It is therefore possible to remove and replace one by another in a second or two. The service is in no way disturbed while the change is being made. This feature is important because it admits of the adjustment of switches at a convenient testing table, after which they can be placed in the frame with assurance that they are in proper working order. Another useful feature of the arrangement of the bank and switch bases is the positive alignment when the switch is inserted in the bank base. The male portion of the switch is provided with a tongue which is A-shaped at its edges, and the female portion of the bank base is provided with V-shaped grooves into which the A-shaped tongue is inserted, making an absolute alignment between the switch and the bank, both horizontally and vertically.

The bank base is of the four-point type, two rows of contacts being for line connections, and two rows for exchange control purposes. This is the largest bank in use in any exchange. A large per cent of the banks have only three rows and some only one row of contacts. In practice the brushes of the switch never pass off of the bank contacts. The normal position of these brushes when the switch is at rest is on the first contact of the bank. It is thus possible to adjust the brushes with a firm spring tension against the bank contacts, thereby assuring a more perfect contact than would be possible were the brushes normally out of engagement with the bank contacts, as has heretofore been the practice. For this reason no calls can be missed by a failure of the brushes to properly enter upon the contacts. The switch has but one movement, namely, horizontal.

Tests have been made in which switches have operated over the entire bank of contacts 500,000 times without inter-

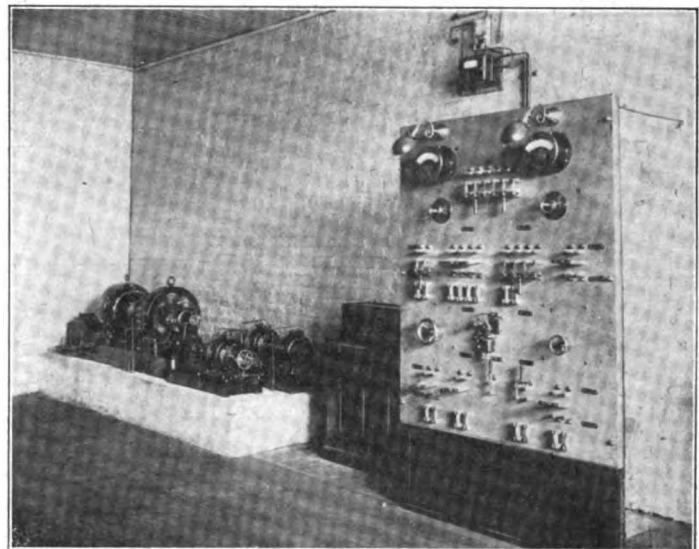


Figure 4—Power Equipment.

mission or failure, and running day and night for that purpose. As fifty steps are necessary to pass the brushes over the entire bank of contacts, it follows that the pawls engaged the teeth of the ratchet wheel 25,000,000 times in this test. At the end of the test the pawls and the ratchet wheel were found to be in good working condition, showing

scarcely any wear, in fact, the teeth and the pawls were not much more than polished. As these are the only wearing parts in the switches, and as the test greatly exceeded the possible requirements of many years of actual service, a further test was considered needless, and it was therefore discontinued.

Figure 7 is a standard central energy wall telephone equipped with sub-station selector. The only change necessary to convert it into an automatic was to open the line circuit on the rear of backboard, extend the two ends through the backboard, and connect them to the commutator contact of the sub-station selector. This can be done with any style of central energy wall telephone; moreover, if it is desired to change an existing manual plant to automatic, it can be done without removing the telephone from the premises, and without interruption to the service, except for the brief interval occupied in attaching the sub-station selector, and after the sub-station selector has been attached, the telephone may continue to be used manually until the automatic control office equipment is installed, at which time it will only be necessary to transfer the lines in the central office from the manual board to the automatic board to complete the automatic service. As the sub-station selector is the only piece of equipment located outside

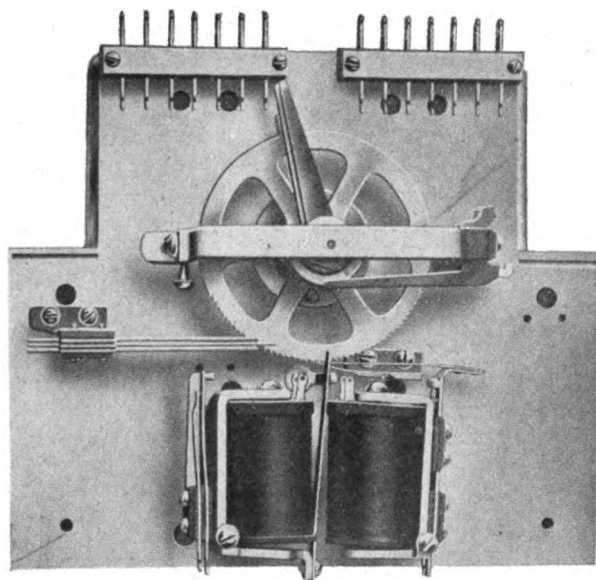


Figure 5—Switch Base. with Operating Mechanism.

of the central office, it has been made exceedingly simple, durable and reliable, to avoid frequent inspection, adjustment and repairs. The additional maintenance on sub-station apparatus is thereby reduced to a minimum. It will be in fact but a trifle over that of a manual telephone, and this will be more than counterbalanced by the reduced cost of maintenance upon the central office equipment.

Each sub-station slot may be supplied with a lamp, if desired, receiving its current from the central office over the telephone wires, lighting the dial as soon as the subscriber removes the receiver from the hook. The light will be sufficient to find the number for making calls, or the numbers in the directory, without first illuminating the room. To call with this sub-station selector the receiver of the calling party is first removed from the hook. The pin is then inserted in the hole on the dial of the sub-station selector corresponding to the first number of the combination desired, and by means thereof the dial is revolved to the right as far as it will go, after which it is allowed to rotate back by its own spring tension to its normal position. The operation is repeated for the second, and all following combinations desired. In rotating backward the mechanism of the sub-station selector opens and closes a single commutator contact a number of times corresponding

to the number of the hole in which the pin had been inserted, thus transmitting its impulses to the switches. With two movements of the dial it is possible to select any of 2,500 subscribers, and with three movements this number may be increased to 125,000 selections. Hanging the receiver on its hook opens the circuit, releases the switches

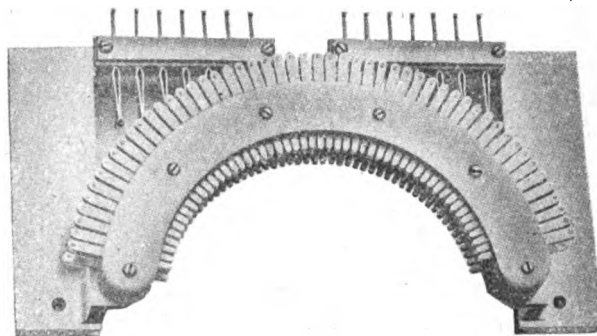


Figure 6—Bank Base, with Operating Mechanism.

and restores them instantly to normal. The release being instantaneous it follows that the calling subscriber is immediately able to make another call.

It will be noted that the system of numbering is different from any other system, either the present manual or automatic, and is known as the hyphenated number system, either single or double numbers being transmitted at one time as desired, and as hereafter described. When a busy telephone is called, an audible busy test is transmitted to the subscriber. In large exchanges it is practicable to use a phonograph, or telegraphone, to announce the fact when a busy line is called. As there are fewer switches than there are telephones, the lines being represented by a line and cut-off relay, exactly the same as in manual practice, instead of a switch, it follows that successive calls rarely pass through the same set of switches, hence should a subscriber in making a call happen to select a switch which has for some reason failed it is only necessary for such subscriber to restore his receiver to its hook, remove it again, and repeat the call. In the latter case an entirely new set of switches and circuits will be assigned. The wire chief, however, will have received notice through lamp supervision located on his desk of such defective switch, which can, as

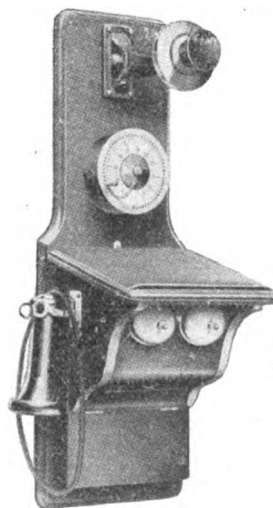


Figure 7—Wall Telephone Equipped with Sub-Station Selector.



Figure 8—New Automatic Desk Telephone.

above stated, be replaced with a perfect switch in a second or two.

The system herein described is one in which two motions of the dial are used to complete a call. The switches necessary to an exchange based on two motions of the dial are distributor B., C., D., X., and G switches. When a sub-

scriber removes the receiver from the hook, the talking circuit is closed through the springs of the sub-station selector, or calling device. This operation energizes the line relay, which removes the ground battery from the contact representing the calling subscriber on a row of semi-circular bank contacts. Above this "busy" row of contacts and swept by wipers mounted on the same shaft, are the corresponding rows of "line" and "mate" contacts. Thus on the banks of a B switch there are three rows of 50 contacts representing the "line," "mate" and "busy" of fifty subscribers' lines. On the instant that the line relay acts, a distributor switch is started by the forward contact on the line relay springs. This distributor switch in its rotation throws ground on a bank point representing the starter wire of a B switch in the group from which the call is to be made, starting it to sweep its arc of bank contacts. As soon as the wipers have traveled to the point from which the ground has been removed on the "busy" row of contacts, the calling subscriber's line has been found and, having found the caller, it stops, returning ground battery to the point from which the line relay had removed it. In stopping the B switch also throws ground on a corresponding point in a fourth row of contacts on the banks of the B switch. This last-mentioned ground contact operates the cut-off relay.

On the same instant that the B switch leaves its normal position in its search for the calling line, the X switch starts to rotate in search of an idle C switch. The B and X switches being in series, then, the subscriber is now connected direct to the line jacks on the C switch, which may call into any one of fifty groups, each group representing fifty subscribers. The above operations are all accomplished in from one to one and one-half seconds.

The group to be reached is designated by the first number called on the dial at the calling subscriber's station. The calling device, or sub-station selector, as we have named it, has only two springs. These, with the receiver hook springs of the common battery variety, are the only

springs in the subscriber's station. The springs in the sub-station selector are normally closed, and are so arranged that the contact is opened and the circuit interrupted when the dial is operated. These interruptions always correspond to the number pulled on the dial, which may be from 1 to 50. Thus, if 35 be pulled on the dial, the impulses occasioned by opening the circuit thirty-five times would be taken up by the mechanism and magnets of the C switch, causing it to rotate to the 35th point on the bank contact arc. This 35th point, then, represents a trunk to the 35th group of fifty subscribers. All the trunks to this group are terminated on the banks of the D switches for this group, and these D switches find the calling trunk in practically the same manner as the B switch found the subscriber's line. Then comes the simple operation of calling 21 on the dial and we are connected with the sub-station 35-21 through the G switch, which is the last to rotate. This G switch is equipped with a greater number of relays, and has a more complex circuit for purposes of ringing the called subscribers' bells, detecting busy lines, etc. When a subscriber is through talking he hangs up his receiver, which makes his line test open. This permits certain relays on the switches to make back contacts, which operate to release the call, and restore the switches to normal.

On party lines in this system the group of fifty subscribers is in reality four groups, on the banks of which are represented fifty line circuits. A certain number (any that is desired) of G switches is supplied with 16-cycle harmonic ringing current, then for each of 33, 50 and 66-cycle ringing current the same number of G switches are installed. To the banks of all these G switches all the 50-line circuits are multiplied straight through, so that the initial number of the call to any one of these party line subscribers merely indicates which ringing current is desired on any one of these fifty lines.

Figure 8 shows the new automatic central energy desk telephone.

## MODERN TOLL SWITCHBOARD EQUIPMENT

*The Third of a Series of Articles Dealing with this Important Subject*

By J. E. Hilbish, J. B. Thiess and G. A. Joy

### ARTICLE III.

**M**ULTIPLE Toll Boards.—When the number of subscribers in a non-multiple switchboard becomes so large that three or four operators are unable to properly handle the same, common practice is to discard the non-multiple board and replace it with a multiple switchboard. This transformation is also applicable to toll equipments; and since in our previous articles we have completed the discussion of the non-multiple toll board we are now in a position to study the larger multiple toll equipment. In a multiple toll board we have, as the name implies, all the toll lines entering the exchange in front of each operator—i. e., the lines are multiplied in each section in a manner identical with that used in a local multiple switchboard. Thus the necessity of transferring calls is obviated, since every toll operator is able to call any toll subscriber directly by means of the multiple without the aid of any other operator. Consequently any local toll connections can be handled by any toll operator since all the toll lines in the exchange can be readily reached in the multiple, whereas in a non-multiple board the call would have to be given to the operator in whose particular position this line terminated. Thus the local to toll business can be uniformly distributed among the operators in

a multiple board, whereas in a non-multiple board this would not be possible. Hence occasions would arise when one operator would be severely taxed while another operator at the same moment might be idle. The above reasons must make it self-evident that by means of a multiple toll board it is possible to operate much faster, and therefore more efficiently. These items become factors worthy of consideration when the toll business has assumed large proportions. Furthermore, a multiple toll equipment makes the use of a recording operator imperative. This operator does all the clerical work for local to toll connections—i. e., makes out all the toll tickets for outgoing calls, from which it will be evident—due to the economic principle of division of labor—that this work will be accomplished with greater speed, uniformity and accuracy, and consequently a large percentage of the clerical errors so fatal to toll business will be avoided.

The multiple toll systems may be divided into three distinctly separate varieties. These are: First, those using drop signals exclusively; second, the ones employing lamp signals only, and, third, a combination of the two. Local conditions regulate, to a great extent, the kind of equipment best suited to any particular exchange. Thus in a



drop board the equipment in the face of the board, for a certain number of lines, requires more space than the apparatus necessary for the same number in a lamp board, and consequently for a like number of lines the equipment in the drop board would have to be crowded. There are several reasons why the drop board is less expensive than the lamp board, the principal one being that in a drop board all the equipment, line as well as cord, can readily be placed in the back of the board, thus avoiding the installation of a relay rack in the terminal room and the cable necessary in wiring from this rack to the board. However, it is often considered an advantage to have all of the line equipment on a separate rack, where if the same be neatly numbered it is readily found and easily reached by the repairman in clearing trouble. In a lamp board equipment it is customary to distribute the equipment in this manner, it being understood, of course, that in a lamp board a line relay is used in place of the drop used in the drop equipped boards previously described. This

relay has two windings, one of which is connected directly across the line and is actuated by the subscriber when he operates his generator; while the second is merely a locking winding, holding the armature in place after it has been drawn up by the alternating impulses of the calling party's

duced into the line circuit, and this not only enhances the possibilities for trouble but also increases the cost of the board due to the extra forming of cables and soldering of joints. It might be well right here to call attention to the fact that all sharp bends in the cable should be avoided since it is generally acknowledged by men familiar with the operation of toll boards that these are the weak spots of the installation, for in nine cases out of ten, when a high potential current finds its way into the board, the ensuing trouble will be located in burn-outs at these turns. A sharp curve may make a neater job, but this is an instance where looks must be sacrificed to insure stability and freedom from trouble.

Before going into a detailed description of either system, a few remarks concerning the manner of obtaining the busy test on multiple toll boards seem essential. There are two standard methods of obtaining this test: First, the regular well-known audible test, and, second, a visual test, employing a signal associated with each multiple and answering jack, the same being energized when the line is busy. The audible test is applicable to either system, while the visual test is not desirable for a drop board in our estimation, but may be used with great success for a lamp board. The reason that we condemn the use of visual busy signals in connection with a drop board is that

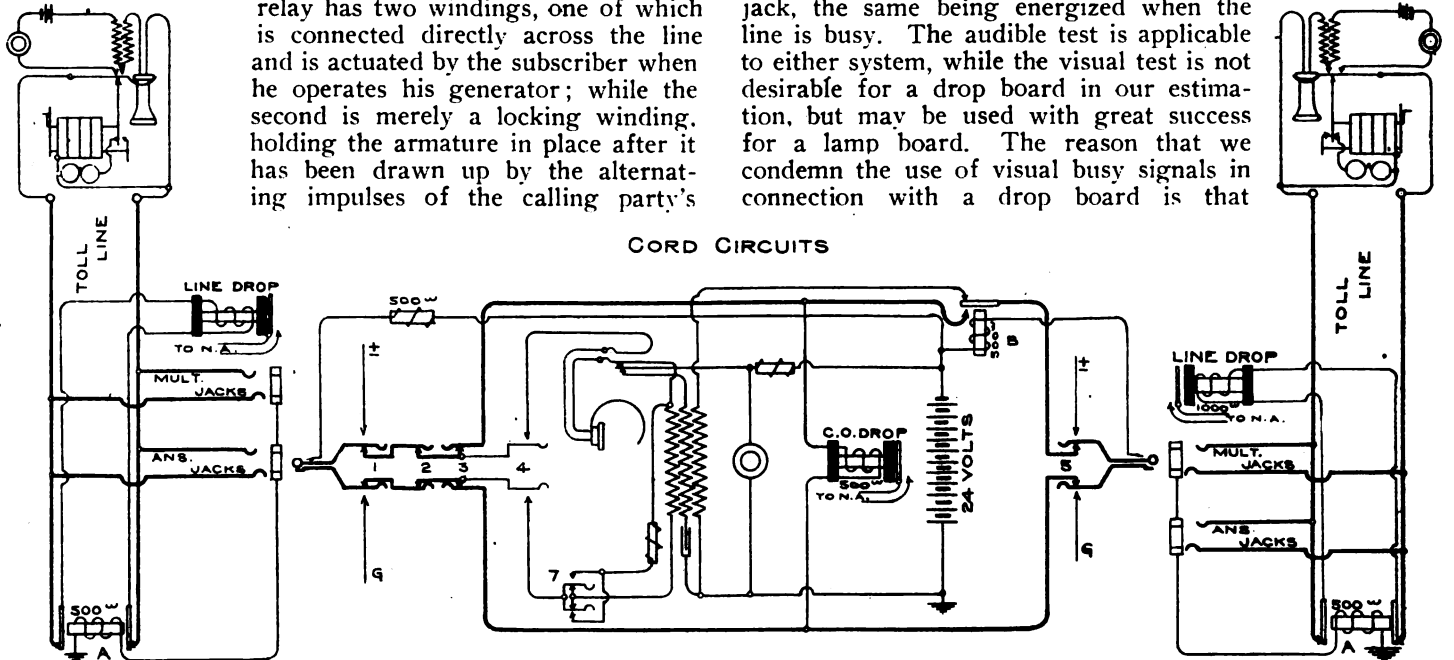


Figure 11.

generator. These lines and the cut-off relays are mounted on the rack in a manner similar to that used for the same named relays in a local subscriber's exchange. One of the objections that might be raised to the lamp board is that, since a line relay is used, the circuit is not as positive as the drop system—i. e., there is a chance for trouble in the local circuit from the relay to the board, such as a burnt-out lamp, or a poor relay contact, and therefore a subscriber might ring in all right and lock up the armature of the line relay, but the operator would receive no signal, whereas if a drop board were used with the same conditions prevailing the operator would surely get the signal. What has just been said makes it obvious that the circuits for a lamp board are more complex than those used in a drop board, and for this reason, where skilled attendance is not available, the drop board is preferable. One of the very desirable features of a lamp board is that the line jack and signal can be mounted directly above one another, which condition is not advisable in a drop board as explained in article No. 2.

A few words in regard to the cabling of toll lines in the exchange seems advisable at this point. We would recommend that all toll lines be cabled from the high current arresters to intermediate distributing frame and after cross-connecting should be carried directly to the answering jacks instead of a rack placed at the rear of the board. In case the rack is used, two extra soldered connections are intro-

a short interval of time elapses during which a line may be busy, and the signal does not indicate this condition. The reason for this is that the busy signal is energized by the operating of the cut-off relay, and therefore is no indication that the line is busy from the time the drop falls until the toll line operator answers. While this is but a few seconds at the most, it is long enough for another operator at the board to plug into the multiple jack of said line and ring. In a lamp board the conditions are different, for the local circuit through the busy signal is closed through a contact on the line relay, and when the cut-off relay is energized, releasing the line relay, it also closes the battery circuit through the signals so that they indicate a "busy line" from the time the party rings until the operator takes down the connection. These conditions will be described in detail after each system has been discussed, and the existing conditions can more readily be comprehended.

Since the drop board is the simplest form of multiple toll system, we will begin our detailed analysis of this class of equipment, showing and describing all the circuits and apparatus for this type of board. The best means of obtaining a clear conception of an equipment of this kind is to study each class of service separately—i. e., to study the cord circuits of the simpler connections such as the toll to toll and toll to local first, as a means of becoming familiar with the general operation of the multiple toll equipment,

even though this type of circuit equipment is not to be recommended, since, as previously stated, a universal cord is the most desirable.

**Toll to Toll Connections.**—Consequently we will adopt this method in the following and will begin our description with the toll to toll connection, the circuit of which is shown in Figure 11. By referring to this drawing it will be observed that the toll line drop is bridged across the line by means of the break contacts of relay *A*, the function of said relay being identical with that of the cut-off relay in a local line circuit, namely, that of disassociating the auxiliary line signaling apparatus from the line. Thus the chances of impairing conversation are reduced to a minimum. The cord circuit is a straight metallic connection, the tip conductor of which is normally broken to provide suitable means for obtaining the busy test.

The operation of the circuit is as follows: When a subscriber desires a connection he operates his generator, thereby energizing the winding of the 1,000-ohm drop bridged

bridged across the cord circuit, and the operator upon receiving this signal will take down her connections. In case the line desired is busy, however, the sleeve strand of the jack associated with this line will have been raised, by virtue of the plug previously inserted, to the potential of the negative side of the battery, and the operator upon testing the multiple jack of this line will receive the regular audible busy signal. This circuit is traceable from the ground on relay *A* over the sleeve strand of the jack and the tip strand of the cord, through the break contact of relay *B* and the tertiary winding of the induction coil to battery. The operator, upon learning that the line is busy, will inform the subscriber to this effect, at the same time telling him that he will be called as soon as the line desired is free for further service. It will be observed that this circuit is provided with a double cut-off key (Nos. 2 and 3), so that the operator can converse with either subscriber individually if she so desires.

**Toll to Local Connection.**—In a toll to toll connection the

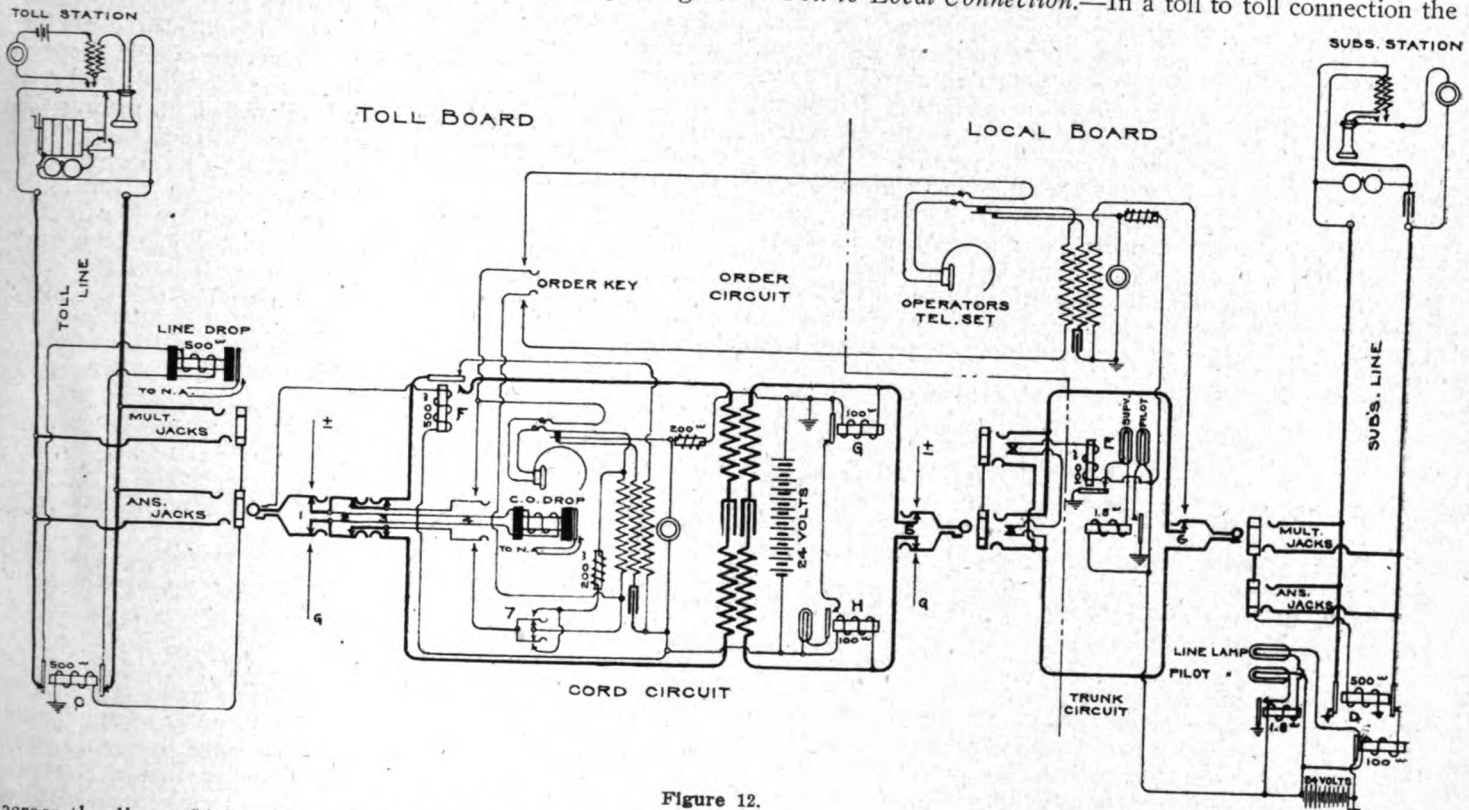


Figure 12.

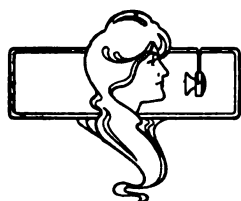
across the line which will cause the shutter of said drop to fall. The operator upon seeing this signal will plug into the answering jack of this particular line, and thus complete a circuit through the winding of relay *A*, which will operate the same, subsequently opening the break contacts of this relay. The act of plugging in will also raise the potential of the sleeve strand of the jack to that of the negative side of battery and hence should an operator test any multiple jack of this line she will obtain the busy signal. The operator will then bridge her telephone set across the line, by operating key No. 4 and ascertain the number of the party desired, and if the line called for is idle she will plug in and ring. Due to the insertion of the plug, the potential of the sleeve strand of the line will be raised as before, and at the same time a circuit will be established from the ground on relay *A* over the sleeve conductor through relay *B* to battery, which will operate relays *A* and *B*. The operation of relay *A* disconnects the drop from the line, while that of relay *B* opens the test circuit and at the same time closes the tip strand of the cord, which completes the circuit between the two subscribers. When the conversation is completed both parties "ring off," which will actuate the clearing out drop which is permanently

toll operator is in a position to complete the entire connection without any further assistance, but when a toll subscriber desires a local connection she must call upon a trunk operator, who is situated at the local board, for aid. The trunk circuit used to transfer the call to the local board together with a complete diagram of a toll to local connection is shown in Figure 12. As would be naturally inferred, and as is shown in this circuit, the toll line connections remain the same, but the cord circuit is no longer one complete metallic connection, but is divided into two distinct circuits—one adapted to toll and the other to local service and supervision, these two parts being connected magnetically by means of the repeating coil. The trunk circuit used is plugged in the trunk operator's positions, while at the toll board it is jack ended, these jacks being multiplied in each toll section so as to be readily accessible to each operator.

The operation of the circuit is as follows: The toll operator, upon being instructed by the subscriber, who has reached the exchange in the regular manner, that a local connection is desired, will by means of her order circuit place herself in communication with the trunk operator and inform her as to the number of the local party desired.

The trunk operator upon receiving this information will operate the key (key No. 6, which is a non-locking key) associated with one of the trunks that is not in use and proceed to test the jack of the line called for, and if the same is free she will plug into said jack, at the same time giving the toll operator the trunk assignment. The plugs used with these trunk circuits are so designed that the ring conductor will short circuit the sleeve and ring springs of the jack into which they are inserted. Consequently, when the trunk operator inserts the plug, we can trace a circuit from the ground on relay *D*, over the sleeve of the trunk jack and the ring conductor of the cord, through the series contacts in the trunk jack and relay *E* to battery. Due to the completion of this circuit, relays *D* and *E* will be energized, the operation of *D* disassociating the signaling apparatus from the line, and that of *E* closing a local lamp circuit, thus lighting the trunk supervisory lamp at the local board. However, this lamp will remain lighted but a short interval, since the toll operator, upon receiving the trunk assignment, will plug into the jack of the trunk designated, thereby opening the jack contacts which will break the circuit just established and hence de-energize relay *E* causing its armature to fall back. Relay *D* will remain energized, since a circuit can be traced from the ground on relay *D* over the sleeve strand of the line, the ring conductors of the trunk and cord circuits and relay *H* to battery. This will energize relay *H*, causing the attraction of its armature, which will close a local circuit and thus light the toll supervisory lamp. The lighting of this lamp will show the toll operator that the local end of the connection has been completed, while the extinguishing of the trunk lamp

will inform the trunk operator that the toll end has been completed. The toll operator is now ready to ring the subscriber, which she will do in the regular manner. When the subscriber answers he bridges his telephone set across the line, which causes battery to flow out through the cord circuit by way of the coils of relays *H* and *G*. This will operate relay *G* and the attraction of its armature will open the toll supervisory lamp circuit which will extinguish this lamp, thereby informing the operator that the local party has answered. When the conversation is completed the toll subscriber will "ring off" and consequently throw the clearing out drop. The local party, however, will simply "hang up," thereby opening the battery feed circuit and hence relay *G* will be de-energized. This will cause its armature to drop back, which will again close the toll supervisory lamp circuit and give the toll operator the disconnect signal. The operator, upon seeing these disconnect signals, will remove her plugs. The removal of the plug from the trunk jack will open the circuit through the coil of relay *H*, which will de-energize this relay thereby extinguishing the supervisory lamp, and it will also close the series contacts in the trunk jack. Thus the circuit through relay *E*, as explained above, will be re-established, and consequently the trunk supervisory lamp will light, giving this operator a disconnect signal, and she will then take down the cord and thus restore the apparatus to its normal condition. In case the toll operator orders up a local line which is busy, the trunk operator will inform her to this effect, when she can either ask the toll subscriber to wait or tell him that the line is busy, informing him at the same time that he will be called as soon as his party can be reached.



## NEW USES OF THE TELEPHONE

*Some of the Odd Ways in Which This Modern Convenience is Utilized*

By E. M. Rothelle



THE telephone has become a veritable "maid-of-all-work," and every day's experience shows there is no limit to the uses to which it may be devoted. In rural districts, as well as in the cities, the people are daily learning new ways to utilize the invention. Its field is almost infinite. From a toy of luxury it developed into a convenience and then a necessity of modern civilization. To-day the telephone is performing so large a share of the world's work that only its loss makes the public realize how much they have come to depend on its service. The report that the Roman Catholic clergy are discussing the propriety of employing the telephone for the receiving of confessions in emergencies is only an example—though a startling example, perhaps—of the manifold uses to which the "talking wire" can be devoted. In cases where persons cannot reach the priest it is said the head of the church is inclined to sanction the intervention of the telephone, and there is, in truth, no good reason for denying the reasonableness of the innovation.

Many and strange as are the uses to which the telephone is devoted, Columbus, O., has found a way to utilize it that is unique indeed. At the Ohio capital the telephone is called into service to put a quietus on "mashers." For several months this species of "lady-killers" had been annoying women, and the police seemed to be unable to cope with them. Finally the "mashers" began to use the telephone promiscuously, and then they met their downfall. It was their

custom to call up women and girls who frequently did not understand that they were talking to an utter stranger until the conversation had been in progress some time. So many complaints were made of this character that at last the Citizens' Telephone Company resolved to take heroic measures to protect its patrons. A plan was devised whereby when a private residence was called the operator at central "listened in" long enough to ascertain if the "masher" was at one end of the line. If he was the police were notified and an officer was sent post haste to arrest the offender. In some cases the women molested cleverly held the "masher" in conversation until a minion of the law could reach him. A trip to the police station followed, and after a few such experiences there was a decided falling-off in such complaints. As a check on "mashers" the people of Columbus unanimously vote the telephone a brilliant success. Since then there has been little of this reprehensible practice either over telephone wires or on the streets.

Out on the plains of Kansas, in the little city of Downs, Mrs. D. E. Allen, the librarian, has evolved a new way to use the telephone as a distributor of information. The surrounding country is populated by farmers and stock men who are subscribers to rural lines.

"I am writing an essay on John Hay; please tell me something about him," a school boy telephones the librarian from his home on the farm. Mrs. Downs makes a note of the request and during her spare time finds the information

desired and then calls up the student struggling with his "composition," and gives him over the wire the data he needs about Hay. The library is well supplied with reference books, and Mrs. Downs has made the institution popular with the aid of the telephone. She is entitled to the credit of combining the work of library and telephone, and declares that their co-operation has extended the use of each to a marked degree. In an address before the Association of Librarians of Kansas Mrs. Downs expressed the opinion that the telephone and library are among the most important factors in education, and that her experience in making joint use of both widely increases their influence. Not only the school pupils but nearly everybody in the community utilizes the telephone-library and votes it an extremely useful combination.

At West Union, Illinois, recently a trial was in progress in a justice court, when it was discovered that an important witness required by both sides had not been summoned. Investigation showed that he was at an adjoining town of Marshall, and as there was a mutual desire for haste the attorneys for the plaintiff and defendant agreed to take his testimony over the telephone. The witness was reached and the justice administered the oath over the wire. He then gave his testimony over the telephone, the questions being given and answers made through the justice. An instance of a man in Wisconsin charged with a minor offense being tried by telephone attracted attention some time ago, and demonstrated the fact that absolute reliance can be placed on the telephone in matters of court procedure.

The most notable example of the use of the telephone in court proceedings occurred at the January term of the Maryland court of appeals, when the remarkable method of arguing a case over the long distance wire between Baltimore and New York was resorted to. Judge Sharp of the Maryland court was in New York when the attorneys in a suit between the city of Baltimore and the Canton Company over the title to Canton Park desired to reach the higher tribunal without loss of time. Although in another city Judge Sharp agreed to hear the arguments and, sitting in a telephone booth in New York, listened to what the lawyers in Baltimore had to say. This is the first time a law suit ever was tried by long distance telephone.

Exchange managers all over the country agree that never before had the telephone been so generally used for the communication of holiday greetings as during the recent Christmas and New Year's season. In all the large cities one minute after midnight, December 31, thousands of telephone subscribers called up their friends to wish them a Happy New Year, and the operators at central were kept busy during the succeeding hour. The telephone message has the advantage of coming exactly "on the dot," which neither the mail nor the telegraph greetings possibly can have. New Year greetings are especially gratifying to most people when received pat on the minute, and in many cities there was a pleasant rivalry to get friends on the wire a few seconds before they could cry "Happy New Year." The younger element mischievously waited until 3 or 4 o'clock and then called friends out of bed to wish them good luck in 1907. The toll boards of companies maintaining long distance telephone service were crowded with calls by persons wishing to send holiday greetings to friends and relatives in other cities. Many companies wisely advised their patrons to make advance appointments so that they would be able to reach their party without too much delay. The experience during the recent holiday season shows that the custom of telephone greetings is growing more general every year.

As in coal mines, the telephone has lately become an important factor in lumbering operations in the woods. In Maine the number of lines has increased so rapidly that the heads of most big firms can sit in their offices and talk di-

rectly with the foremen of their gangs in the logging camps in the heart of the forest. Most of these lines run straight through the woods, the wires being strung in trees following a stream or logging road. Heavy snow storms and falling branches often interfere with the wires, but repair men are kept at hand to clear away the trouble.

The government forest reserve has installed its first telephone line, running through the Big Horn country in Wyoming, a distance of 109 miles. The principal object in establishing telephonic communication in the reserves is to assist in fighting timber fires, which are the bane of the lives of the forest patrol. The telephone enables the guards to keep in touch with the entire territory under their supervision and take speedy action to extinguish fires, usually resulting from the carelessness of hunters.

One of the most interesting illustrations of the possibilities of the telephone was furnished recently by an incident in which Senator Albert J. Beveridge of Indiana was the central figure. Senator Beveridge was billed to make an address on "The Nation's Peril" before the Alumni of the Indiana Medical College at Indianapolis, and the day before was obliged to be at Omaha. He calculated, by close connections, to arrive in time, but was delayed and, although he took a special train to Chicago, found on reaching that city that he could not possibly fill his engagement at Indianapolis. While lamenting the predicament at a Chicago hotel, a friend jokingly said: "You might telephone your speech." The senator caught at the suggestion like a drowning man at a plank and immediately set on foot an inquiry to ascertain what could be done. Of course the telephone was equal to the occasion. The alumni meeting was held in the banquet room of the Claypool hotel, and plans were begun to equip each of the 500 guests at the dinner with a receiver, enabling them to hear Senator Beveridge's address. This proved too big an undertaking on such short notice, however, and another remedy was devised for the belated orator. Senator Beveridge was given special connection with a court stenographer at Indianapolis and telephoned his entire speech, the shorthand man taking it in full. The stenographer read the address to the meeting, while Senator Beveridge, in Chicago, enjoyed the evening at the theater. The members of the alumni association missed the ringing voice and vigorous gestures of Senator Beveridge, but for all that they enjoyed the speech delivered under such novel circumstances. This is said to be the first time on record of an orator of renown making an address to an audience from which he was separated by a distance of more than one hundred miles. It is also the first time that Senator Beveridge ever delivered a carefully prepared speech to one solitary person, and for that reason the stenographer to whom he telephoned the address may therefore consider himself especially honored. At all events Senator Beveridge is more thoroughly convinced than ever before that the telephone is the greatest convenience of the age, for it enabled him to extricate himself from an awkward situation.

Experiments are being made to prove the value of the "acousticon" in telephoning the speeches delivered in Congress to committee-rooms and offices where senators and representatives may happen to be. The general plan is to wire the capitol building and connect every room with both houses of Congress. The cable carrying the wires will be attached to the acousticon, which is a sound-intensifier having the appearance of a small black metal disk, which is intended to stand upright on the desk of the presiding officer, where it will receive the sound waves. Supposing, for instance, that Speaker Cannon is detained in his private office and the house is in session. It is claimed that the speaker, if desirous of knowing what is going on in the house, can take up the receiver and hear what is being said in the chamber almost as distinctly as if he were at his post. The advantage claimed for this is that members at work in com-



mittee rooms can keep track of the course of business on the floor without having to leave their rooms. Then when a bill is taken up in which they are especially interested they can return to the floor—an advantage not gained by the old system of notifying members that a vote is to be taken by ringing bells.

“Shaving by telephone” is another new wrinkle in the utilization of the invention which saves patrons of barber-shops both time and temper. In the big office-buildings of large cities—where several thousand persons are employed—there is usually a tonsorial establishment patronized by the tenants of adjacent floors. It is the fashion of the busy business man to have the office boy call up to the barber and find out if there is a chance to be shaved without loss of time. If the chairs are full the head barber makes a note of the inquirer's telephone number and notifies him as soon as there is an opportunity to wait upon him. The scheme of making appointments with the barber over the telephone has been found to be as feasible and convenient as arranging for time with one's dentist, physician or lawyer.

Independent manufacturers report that they sold many extension telephones for Christmas presents during the holiday season. At first thought a telephone might seem a queer gift, but in many cases it is really one of the most useful remembrances a person could receive. For the invalid who is forced to spend many weary, lonely hours in bed an extension telephone which permits him to converse with his friends is not only a convenience, but a positive blessing.

Piano tuning by telephone is another novel way in which this invention was used recently for the first time. A piano tuner connected with a music store in Sterling, Ill., was sent to the neighboring town of Erie to tune a piano in a church. When he arrived he learned that the officers of the church desired another piano, and as both instruments were to be used together at revival meetings it was necessary they be alike in tone. The agent called up the music store and asked that the additional piano be forwarded at once, so he could tune them together, but found it was impossible to have the second piano delivered that day. Being a man of resources and having an abiding faith in the possibility of the telephone, the agent instructed the Sterling store to draw the newly-ordered piano close to the telephone and play it until the tuner at Erie caught the tone. Then he proceeded to tune the piano in the church so it harmonized with the instrument at the store. The experiment proved successful, as it was found that the pianos were of the same pitch and another way of utilizing the telephone had been discovered.

A town council meeting was held by telephone in Massachusetts recently because the members of the board of selectmen were unable to get together. The town is Billerica, which has a population of 3,000. The board meeting was the last of the year and of unusual importance, but a severe storm arose and a number of the city fathers decided to stay at home. In fact, two of the selectmen were snowed in. The chairman of the board happened to have a telephone in his house and another member of the board was a very near neighbor of his. The brilliant thought occurred to the chairman to call up the town hall, and, learning that both the clerk and the other member of the board were in attendance awaiting the arrival of the detained members, he suggested that the board's business might be transacted by telephone, so an arrangement was made with the telephone company by which the parties were connected each with a separate instrument. Reports were read, appointments made, election officers designated, warrants drawn—in fact, all the important business of the closing meeting of the board of selectmen of this important town in Massachusetts was transacted over the telephone.

Undoubtedly the most singular use to which the telephone has ever been devoted was the manner in which a New York woman utilized it. Mrs. J. H. Holden, wife of a minister, was lying ill in bed when her husband was stricken down and died. When the funeral was held she was unable to leave her bed, and was nearly heartbroken because she could not go to the church where the services were to be held. One of the parishioners took the matter up with the local telephone company with the result that a line was run from the church to the sick chamber, enabling the widow to hear the sermon preached over the remains of her deceased husband as well as the prayers and hymns that were said and sung.

#### TELEPHONES IN JAPAN.

When a Japanese dies in Tokio one of the assets of his estate is his telephone, and the privilege of taking over the dead subscriber's instrument is worth, according to the Boston Financial News, just \$400 to his heirs.

The government of Japan is interested in telephones for the reason that such instruments of communication are a monopoly in the little empire—a government monopoly. It is a fact of world-wide recognition that governments as a rule do not pay particular attention to industries which they may happen to possess a monopoly of—and this maxim is apparently true of Japan, though it is possible that Japanese telephone systems may be modernized.

The great complaint in Japan is not so much against the quality of the instruments and equipment of the systems as against the total inability of the government to supply service to all would-be subscribers. To get a telephone in Tokio a man either has to buy out a subscriber or wait his turn to secure an instrument, and there are no fewer than 8,000 people on the waiting list ahead of him. The government is unable to supply the demand, for the simple reason that it has not the instruments, and has not the working force to install the telephones if it had them.

In Japan telephones are rented to subscribers at a flat rate; it makes no difference for what purpose they are used. A telephone for a private house costs just as much as one for a business office. In the city of Tokio, which has a population of a million and a half people, there are 22,000 telephone subscribers and thousands more who would willingly give \$100 to secure accommodation.

The cost of a telephone in Tokio is \$40 per annum, and that is gold, not silver, and the amount is payable strictly in advance. While the receipts of the government from its telephone monopoly are large, the cost of operations is comparatively light. For instance, it pays its linemen the best of them, at the rate of fifty cents per day, and the nine-hour day has not yet been introduced in Japan.

Notwithstanding the fact the net earnings from the telephone system of Tokio are very large and there is therefore every incentive to supply as many customers as possible, the government has so far found it impossible to keep even with the demand. In Tokio alone it is estimated that some four years will elapse before the government will be able to supply an instrument to the last man who puts his name on the waiting list. Of course many would-be subscribers die before their turn comes, and the man has the doubtful consolation of knowing that chances may throw an epidemic of disease among those on the waiting list, and, though he be spared, his chances of getting an instrument during his lifetime are immeasurably increased by the deaths of the others.

At Calgary, Canada, a municipal telephone system will be installed if ratepayers vote the funds. The high rates of the Bell company have led to this action.

# MANUFACTURERS DEPARTMENT

## GEORGE W. BROWN PROMOTED.

George W. Brown, the new secretary-treasurer of the Chicago Telephone Supply Company, is well and favorably known almost everywhere that telephones are sold. He won his spurs on the road and for the last two years has been present in the interests of the "telephones that satisfy" at the letting of almost every large order. His first venture as a telephone salesman took him to Nebraska when Independent telephony was just beginning to get a foothold in that state, and he secured thirty-two of the first thirty-five new exchange orders on which he figured.

Such a record is considered remarkable in these days of fierce competition and attracted the attention of other factories who sought to enlist his services in their behalf. Although offered material inducements by other factories, Mr. Brown had no temptation to accept them, as he had developed so much enthusiasm for Chicago telephones that he felt he could not with justice to himself advocate another line of apparatus. So he carried the grip in Nebraska until about two years ago, when he was made general salesman with headquarters at Elkhart, Indiana. Since that time he has devoted his time to large competitive deals in all parts of the country, and his continued success has demonstrated the quality of his ability and the sincerity of his enthusiasm. When H. C. Randall resigned as secretary-treasurer of the Chicago Telephone Supply Company, Mr. Brown was unanimously chosen by the directors to fill the vacancy.

Although the duties of the new position are different Mr. Brown is attacking them with such ability and enthusiasm that the company already is congratulating itself on its choice. In his experience on the road Mr. Brown has gathered much information about the efficiency, durability and popularity of almost all types of equipment, and such knowledge will doubtless be of inestimable value to him in helping to shape the affairs and policy of the company. As a matter of fact his advice has already been sought when changes in equipment have been under consideration.

After the engineering department had developed a model embodying such changes and had tested its efficiency and durability, it has heretofore been the policy of the factory to be guided by Mr. Brown's opinion as to whether a change was desirable, and, if so, whether the particular form of the new design would prove popular with the trade. In these respects his judgment has been unerring and the

engineering department has received many valuable suggestions from him.

From one point of view his salesmanship has been peculiar, since he has never been able successfully to sell any part or complete instrument until he was convinced that it embodied every known feature that was good and desirable. Once convinced, however, that any part or instrument was abreast of competition his enthusiasm quickly found expression in orders.

Since the announcement of his promotion Mr. Brown has been much gratified by the number of congratulatory letters he has received from the friends he has made in the trade. These have demonstrated more than anything else the worth of honest effort and conscientious industry, both as a means of making friends and as a commercial asset.



George W. Brown.

## CONDUITS OF HIGH GRADE.

It is a long call from the old, one-horse brick yard to the modern ceramic establishments. Scientific progress in ceramics is now an assured fact and telephone and electric people are profiting by it. The high potential insulator has made long distance electric roads possible, and managers and engineers will not be slow in expecting the same high grade, uniform product in underground conduits. The cost of laying conduits and the importance of the service make it vital that nothing but first-class ducts be laid.

Among manufacturers of sewer pipe and conduits the Rochester Sewer Pipe Company, at Rochester, N. Y., is a notable example of progress in that line. This firm's

policy is to make the best ducts possible, and a recent inspection of its product leads to the conclusion that it has left no stone unturned to accomplish this end. The Rochester Sewer Pipe Company has been in business thirty-five years, and this long experience, together with a knowledge of modern progress in clay working, enables it to accomplish much in the way of uniformly high-grade conduits.

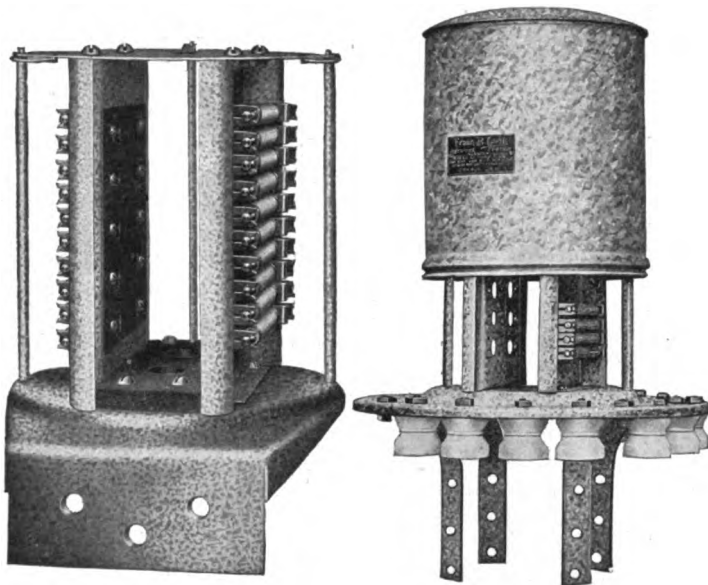
The clays employed are selected and watched by a ceramic chemist who is very careful to have them suited to the ware being made. They are then weathered to remove soluble and vegetable matter and to improve their working qualities. The clays are thoroughly ground and tempered, thereby giving a homogeneous body and straight ware, free from cracks and bubbles. The conduits are made on high pressure steam presses, after which they are carefully dried. Men of experience then inspect every duct

before it is set in the kiln. All ducts showing the slightest defect or internal strain are rejected. The burning, being the crucial stage, is given great care and study, being guarded throughout by skilled men under the supervision of a trained expert. The Rochester Sewer Pipe Company uses the Le Chatelier electrical pyrometer, which, by making perfect control over the heat possible, permits proper maturing of the body, good vitrification and thorough salt-glazing.

Its product justifies the Rochester Sewer Pipe Company's great care, and it is pronounced fit to last for ages. No under-burned ducts are shipped. By the use of such conduits there is said to be a gain in insulation and strength, less absorption and a longer life. This makes a strong, practical appeal to those who are doing underground work which is designed to last and be free from moisture and short circuits. W. H. Gorsline, secretary and manager, is glad to show visitors through the works and yards at any time, and is prepared to demonstrate all of the above claims.

#### COOK'S PRESSED STEEL TERMINALS.

Frank B. Cook invites especial attention to his "all metal" terminals, claiming that they have numerous advantages over terminals made partly or entirely of wood. Cook's



Type T-16—Showing Cover Removed. Type T-18.

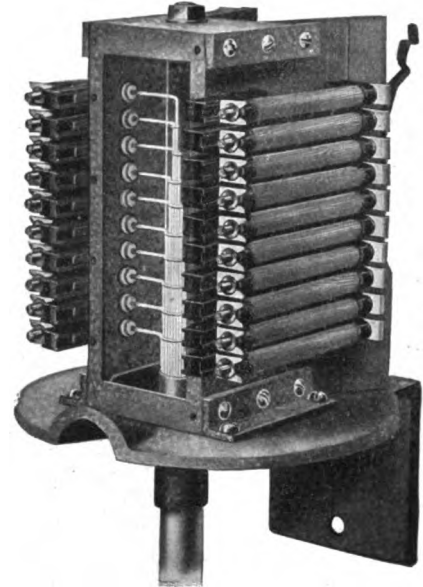
terminals are constructed entirely of pressed steel, and no castings are used in their construction, making a terminal very light in weight and exceedingly strong. The chances of breakage, it is said, are entirely done away with in the pressed steel terminals.

The all-metal terminals also have absolutely no wood-work to swell, split or warp and they cannot possibly burn up when a high voltage current goes through the arrester. Furthermore, their covers will always slide up and down easily and will not stick in damp weather. Every cable man will appreciate this non-sticking feature. All the metal parts of the new Cook terminals are heavily galvanized so they cannot rust. The covers are made of sheet steel, which is also heavily galvanized, and the terminals are therefore exceedingly durable. Mr. Cook considers that his type S-4 terminal is the best on the market. This terminal has the tubular fuses and carbon lightning arresters, mounted on a sheet metal, moisture proof cable box, and the protectors are so arranged that connections are very easy of access.

The cable is brought in through the self-soldering nozzle shown in the illustration, and the conductors are fanned out and soldered to the clips inside the moisture proof cable

box, the front plate or cover being removed for this purpose. Mr. Cook also makes this terminal so that the cable wires can be brought through a hollow rivet and soldered outside of the box. This makes the cable connections very easy of access at all times.

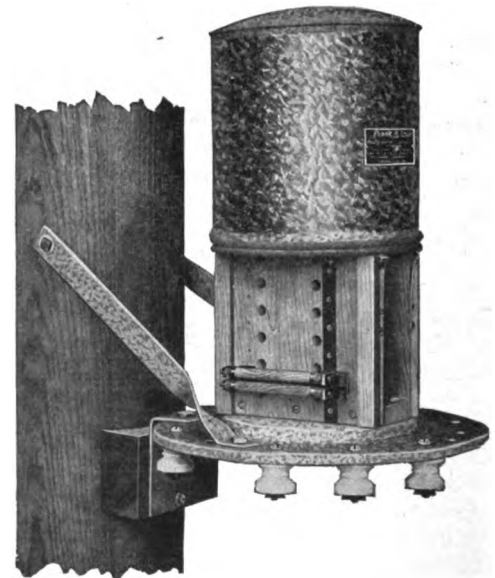
After the cable wires have been distributed and soldered, the front plate may then be fastened on securely, a rubber



Type S-4—Showing Cable Inserted, Cover and Front Plate Removed.

gasket rendering the joint moisture proof. The back of the box, inside, is lined with an insulating fiber, to prevent the cable wires from grounding on the box.

As an additional protection to the cable, the plug in the top of the box may be unscrewed and the box filled with parafine or compound. No pot-head is necessary with this terminal, as the box itself forms a moisture-proof ending



Type T-17—Combined Terminal and Distributing Ring.

for the cable. The jumper wires are soldered to the rear connection, and are led out through holes in the base plate.

The types T-16, T-17 and T-18 are all made for use with pot-heads. As in all Cook types of terminals, they are equipped with special springs which hold the covers in place when they are raised and which also lock them in place when they are down. This makes it unnecessary to hang the cover up on the pole or to have a chain from which the cover dangles while it is off.

These three types of terminals are all equipped with indi-

vidual protector mounts, which can be put on as needed. Any initial capacity can thus be secured and the capacity of the terminal can be increased as desired by simply adding protector mounts. These terminals are designed particularly with a view to economy in first cost and are especially recommended for multiple tap cable work. All the terminals are made for either solder or screw connection.

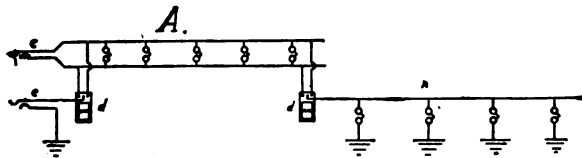
Mr. Cook claims that his new and original method of forcing the fuse contact springs through the hard rubber blocks is a very radical improvement. The blocks are heated and the springs are forced through so that when the rubber has cooled again, the springs are held absolutely rigid. It is claimed that this construction also prevents any surface leakage, on account of moisture collecting on the blocks between the springs.

Type T-16 is arranged for fastening to the side of the pole. Types T-17 and T-18 combine the terminal and distributing rings. The protectors can be mounted, one pair at a time, and the porcelain knobs can also be added, severally, as needed. Type T-17 is arranged to fasten to the side of the pole and type T-18 is for the top.

Mr. Cook also makes a great variety of other terminals for various purposes.

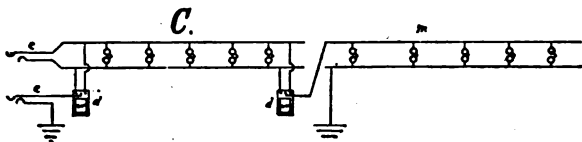
### THE STANDARD SPECIALTIES.

The Current Electric Company, Chicago, has sold a great many of its pole changers and duplex sets to telephone companies within the past few years, and reports that all are



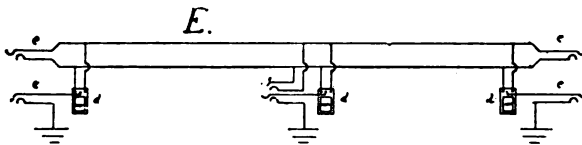
giving satisfaction. It is claimed that the Current Electric Company's duplexing device will double one's telephone service without building additional lines.

The Standard duplex sets are made for metallic bridging lines, metallic toll lines, trunking lines, etc., as they render



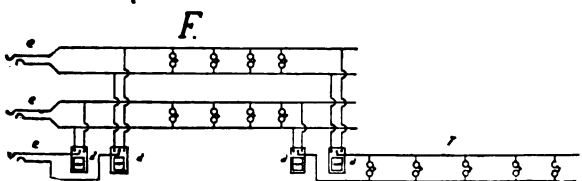
one or more additional talking and ringing circuits, according to the original number of circuits and number of instruments used, without cross-talk or disturbance to the original lines.

They are said to be simple, inexpensive and easy to con-



nect, have no movable parts or contacts to wear out or get out of order and are well protected by lightning arresters.

Figure A represents an extension or branch line which may be connected anywhere on the metallic circuit or if



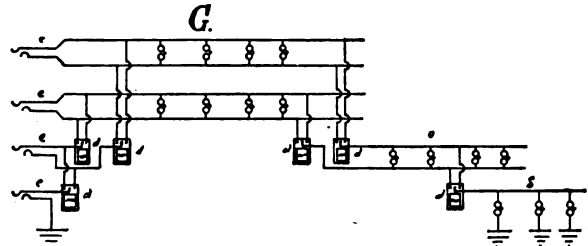
connected to any single party along the line will render him private service.

Figure C illustrates an overloaded metallic line divided.

Figure E shows an extra duplex circuit for three toll stations, with one and one-half duplex sets.

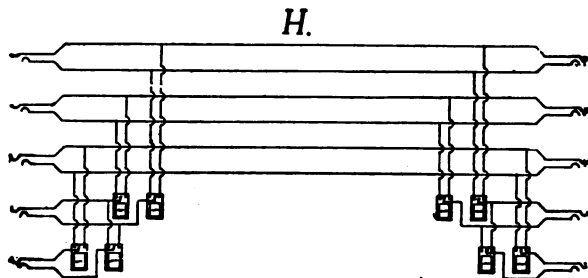
Figure F shows an extra metallic circuit obtained by the use of two Standard duplex sets.

Figure G shows how two duplex circuits may be secured



from two metallic circuits by the use of three Standard duplex sets.

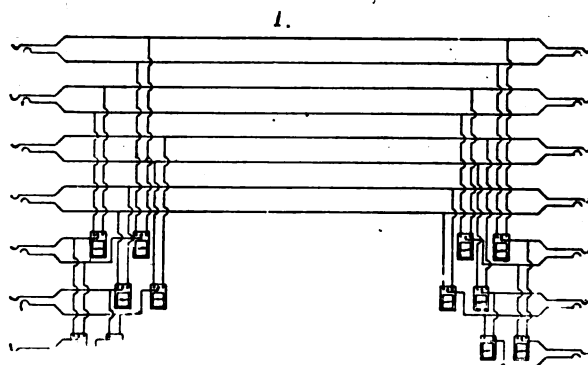
Figure H shows how two additional metallic circuits may be obtained from three metallic circuits on trunking lines,



etc., by using four Standard duplex sets.

Figure I illustrates four metallic trunking circuits with three additional metallic circuits by the use of six Standard duplex sets.

It is said that the only requirements to use these instru-



ments for any of the above mentioned purposes on telephone or telegraph circuits is to have ordinary good metallic lines and keep them clear of the ground.

Orders will be filled by the Current Electric Company for one or more sets on thirty days' trial without obligation and if not found satisfactory may be returned at the sender's expense.

### WIRE & TELEPHONE COMPANY OF AMERICA'S NEW PLANT.

It has come to the attention of the Wire & Telephone Company of America, at Rome, N. Y., that since the fire which destroyed a portion of its plant on February 23, 1907, reports have been circulated that this will affect the company in taking care of its trade. This company is particularly anxious to have the trade know that the fire will in no way hamper it in the matter of delivery of various products. The fire destroyed only that part of the plant in which the bare copper wire was drawn, and immediate arrangements were made for the drawing of copper by other mills. The Wire & Telephone Company of America was just about to erect a large addition to the plant, which, in connection



with the rebuilding of the wire mill, is now well under way. When these buildings are completed the company will have one of the most modern wire manufacturing plants; also, a new and modern building to take care of its telephone business. The new buildings in course of erection will be of brick and steel construction, absolutely fire-proof, and the entire plant will be equipped with a sprinkler system. Having a pumping station of its own, and water tanks of sufficient capacity, will give the company independent fire protection. The entire plant will be operated by electric power, the equipment being so arranged that the machinery can be driven independently in groups. The handling of copper throughout the works will be done by pneumatic hoists, and all machinery and equipment will be such as experience has demonstrated to be best adapted for the economical production of high class work.

#### STERLING INSULATED WIRE COMPANY.

The Sterling Insulated Wire Company was recently launched in business with commodious quarters at 240-244 West Lake street, Chicago, Ill., where will be produced a complete line of bare iron wire, weatherproof iron wire, bare and weatherproof copper wire, annunciator and office wire and galvanized strand.



S. Mankowitz,  
Proprietor, Sterling Insulated Wire Co.,  
Chicago.

Samuel Mankowitz is sole proprietor of the new concern. Mr. Mankowitz is widely known throughout the telephone field, being the founder of the Monarch Electric & Wire Co., of which he was for several years the president prior to the time when he severed relations with that company in January last. Feeling that he has the experience, acquaintance and capital necessary to make a complete success of his undertaking, Mr. Mankowitz will in his new surroundings seek to carry out ideas and plans according to his personal preferences, and will undertake to treat all of his friends as he feels they are properly entitled. He is more than pleased with the patronage accorded him at the very outset by many of the best concerns in the telephone and electrical fields, and states that he will care personally for all to the very best of his ability. He wishes to thank his many friends in the telephone field for past and present favors.

A part of the Sterling equipment, which includes the finest machinery to be found, is already installed and producing daily. By June 1st, Mr. Mankowitz expects to have enough equipment running to insure a daily output of over 200,000 feet. His is said to be the most modern wire plant in the West.

#### A TESTIMONIAL TO TUBE FLUX.

Mr. E. J. Burke, president of the Blake Signal & Manufacturing Company, 246 Summer street, Boston, has received the following unsolicited testimonial as to the desirability of the Blake tube flux:

"Dear Sir: We have been using the sample of your tube flux in the telephone laboratory and have found it very convenient. Your idea of placing the compound in this form is certainly to be commended. We are daily doing more or less soldering, and the ordinary stick flux does not

last long, due to waste. You have made a decided advance. Yours truly, Arthur Bessey Smith, Department Telephone Engineering, Purdue University."

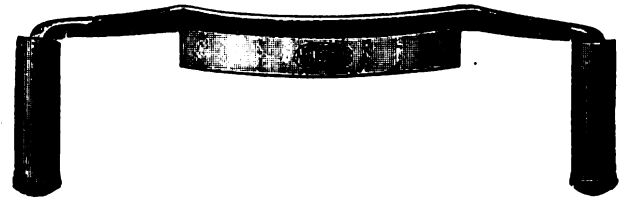
#### MACK & CO.'S TELEPHONE TOOLS.

The firm of Mack & Company, Rochester, N. Y., is offering the telephone trade a high grade line of tools, embracing hand axes, chisels, drawing knives, etc. Mack & Company are the sole makers of the Barton brand of tools. The



The Barton Trade Mark Used by Mack & Company.

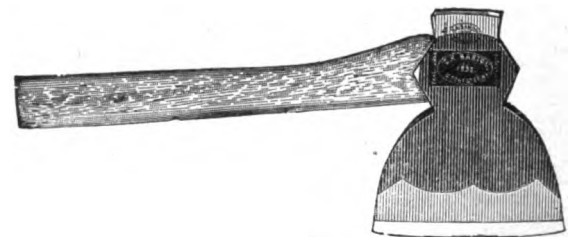
former head of the firm, W. W. Mack, went into partnership with D. R. Barton in 1866, and was actively engaged with him in the manufacture of the Barton tools until a short time before his death, which occurred April 26, 1875. Since the formation of the partnership with Mr. Barton in



1866, Mr. Mack was, with the exception of about two years, constantly and actively engaged in the making of these tools, until he retired on account of failing health in 1899, since which time his sons, Wm. R. and Amos P. Mack, have carried on the business, they having been associated with him for many years. Their experience in the making of these famous tools reaches back over a quar-



ter of a century. Mack & Company are said to spare no pains or expense to maintain the reputation for superiority which the Barton tools held for so many years, the finest English steel and the most skilled and experienced workmanship entering into their manufacture, and at no time in their history has such extreme care, both in their manufacture and inspection, been exercised as during the past few years, one of the members of the firm giving his



personal supervision to the manufacturing of the tools. These tools are sold throughout the United States and Canada, and to a considerable extent in foreign countries. Being satisfied that there are many mechanics throughout the country who have used the Barton tools and would prefer them to any other brand if they could readily be obtained, but who do not find them at their local hardware dealer's, because he can make more money on cheaper and inferior goods, Mack & Company adopted the plan of placing price lists directly in the hands of the mechanics and buyers who use the tools. If your hardware dealer does not keep the Barton goods and refuses to order them, you are requested to write Mack & Company for a price list direct.

# TRADE NOTES.

THE ILLINOIS ELECTRIC COMPANY will send its net price list and discount sheet for April to all interested parties.

M. W. DUNTON & COMPANY, Providence, R. I., send free a sample of Nokorode soldering paste sufficient to solder 100 joints.

M. C. STONE, Washington, D. C., manufactures seamless paper sleeves, particularly well adapted for telephone cable splicing.

THE YONKERS SPECIALTY COMPANY, Yonkers, N. Y., has issued a new booklet, descriptive of its cable clips, ground clamps and expansion plugs. Free to all interested.

THE GENERAL STORAGE BATTERY COMPANY, 42 Broadway, New York City, is issuing a valuable instruction book concerning the installation and operation of transportable batteries.

THE SIOUX FALLS (S. D.) BRANCH of the Swedish-American Telephone Company, is rapidly meeting with favor among telephone buyers throughout the West and Northwest.

DETROIT INSULATED WIRE COMPANY, Detroit, Mich., advertises that it can make immediate shipment of rubber insulated, twisted pair drop wire. Its new factory is modern in every respect.

THE F. BISSELL COMPANY, Toledo, Ohio, has sold 100 pole seats to the Mt. Vernon Home Telephone Company of Mt. Vernon, Ohio. The high grade of the products of the F. Bissell Company insures their giving satisfaction.

FISHER-STEVEN'S COMPANY, Charles City, Ia., is making a specialty of sound-proof telephone booths. It can supply booths from stock or make up special designs to order. Catalogue and prices will be sent on receipt of a request.

ST. PAUL ELECTRIC COMPANY, St. Paul, Minn., carries 2,000,000 linear feet of Washington fir cross-arms in stock at St. Paul, which is a convenient distributing point. The company carries also a full line of construction material.

THE CLIFTON MANUFACTURING COMPANY, of 65 Brookside avenue, Boston, Mass., manufactures a very complete line of insulating tapes and compounds as well as the widely known "Clifton" iron armored conduit for electrical purposes.

THE SWEDISH-AMERICAN COMPANY reports that shipments are showing a substantial increase every week. This is also true of the branch at Kansas City, Missouri, from which point shipments are made to western and southwestern points.

DESK TELEPHONE CORDS, receiver cords, tinsel switchboard cords, steel conductor switchboard cords, cord tips, and special cords and cordage are all attractively described and illustrated in Stromberg-Carlson's new booklet on "Cords." It will be sent gratis.

THE FAHNESTOCK ELECTRIC COMPANY, Brooklyn, N. Y., is sending out a very attractive post-card relating to the merits and uses of its patent, spring binding post. The

Fahnestock post has made good and appears to grow stronger with the trade each year.

THE SWEDISH-AMERICAN TELEPHONE COMPANY, Chicago, has just issued a new catalogue of its complete product. This catalogue outdoes all of the company's former efforts in this direction, and should be in the hands of every Independent telephone man. Sent on request.

JULIUS ANDRAE & SONS COMPANY, Milwaukee, Wis., wants every telephone buyer to have a copy of the new folder on the "Andrae Giant." This folder presents a long list of testimonials from satisfied customers all over the country, and makes a very convincing argument.

W. N. MATTHEWS & BRO., 226 North Second street, St. Louis, report that they recently received an order for fifty Hargis cable splicing joints from the postmaster-general's department, Hobart, state of Tasmania, commonwealth of Australia, as a direct result of an advertisement in TELEPHONY.

THE CRESCENT LUMBER COMPANY, formerly the Glenn-Kline Lumber Company, has moved to larger quarters in the Machesney building, Pittsburg, Pa. This firm is especially well equipped to furnish cypress and chestnut poles promptly, and all inquiries and orders sent it will receive careful attention.

THE WESTERN ELECTRIC COMPANY, Omaha, Neb., has issued a series of neat folders telling about its growth and special facilities with regard to cross arms, pins and other telephone equipment. It is predicted that these commodities will soon experience a rise and prospective purchasers are advised to order now.

THE CENTRAL ELECTRIC COMPANY, Chicago, has issued, under date of April, 1907, its confidential trade discount sheet and price list, applying to its 1906-1907 catalogue, No. 24. This has been revised to date and cancels all previous quotations. It is desired that a copy of this price list be in the hands of every telephone buyer.

THE EVERSTICK ANCHOR COMPANY, St. Louis, Mo., has received a letter from the LaBelle Telephone Company, LaBelle, Mo., stating that the Everstick anchor has been given a thorough trial on a corner pole holding twelve wires, in a low place where water stands continually, but the anchor has not moved the fractional part of an inch.

THE AMERICAN CONDUIT COMPANY, Chicago, is mailing out post cards, descriptive of Mr. R. Cline's scheme for stringing underground conduit by the rat and ferret method. The illustration on these cards almost tells the story at a glance but further particulars can be gleaned from the American Conduit Company's bulletin, No. 213.

F. E. KOHLER & COMPANY, Canton, O., manufacture the Universal post digger, which is claimed to be just the thing for digging holes to take telephone poles. Advantages mentioned are that it is strong and durable, easily operated, works in all kinds of soil, saves time and money in planting poles. Particulars will be sent on request.

THE MERKEL MOTOR COMPANY, Milwaukee, Wis., is introducing the 1907 model "Merkel" spring frame motor cycle, for the use of trouble and repair men. During the

past few years many up-to-date companies have purchased motor cycles for their men, resulting in securing a bigger day's work, which more than pays for the investment.

THE GREENBRIER POLE COMPANY, Charleston, W. Va., has issued a booklet on "Chestnut Poles," which it will be glad to send gratis to all prospective purchasers of poles. The Greenbrier company claims to cover the best chestnut territory of West Virginia and Kentucky and states that it is in position to furnish fine stock promptly and at reasonable prices.

THE DEARBORN ELECTRIC COMPANY, Chicago, has issued a new telephone catalogue, No. 38, which illustrates and describes a most complete line of telephone goods. It should be in the hands of every telephone buyer. The Dearborn Electric Company claims to carry one of the largest lines of supplies in the West and makes immediate shipments from Chicago stock.

THE FIRM OF JOHN H. FOWLER & COMPANY, Chicago, has issued a little treatise on "Cypress Poles," which will interest all buyers of telephone poles. It is claimed that cypress is more durable and cheaper than almost any other kind of pole, and the logic of the case is attractively presented in Fowler & Company's booklet which will be sent free, to any address.

THE SELECT TELEPHONE MANUFACTURING COMPANY, Springfield, O., will mail prices and descriptive matter of its central energy party line lockout device, over 1,000 of which are in use in the state of Ohio alone. The necessary apparatus can be connected to any make of common battery telephone and will work in connection with any common battery switchboard.

THE ELECTRIC APPLIANCE COMPANY, Chicago, San Francisco, Dallas and New Orleans, is mailing bulletins Nos. 5 and 6 to the telephone trade. These bulletins illustrate and describe the company's improved "Eaco" switchboard and telephone equipment. The Electric Appliance Company will be glad to send sample parts for inspection, and solicits specifications.

THE BLAKE SIGNAL & MANUFACTURING COMPANY, Boston, Mass., has established the following agencies for its Blake tube flux: George F. Schoen, 108 S. Forsyth street, Atlanta, Ga.; Syles R. Fralich, 269 S. Canal street, Chicago; Wesco Supply Company, St. Louis; Brooks-Follis Electric Corporation, 212 First street, San Francisco, Cal., and the Norton System Telephone Company, Toronto, Canada.

THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, Rochester, N. Y., will be pleased to send to all interested parties its new illustrated booklet "How the Telephone Helps the Farmer." This book tells how to organize rural companies, outlines model constitutions, by-laws, etc., and shows how to install lines and telephones. It is well worth getting and reading. Sent free, postage prepaid.

THE FIRM OF M. W. DUNTON & COMPANY, Providence, R. I., reports that in the first two months of this year it has done as much Nokorode business as in the first six months of 1906. Every box of Nokorode is put up with the same pains that is used by a druggist in compounding a doctor's prescription, and Dunton & Company guarantees every box that is put out. This firm also makes cotton tapes and sleeveings for insulating purposes, and sells quite a large quantity of its regular sleeveing for insulating joints

in lead cable. Samples of this tape and sleeveing, as well as the Nokorode paste, will be sent to every telephone man mentioning TELEPHONY.

THE MASSACHUSETTS CHEMICAL COMPANY, Walpole, Mass., has just issued a new catalogue which it desires to place in the hands of every telephone buyer. This catalogue is very neatly arranged with cuts and full descriptions of the company's various lines of goods, including tape, splicing compound, insulating paints, shellac, etc. It is bound in loose leaf style and additions will be made to it from time to time.

THE AMERICAN AUTOMATIC TELEPHONE COMPANY, Rochester, N. Y., has published a new booklet descriptive of its automatic telephone apparatus. Among the headings in this book we quote the following, which will give readers an idea of its character: Secret, Uniform, Quicker, Reliable, Cheaper, Central Energy, Only Two Wires, Party Lines, Pay Stations, Metered Service, Switches, Lamp Supervision and Sub-station Selectors. The book will be sent free upon request.

THE WESCO SUPPLY COMPANY has just issued a new bulletin, No. 75, pertaining to the products of its new telephone factory. The bulletin covers a complete list of magneto telephones and switchboards, as well as prices on materials and supplies for telephone line construction. The Wesco company attributes the phenomenal demand for "Wesco" telephones this season to the standard of quality which it has persistently maintained in the preparation of all its telephone equipment.

MR. A. J. KENNEDY, who has been with the Stromberg-Carlson Telephone Manufacturing Company of Rochester, N. Y., for a number of years, in the engineering and later in the sales department, has associated himself with the Wire & Telephone Company of America, Rome, N. Y., as traveling representative of this company's sales department. Mr. Kennedy has a wide acquaintance in the telephone field, and should be no small factor in developing the sale of this company's rapidly increasing business.

THE CARBOLINEUM WOOD PRESERVING COMPANY, Milwaukee, Wis., is prepared to send out copies of letters received from prominent engineers of telephone companies and other large users of wood, showing the actual results obtained by the use of its compound, Avenarius Carbolineum. Although this materially increases the life of telephone poles, the result is obtained at a comparatively low cost, owing to the manner of application. All that is necessary is to apply it with an ordinary paint brush.

WILLIX & YOUNG, Mt. Vernon, Iowa, have met with great success in the sale of their secret calling device. This attachment is designed for party lines, either metallic or grounded. It necessitates no relay, no batteries nor push button on the telephone. On metallic lines it requires no ground on the telephone. Willix & Young have received inquiries and orders from all over the world for this device. Last month several Mexican companies were added to their list. Circular matter will be furnished all inquirers promptly.

THE ACME TELEPHONE & MANUFACTURING COMPANY, Albia, Iowa, is enjoying the best trade in its history this year. Acme apparatus is widely known and appreciated, and in its new location the company enjoys much better working facilities as well as more ample capital. These advantages enable the company to manufacture its full line of apparatus to the very best advantage and give its cus-

tomers all of the attendant benefits. Every telephone man should have the Acme's "Blue Book" in his possession. It will be sent postpaid upon request.

CYRUS O. BAKER, known to his friends in the electrical field as the "Platinum King of America," has returned from a month's trip with his wife through the West Indies. They had a very enjoyable trip, visiting all points of importance, including the Panama canal section. At Havana, C. W. Baker, whose wife had accompanied the party, met his brother, and the tourists spent several days visiting Cuba. Mr. Baker states that the ruins from the earthquake at Jamaica are very impressive, and he thinks it will be a long time before the community recovers from the disaster.

THE INDIANA STEEL & WIRE COMPANY, Muncie, Ind., has published a neat, new booklet, descriptive of what it terms the "best wire, indorsed by the best known authorities, made by an Independent mill, and shipped promptly with the most liberal freight allowance." It would seem that a proposition of this kind would be sufficient to merit a large trade. The new book contains reports of tests made by various universities and engineers and purports to show conclusively that the Indiana Steel & Wire Company's product is superior in every way. The company will be pleased to send this book and samples, together with information regarding freight rates and delivered prices to all interested parties.

THE MANHATTAN ELECTRICAL SUPPLY COMPANY, New York and Chicago, comes to the front with a new book styled condensed catalogue No. 22, and covering "Something Electrical for Everybody." It contains 144 pages and over 750 illustrations of goods manufactured and handled by the Manhattan, and is said to be the most comprehensive catalogue for its size ever published. It includes electrician's supplies, telegraph instruments and supplies, automobile and motor boat sundries, telephones and telephone supplies, electrical novelties, burglar and fire alarms, automatic gas lighting specialties, linemen's equipment, medical apparatus and laboratory supplies—in fact anything and everything pertaining to electricity. Sent free to any address.

#### THE NEW WESTON MULTIMETER.

The Weston multimeter is a new form of electrical measuring instrument which possesses a very wide range of usefulness in the measurement of electrical quantities. It is an



New Weston Multimeter.

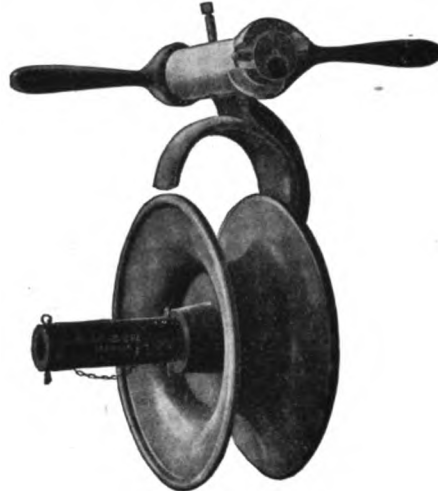
instrument which is advertised to accurately serve the purposes of a direct-current voltmeter, milli-voltmeter, ammeter, mil-ammeter, ohmmeter, ground detector and Wheatstone bridge. The scope of measurements which may be made with the multimeter is exceptionally large, and a much higher degree of accuracy is said to be obtain-

able with it than with any so-called "universal instrument" known.

The instrument is furnished in the following combination of ranges only: Voltmeter, .075 volts, 3 volts, 150 volts, 750 volts. Ammeter, .015 amperes, 1.5 amperes, 15 amperes, 150 amperes. Bridge, 3 dials, measuring to 999 ohms with even ratio arms.

#### IMPROVED CALLAHAN CABLE ROLLER.

The Callahan cable roller, which had already met with wide approval from the telephone companies all over the country because

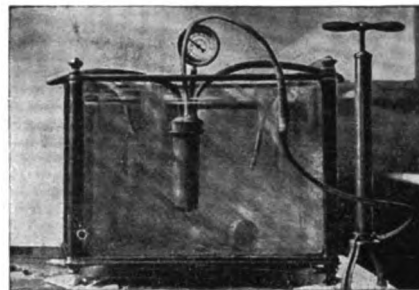


of its simplicity, durability and economy, has been greatly improved by a recent change in its construction. Formerly both handles were brought down in the same direction which made it somewhat inconvenient for a lineman to

clamp them down on the messenger wire. By reversing the handles so that they pull down in opposite directions and therefore against each other, which is shown in the accompanying drawing, the speed with which these rollers can be clamped on the messenger is greatly increased. The Callahan cable roller is made of malleable iron throughout and has no sharp edges to injure cable armor. W. N. Matthews & Bro., 226 North Second street, St. Louis, Mo., are the manufacturers of this money-saving specialty.

#### HARGIS SPLICING JOINTS MOISTURE PROOF.

We are advised by the manufacturers of the Hargis cable splicing joint that they have had several letters from telephone companies which expressed a doubt as to claims made for its moisture-proof features. To prove that this device is positively moisture proof when used according to directions this test was recently made in St. Louis:



An ordinary gold fish tank was filled with clear water and a No. 2 Hargis splicing joint immersed, which had previously been connected to a pressure gauge and a foot pump. When the air pressure was applied on the inside of the joint no leaks, however small, developed, as no air bubbles escaped through the water. They recommend this test to any who think that the Hargis joint is not absolutely moisture proof. For further information regarding this device write W. N. Matthews & Bro., 226 North Second street, St. Louis, Mo.

#### SOME DEAN ELECTRIC NEWS.

The new Erie (Pennsylvania) board will soon be shipped from the Dean factory, Elyria, Ohio, to replace the old Paca-Miller system, in which the board proper consists of multiple jacks only, the drops being on the wall above and



in the rear of the board. The new board is a common battery multiple 6,000 capacity board with 2,380 lines equipped and ready for service, also forty magneto lines for rural service. The shipment also includes a three-position chief operator's desk and three-position wire chief's desk, both being provided with space in the center for card indexes. Main and intermediate frame and relay rack, and complete power plant, except the battery, are all furnished by the Dean people. A standard Dean four-party harmonic outfit in duplicate for ringing accompanies the new board, which is further equipped with Dean line and cord test on every position.

The following order from Sheboygan, Wisconsin, has been received by the Dean company: A common battery multiple, 3,000 ultimate capacity, switchboard equipped with 1,260 lines and twenty rural lines, a chief operator's desk, wire chief's desk, intermediate frame, relay rack, complete power plant and Dean harmonic converter for ringing. The installation also includes individual ringing keys on each position of the board, and Dean line and cord test on each position.

Fulton, New York, has ordered a Dean common battery multiple 2,000 ultimate capacity switchboard with 560 lines equipped, also a chief operator's desk, main and relay racks and complete power plant, including the Dean harmonic four-party ringing outfit, cord and line test on each position.

Berea and Carey, Ohio, and Pt. Pleasant, W. Va., each have ordered magneto switchboards arranged for 450 lines, 300 lines and 400 lines, respectively. These shipments also include Dean full harmonic converter equipment for ringing.

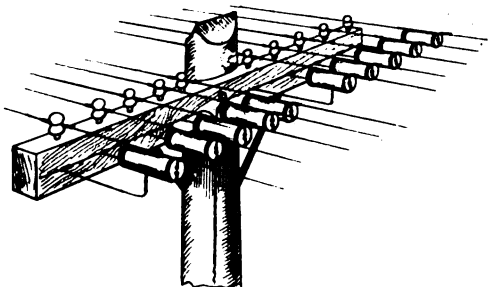
The Dean company will build for Colusa, Cal., a new switchboard with 1,500-line ultimate capacity of standard, common battery multiple switchboard type and equipped with 300 lines. A combined toll and chief operator's desk, wire chief's desk, main and intermediate racks, relay rack, complete power plant and standard harmonic ringing equipment go with this order.

#### THE BERRY LIGHTNING ARRESTER.

The Berry Electric Manufacturing Company, of Marion, Ohio, has begun its third season with a host of satisfied customers in nearly every state and with an unusually bright outlook.

The Berry lightning arrester, which is now familiar to almost all telephone men, is claimed to be giving universal satisfaction, to which is attributable the liberal patronage which the company enjoys.

The arrester consists of two brass tubes, one within the



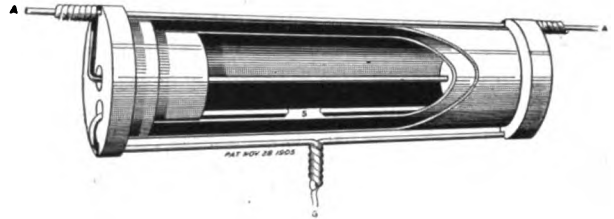
The Berry Lightning Arrester in Service.

other and held firmly in position by porcelain insulators. The inside tube is seven-eighths of an inch in diameter and the larger tube is one and one-eighth inches, leaving an air space three thirty-seconds of an inch between the tubes. It is across this air space that the arc takes place, as the inside tube is permanently connected to the ground and the outside tube to the telephone line. In the accompanying cut, *A-A* represents the telephone line, and is held firmly against the outside tube by a tie-wire which passes through the center of the arrester.

*G* is the ground wire and is soldered to the inside tube at *S*. This wire is copper and accompanies the arrester when shipped, and is about fifteen inches in length. The cut shows a portion of tubes cut away to show the inside construction.

The area of the inside tube is over twelve square inches, and that of the outside tube over sixteen square inches.

These arresters may be rapidly installed and with but small expense, it is claimed, as it is not necessary to cut a line wire to put them in position and one ground wire may



The Berry Lightning Arrester.

be used for any number of arresters on the same pole. The illustration shows the arresters as they appear on the pole line. One point, which alone makes this kind of a protection a favorite, is the fact that the maintenance expense is very low. There are no carbons to clean nor fuses to replace after a storm and consequently the subscribers are not left without service. Such protection is rapidly becoming very popular among telephone men.

A sample of the Berry lightning arrester will be sent upon receipt of 50 cents.

#### THE IMPROVED BLACKBURN GROUND CLAMP.

The improved Blackburn ground clamp, which was placed on the market over one year ago, is meeting with approval by both telephone engineers and operating companies who have occasion to make ground connections to pipes. This clamp is known as the No. A1 style and is similar to the original Blackburn No. 1, except that it is so designed that it may be attached without disengaging any of its parts, thereby saving time as well as the danger of misplacing the separated part.

The new improved Blackburn ground clamp consists of a perforated band which can easily be bent around the pipe, with one of the perforations engaging a pin formed at the opposite end of the band.

The screw passing through a nut on the band draws the band tightly against the pipe and at the same time chafes the surface of the pipe in such a manner as to make a good electrical contact. When it is desired to attach to a lead pipe, the screw end is protected with a special foot to prevent it from injuring the pipe. This clamp has been adopted as standard by many of the largest Independent and Bell telephone companies in the United States. The Underwriters' National Electric Association after examination and tests, has approved and listed both the No. 1 and A1 Blackburn ground clamps for use in signaling systems. The sales on these clamps for the past year have increased four times over the sales of the previous year which is very good evidence that they are satisfying the demand for their purpose. Telephone companies and engineers who are interested in knowing how to secure the best ground connection for the least expenditure of time and money, will be benefited by requesting a sample and prices from the manufacturer, Geo. R. Blackburn, Cleveland, Ohio.

#### CHAS. FARR LAUNCHES NEW COMPANY.

Charles W. Farr, founder and president of the Farr Telephone & Construction Supply Company, of Chicago, has resigned the presidency and management of that company to become the president and manager of a new company, to be known as the Farr Electric Equipment Company, 170-

172 West Adams street, Chicago. The new company will do a general electric supply business, having already secured good agencies for different lines of electrical goods. This company will manufacture and put on the market the Farr electric deep sea sounding apparatus. The above-named companies are entirely separate and not connected in any way.

#### THE F. BISSELL COMPANY'S NEW CATALOGUE.

"Why use a frog for a trade mark?" is asked the F. Bissell Co. so often as to constitute in itself the best possible answer. Trade marks are primarily used for advertising effect and that the bull frog trade mark has called forth so many inquiries indicates that it is pretty good advertising. So widespread was the comment aroused by this trade mark last year that the F. Bissell Company did a rather unusual thing to satisfy the curiosity of the trade. A mammoth catalogue of one thousand pages was issued and the entire first page of this catalogue was devoted to answering this question, "Why a frog for a trade-mark?" This thousand page catalogue presents a big investment of time, research and money, and it is really an encyclopedia, but, nevertheless, it is sent absolutely free to all who are interested. If you are among those who want to know why the bull frog was chosen for advertising purposes just ask the F. Bissell Company, Toledo, O., for a copy of this catalogue by the next express.

#### ACCOUNTING AND MANAGEMENT.

Every telephone man who has to deal with the business management of his company should be provided with a copy of "Quasi-Public Corporation Accounting and Management." Concerning this book it is said that it presents books, forms and methods necessary for the proper organization and management of the business and the recording of essential details of revenue, operation, maintenance and construction; also statements as to profit and loss and assets and liabilities. It covers waterworks, telephone exchanges, electric light plants, electric railway systems, etc.

The chapter devoted to telephone companies contains eleven pages, of which three are taken up by a skeletonized outline of a plan for the classification of revenue, operating and maintenance expenses, fixed charges and construction. The balance of this space is principally devoted to heading of typical books used in keeping these accounts.

#### STROMBERG-CARLSON SALES.

The Stromberg-Carlson Manufacturing Company, Rochester, N. Y., reports the receipt of signed contracts as follows:

Four sections 980 additional line equipments, Des Moines, Iowa; one section 240 lines central energy visual signal series multiple switchboard, Brookville, Pa.; one section two position toll board equipment, Mt. Pleasant, Iowa; four sections 700 additional line equipments, main exchange, Seattle, Wash.; two sections 300 additional line equipments, Queen Anne exchange, Seattle, Wash.

Thirteen central energy private branch exchange switchboards, Seattle, Wash.; central energy private branch exchange switchboard, Louisville, Ky.; Franklin, Pa.; Leavensworth, Kan.; Port Washington, Wis.; Fairport, N. Y.; Louisville, Ky.; Fort Wayne, Ind.; Hammond, Ill.; Magnolia, Ill.; Seattle, Wash.; Buffalo, N. Y.; seven central energy private branch exchange switchboards, Seattle, Wash.; Breckenridge, Pa.; Harrisburg, Pa.; Rochester, N. Y.; Leavensworth, Kan.; Minier, Ill.; Eden, Ill.; Golconda, Ill.; Arcanum, Ohio; Joy, Ill.; Garfield, Ky.; Kershaw, S. C.; Jones, Mich.; Cleopatra, Mo.; Keokee, Va.; Venus, Pa.; Mt. Etna, Iowa; Dresden, Tenn.; three generator call switchboards, Seattle, Wash.; four generator call switchboards, Sunnyside, Wash.; Pomona, Ill.; Peck, Idaho;

Culdesac, Idaho; Des Moines, Iowa; Madison, Wis.; Louisville, Ky.; Des Moines, Iowa. Sales of over 2,000 central energy telephones also are reported.

#### INTERNATIONAL'S INSTALLATIONS.

The International Telephone Manufacturing Company, Chicago, has recently completed the installation of a 4,800-line capacity, 750-line equipped, lamp signal, central energy multiple switchboard at Fort William, Ont., and a 500-line equipped, lamp signal central energy trunking switchboard at Westfort, Ont. The rapid growth of the Fort William plant has necessitated placing an order for an additional 450 lines to the exchange to be installed at once. The International company also is at present installing a 4,800-line capacity, 1,200-line equipped, lamp signal, central energy multiple switchboard and central office apparatus at Port Arthur, Ont., and is manufacturing equipment for an additional section of 450 lines to the 4,800-line capacity, 1,200-line equipped central energy, multiple switchboard installed at Meridian, Miss., last season, as well as an additional section to the central energy multiple switchboard installed at Saratoga Springs, N. Y., four years ago. In addition to these orders a large number of self-restoring drop switchboards and telephones are being sold and installed in various parts of the country.

#### PARTY LINE CONDENSERS.

A condenser on a party line telephone is said to be a decided advantage, because it prevents "rubber necks" from interfering with the rings which go over the line. The ordinary tin case condenser, which sells at about 50 cents, will accomplish this result perfectly, it is claimed. The new Andrae patented iron-case condensers are gaining popularity because, though higher in price than the tin case type, they can be attached by anyone and do not require the services of a telephone man to connect them to the instruments. It is because of the trouble incident to changing connections and re-soldering joints on the inside of the telephone when putting in a condenser, that the patented form is becoming so popular. It is fitted with binding posts and an iron cover which will not only protect it from damage, but make it possible to connect to the telephone on the outside in ten minutes' time without interfering with the circuits. The demand reported by the Andrae Company of this instrument seems to indicate that it is filling a long felt want.

#### A TELEPHONE CABLE BARGAIN.

The Central Telephone & Electric Company, St. Louis, Mo., has on hand for immediate shipment at very attractive prices, because purchased before the advance in the cost of raw material, a considerable quantity of standard size telephone cable, on which it will be pleased to make quotation for spring construction work. There are many other items on which the company is in a position to make special quotations, and it will be to the advantage of telephone buyers this spring to communicate with it promptly.

#### AN EFFICIENT BLIND OPERATOR.

Susie Davis, a girl of 20, who has been blind from infancy, is the most accurate and rapid telephone operator in the Virginia City, Nevada, telephone exchange. When she first applied for the place she was told that it would be impossible for her to manage the switchboard without seeing it, as no other blind person had ever been employed in the telephone service. She persisted and finally got a trial. She learned every number on her board so well that in a recent competition in Virginia City to determine the most efficient operator she beat all competitors. She is a graduate of the school for the blind at Berkeley, Cal.



# ITEMS FROM THE RURAL LINE DISTRICTS



Illustrated by O. H. Brandenburg

Bolette is after a telephone exchange.—*Grafton (N. D.) Times*.  
The line from Sporting Hill to Mount Joy was connected with the exchange here this week.—*Mt. Joy (Pa.) Herald*.

Mr. Weed of Essex was in town the other day to install a telephone line.—*Buck Hollow Correspondence Burlington (Va.) Free Press*.

The Tri-State Telephone Company will put in a telephone for Louis Stavem in a few days.—*Elm Park Correspondence Cambridge (Minn.)*.

Miss Elota Binnex, the night central in the Mutual telephone office, was on the sick list several days this week.—*Council Bluffs (Ia.) Nonpareil*.

E. L. Divan, general manager of the Browntown Telephone Company, was transacting at Winslow and Martin Saturday.—*Monroe (Wis.) Gazette*.

G. E. Ross, manager of the Northern Telephone Company, attended both the telephone and Shrine meeting in Sioux City last week.—*Storm Lake (Ia.) Pilot-Tribune*.

The Cross Roads Telephone Company met on Friday evening at the Cross Roads school house. A few from here were present.—*Louisa Correspondence Warren (Ill.) Sentinel*.

D. A. Shaw was here from Knobnoster, Wednesday, circulating among friends. He is engaged in building telephones in that section of the universe.—*Warrensburg (Mo.) Herald*.

The Citizens' Telephone central office is soon to be moved to Gilson's & Laverly's meat market. Everett Cole will still be "hello boy" for the present.—*St. Johnsbury (Vt.) Calendar*.

George Mummy, local manager of the New State Telephone Exchange, took a drive along the company's toll line from here to Missouri Valley Tuesday, inspecting the same.—*Onawa (Ia.) Sentinel*.

The Rough and Ready Telephone Company No. 7 is busy constructing their line, and within a few days will be ready to answer their hello calls.—*Twelve Mile Prairie Letter New Athens (Ill.) Journal*.

The turn out to the meeting of the honorable board representatives of the telephone association of Chelsea was full to overflowing. The business was conducted in the usual way and the treasurer shows a full pocket to meet all requirements. We concluded to trot the same old track.—*Bug Hill Correspondence Chelsea (Ia.) Independent*.



E. F. Jennings, from down the river on the Channel place, bought a new phone last week. He is on a line entering the Consolidated switchboard here. Mr. Helmick and others in the vicinity are also coming in on that line.—*Parsons (W. Va.) County Seat Clipper*.

Alfred Brueske, Ben Klug and the butter maker of Leaf Valley transacted business here Tuesday. The officers of the Farmers' Telephone Company held their meeting Tuesday.—*Alexandria (Minn.) News*.

Justice of the Peace Nick Schmidt, came up from Walker Monday to secure telephone supplies. He says the Independent line is enlarging its territory in the eastern part of the county.—*Hays City (Kan.) News*.

Miss Mamie Riley, an employe of the Independent Telephone Exchange, was able to be out to church Sunday for the first time since the accident at the skating rink in which her ankle was broken by a fall.—*Greensburg (Ind.) Review*.

Mr. Bunce, the Bell telephone man, who has been here some time, has resigned and gone to Nebraska for a visit. He has been engaged by another telephone company at a very material increase in salary.—*Manhattan (Kan.) Nationalist*.

P. P. White, manager of the Golden Rod Telephone Company, was up from Wahoo two days last week making arrangements for some one to take charge of the exchange here, Miss Opal Holloway having resigned.—*Fremont (Neb.) Tribune*.

The Horse Run telephone line will be divided near the residence of A. J. Brown. A number of new telephones will be placed on each line. The south line will run direct from Hoskinsville to Belle Valley.—*Belle Valley Letter Zanesville (O.) Signal*.

The Leonore Telephone Company experienced a "tempest in a teapot" last week. However, after considerable blowing, the storm subsided without doing any serious damage, and now everything is quiet.—*Leonore Correspondence Streator (Ill.) Free Press*.

Pat Fay, the efficient foreman of the Northern Telephone Company of Bottineau, was in the city on Tuesday looking after the lines in this city, some of which had gotten out of working order.—*Willow City Correspondence Bottineau (N. D.) Courier*.

The directors of the Farmers' Telephone Company are experiencing some difficulty in securing some one to take charge of the central office, since Mrs. Jackson is now contemplating removal from our midst.—*Watkins Correspondence Vinton (Ia.) Review*.

The telephone line is a sure thing. Officers and linemen were elected at the meeting Saturday night. Another meeting will be held Wednesday night to decide definitely about the matter, and then hurrah for the building of the line!—*Hastings (Mich.) Herald*.

The Farmers' Telephone Company were destined to have another telephone go up in smoke last Wednesday morning with the burning of Lew Armstrong's house at North Hampton, making two destroyed by fire in about three weeks.—*Princeville (Ill.) Telephone*.



John T. Mugg, with the Lafayette Telephone Company, has been nursing a case of the mumps for some days, but is better now. John says that the main inconvenience came about through not being able to talk with his accustomed volubility. He is of the opinion that in the crippled condition of his jaws, both Isaac Born and F. E. D. McGinley would be able to very nearly compete with him in chin wagging.—*Lafayette (Ind.) Leader*.

# Telephony

VOL. XIII.

JUNE, 1907.

No 6.

## INTERNATIONAL CONVENTION OF 1907

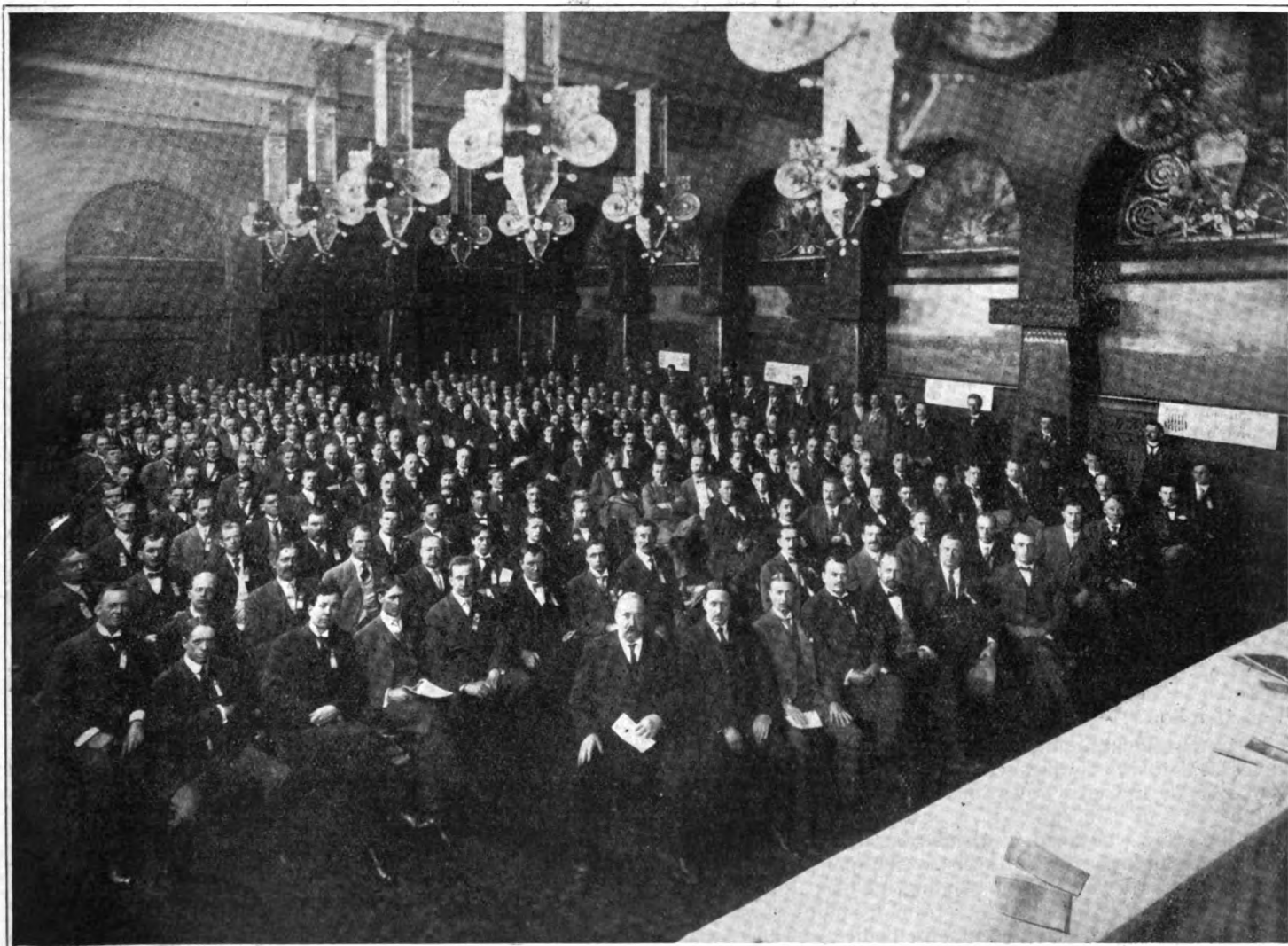
*Independent Telephone Men of United States and Canada Met at Chicago June 4, 5 and 6.*

By H. B. McMeal

CHICAGO opened wide her gates to Independent telephone men June 4, 5 and 6, and gave them a hearty welcome. On those days the International Independent Telephone Association held its annual convention at the Auditorium Hotel, and the event proved to be the banner

meeting of the others and convinced all that the Independent cause to-day is flourishing as never before.

The attendance was large. Delegates were present from every state to speak for state associations and strong, prosperous Independent companies, and the manufacturing



Delegates at the Opening Session of the International Convention, Auditorium Hotel, Chicago, June 4, 1907.

meeting in the history of the organization. Prominent men who have made Independent telephony a tower of strength not only in the United States but in Canada were present, and each made reports of the progress and development of the movement in his particular locality that grati-

wing was also well represented. Coming soon after big state conventions like those of Indiana, Ohio, Missouri and Illinois, where intense loyalty to the cause was manifested, the International event was permeated with an enthusiastic, confident spirit which spoke volumes for the strength of the



Independent movement and the increasing faith of both operators and manufacturers in its future. The three days' meeting was a success in every way, and when the convention adjourned, Thursday evening, June 6, the delegates and visitors departed feeling better equipped for the work of the ensuing year and enthusiastic over the prospects of the future.

On Monday, June 3, the committees on physical standards, standard forms of accounting, and standard operating rules and regulations held meetings. In the afternoon the executive committee and advisory board met. Tuesday morning the various committees in charge of details completed their arrangements.

The banquet hall where the convention was held was decorated with "shield" signs and banners, bearing appropriate sentiments and mottoes. Some of them read: "United we stand; you know the rest;" "Get the booster spirit;" "By their shield you shall know them;" "Have you got the shield habit?" "Organization is the key to progress;" "Co-operation makes for advancement."

When James B. Hoge, president of the association, called the convention to order in the banquet room of the Auditorium Hotel at 2:30 o'clock, June 4, there were upwards of 800 delegates and visitors present at the opening session. "The 1907 convention of the International Independent Telephone Association will now come to order," said President Hoge. "I take pleasure in introducing to you Dr. W. A. Evans, commissioner of health of the city of Chicago, who is here to-day to represent the city administration." In the unavoidable absence of Mayor Fred A. Busse, who was to welcome the convention to Chicago, Commissioner Evans addressed the delegates, and, figuratively speaking, presented them with the keys of the city. Commissioner Evans' address was punctuated with applause, and was as follows:

"Mr. President, Ladies and Gentlemen: There is some times said to be significance in the selection of the representative of the city government to welcome conventions to the city of Chicago. It is said that there are times that the body welcomed is so hilarious that it is necessary that it should be turned over to the police department. I want to assure you that, in sending me here, the mayor of the city of Chicago desired to refrain from any such reflection as that. There have been some bodies who have made things so warm that it would have been better if they had been received by the chief of the fire department. (Laughter.) There is no particular significance intended by the fact that the chief of the health department is welcoming you to the city of Chicago. (Laughter.)

"I regret, I am sure, more than you do, that you are not to be welcomed by the mayor of this city. The circum-

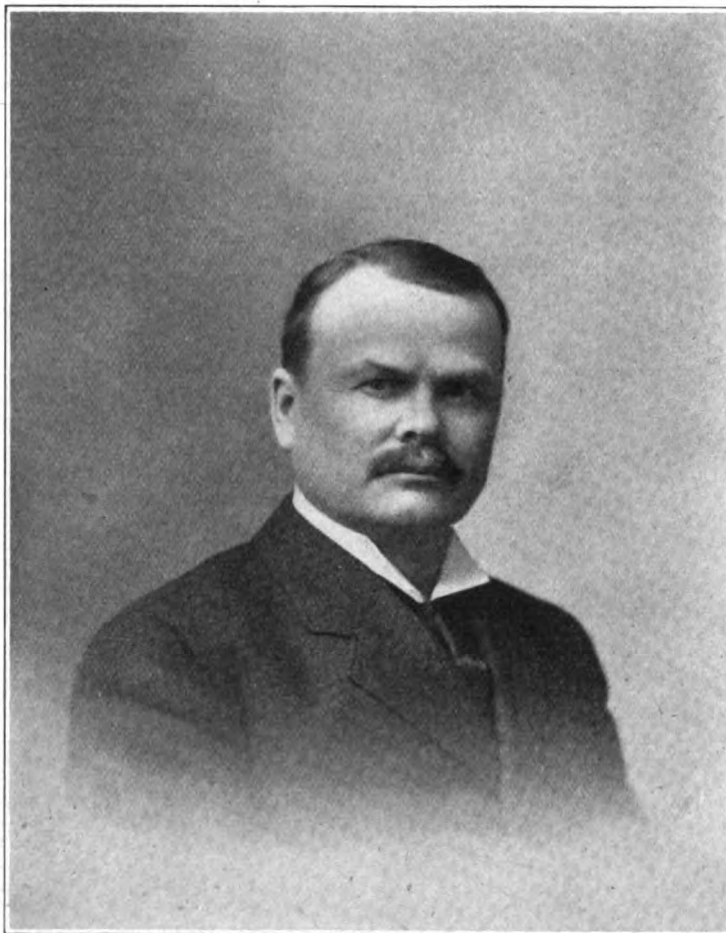
stances are such that it is not possible for him to be here this afternoon, and I, in his behalf and in the behalf of the citizens of this city, extend to you a welcome during the period of your convention here. I am told that the business interests represented stand for something over \$300,000,000, and that there are four millions of subscribers to your telephones and that you are representatives of that great organization which within a lifetime has converted this middle West from a region uninhabited into a great hive of activity; of that enterprise that in America takes raw material entirely unworked and within the space of a generation converts it into great machines for the doing of great things, as has been done in the city which welcomes you here to-day. (Applause.) And therefore there is a certain significance in the meeting here of this organiza-

tion, which, taking an industry unknown a quarter of a century ago and creating practically something out of nothing, has made of the telephone a great civilizing agency. We recognize, therefore, something of the responsibility of your organization, standing for what you do, and meeting in this city which stands for that which you represent. Gentlemen, in behalf of the mayor of the city of Chicago and through him in behalf of the citizens of this city, we welcome you to our city, wishing you God's speed in your deliberations and success in all your undertakings." (Applause.)

President Hoge then said: "The next speaker this afternoon is John M. Glenn, secretary of the Illinois Manufacturers' Association, an organization that has been very much interested in the telephone business for several years, and has been doing everything in its power to get proper terminal facilities for the Independent telephone interests in this city

in order to benefit Chicago's condition." Mr. Glenn spoke as follows:

"Gentlemen: I am also here as a substitute this afternoon is John M. Glenn, secretary of the Illinois Manufacturers' Association, called out of town this morning and I came down to tell you that we welcome you here in behalf of the business interests and that we are in sympathy with your movement and that we want to get connections with your exchanges. The Illinois Manufacturers' Association represents the manufacturing interests of Illinois. A large number of our members who are here in Chicago and all the members of the association outside of the city of Chicago are in sympathy with your movements and want to get in touch with your exchanges for the benefit of the business of Chicago which annually amounts to \$1,500,000,000. The Illinois Manufacturers' Association started out seven years ago to fight the monopoly and try to get a better service at a reasonable rate. The Chicago (Bell) Telephone Company at that time was exceeding the legal charge provided for in



Theodore Gary, Macon, Missouri.  
The International Association's New President.

the ordinance. We organized a company and have gone to the council for a franchise for our company, which we called the Manufacturers' Telephone Company, and have been persistently endeavoring to obtain such from the council committee on gas, oil and electric light. I want to tell you gentlemen that this committee does not represent the business interests of this city. (Applause.) We want all the business we can get and we believe in having as full interchange of the telephone business as possible. We do not believe it is good business to keep out the Independent lines, and the good business men of Chicago want you in. (Applause.) I do not know that there is anything more that I can say except that we are glad to have you here and we feel that there is hope for us. The ordinances are pending before the council committee, and the Chicago Telephone Company has been using every effort to prevent connection with any of your exchanges. The Chicago Telephone Company in every way has tried to show to the committee that this outside business would not amount to much, that you do not have good equipment and that you could not very well telephone in connection with the Chicago wires because your equipment was inferior. However, we mean to keep up the fight. On behalf of the Manufacturers' Telephone Company we extend to you a hearty welcome." (Applause.)

After Mr. Glenn's remarks President Hoge said: "Gentlemen, the next speaker that I shall introduce to you this afternoon is a gentleman that needs no introduction, because I do not believe there has been a convention of Independent telephone interests for the past ten years that he has not attended. It is my pleasure to introduce to you this gentleman, and immediately after he gets through with his address the official photographer, who is here, will take a picture of the convention. I now introduce to you Mr. H. D. Critchfield of Milwaukee." (Applause.)

Mr. Critchfield said: "Mr. Chairman and Gentlemen of the Convention: I want to tell Dr. Evans that we particularly appreciate that portion of his welcome—and by that I do not mean to say that we do not appreciate it all—which recognizes the fact that the Independent telephone men did not come to the convention to paint the town red. (Laughter.) We are glad to know, Dr. Evans, that Chicago has awakened to the importance of the Independent telephone business, and we bespeak from your administration that which we believe will be given a fair, full, impartial consideration of the application of the Manufacturers' Telephone Company for a telephone franchise in Chicago. (Applause.) And to you, Mr. Glenn, we say that we sympathize with you; we are with you and we want you to succeed. We sympathize with you because we have been through just the same sort of thing. We sympathize with you because we want an Independent telephone system in Chicago. We sympathize with you further because we want to see Chicago, the metropolis of the country and the center of that territory which gave birth to the Independent telephone movement, possess Independent connections with that section of the country which is tributary to her wonderful markets.

"Prior to 1895 I believe there were only about 5,000 Independent telephones in use in the United States. Since that time upwards of four millions of Independent telephones have been installed in the country and the number is increasing every day.

"Without speaking harshly of our competitor, I want to say that within thirty years, since the telephone has been a commercial utility, the Bell company has done but little to popularize it and give the people a chance to properly utilize it. In 1895 when the Independent telephone movement started there were in the United States 325,000 telephones, after eighteen years' development under one system. Since that time, because of the spirit of competition largely, the Bell interests have increased to three millions and the

Independents have about four millions. (Applause.) The general impression with which every municipality has to contend is that the installation of a second company is a burden upon the community. A canvass of the directories of eight of the largest cities in the country, in which there is more than one company operating, shows a duplicate use by only twelve per cent of the users.

"Bell companies have been absolutely unable to raise the money to build the lines that the public demands. It is a well-known fact that the Bell interests are located in New England and in New York city, where most of the stockholders live, while the Independent companies are controlled, operated and their money is raised in local communities. The greatest growth in the history of the Independent telephone business has been within the past year, 1906. The demand is not fully supplied but is growing rapidly all the time.

"Now a word about Chicago. There are within 500 miles of Chicago, 1,200,000 Independent telephone subscribers who are anxious to get Chicago connections. Your whole telephone business within that territory, from which you draw so largely, is controlled by the Bell monopoly. Is there any good reason why, is there any commercial reason why the city of Chicago should not permit the people who use those Independent telephones to do business with you? You go to considerable expense to advertise throughout this country to bring business to your city. Why not let the people who are begging to do business with you come in? No one has to-day two telephones unless it pays him financially. He only takes the second telephone when it is financially advantageous to do so. The result is approximately twice as many telephones now upon the completion of the second exchange, and each exchange will carry a larger number of subscribers.

"If the Illinois Manufacturers' Association does obtain a franchise much will be gained. I believe that the association has done that which no other company has ever done, to deposit five millions of dollars in cash as a guarantee that it intends to build. It seems to me that this is a sufficient evidence of good faith. We want to come in here; we want to do business with you. If we can help your association we are ready to do it. I thank you." (Applause.)

At the close of Mr. Critchfield's address, responding to the words of welcome, President Hoge read his annual address, which follows in full:

#### ADDRESS OF PRESIDENT HOGUE.

You are to be congratulated upon being able to take part in the deliberation of what promises to be the greatest convention ever held by the Independent telephone interests at the close of the best year's work of their history. Your duties and responsibilities are greater than those of any previous set of delegates, because with greater success comes added responsibilities. What has been accomplished during the past year would take too long to enumerate, but I wish to call attention briefly to a few points that should not be lost sight of in the future.

#### GROWTH OF THE MOVEMENT.

The best information that I can obtain shows that there has been an increase in our system of more than 500,000 telephones during the past year. Franchises have been granted by overwhelming votes in the following large cities: Boston, Massachusetts; San Francisco, California; Milwaukee, Wisconsin; Denver, Colorado; Omaha, Nebraska; Springfield, Massachusetts; Nashville, Tennessee, and in a number of smaller cities, thus leaving but a few centers of population where the Independents do not have adequate terminals arranged for. Practically all of the latter communities are controlled by bosses or political rings who have reason for keeping them out.

In a number of states the interests represented by us have had, during the past year, all sorts of propositions made them to sell out, to consolidate to become sub-licensees and even to purchase Bell exchanges; but with very few exceptions, and those few of minor importance, they have stood firmly by the principles of the association, refusing all overtures intended to weaken our cause; and, furthermore, a number who heretofore were sub-licensees of our competitor throughout the country have re-joined the Independent ranks so that to-day we are much stronger than even one year ago.

An attempt was made to place in unfriendly hands a few properties in the states of New York and Utah, which was stopped by the attorney general of New York, acting upon information supplied by our association, and the New York state association. A tentative proposition was made in Indiana by the field agents of the Central Union (Bell) Telephone Company to have the Independent interests take over a large percentage of the exchanges operated by the Central Union. This was promptly referred by the special committee with whom the proposition had been left to the state association, which, by unanimous vote, refused to consider it.

#### YEAR OF PROSPERITY WITH DIVIDENDS.

The year has been one of increased prosperity among the Independent companies. I find to-day a large majority of the companies are in a very much better financial condition; most of them have placed their properties on a dividend-paying basis, having decided to stop putting all their earnings into extensions and betterments, as was the custom during the early days of the Independent development. Most of them, however, are content to pay reasonable dividends and then put a substantial surplus back into the properties for extensions and betterments. In almost all cases investigated I find this amount to be equivalent to from three per cent to ten per cent on the capital stock of the company. Co-operative companies in many cases have been incorporated and placed upon a business basis, and are now employing proper help and paying dividends. Our business and securities have become better understood during the year.

#### FACTS FOR NEWSPAPERS.

The association has furnished a large amount of information, which was gathered by constantly urging the importance of sending it in, to many of the eastern papers as well as the papers throughout the other sections of the country, and to-day a substantial percentage of the United States understands and believes that Independent telephony is here to stay, that there is a place for two telephone systems, that two telephone companies can get along in the same community as well as two telegraph companies, provided only that common sense methods are allowed to prevail.

#### NEW YORK CITY REPORT.

The report prepared by Engineer Nichols for the New York Bureau of Franchises after he had visited thirty-six of the leading cities where telephone competition exists contains the following:

The Independent telephone companies which are now in operation throughout the country have accomplished certain desirable results.

First—They have, by a vigorous campaign, been the means of creating a new interest in the telephone business, resulting in a great increase in the number of subscribers of both Independent and Bell companies, which has been of great benefit to all users of the telephone.

Second—They have, by competition, compelled the Bell companies to give better service.

Third—They have been the direct or indirect cause of reduction of rates of the Bell companies.

The effect of the reduction of rates of the Bell companies, and the increased development caused by the Independent companies, upon the present cost of telephone service compared with that before competition may be stated as follows:

Users of the Bell telephones get better service and increased number of possible connections at less actual cost.

#### COMPETITOR'S CHANGE OF POLICY.

We know that our competitor has practically wrecked itself in trying to crush competition and to have the public believe that the telephone business is a natural monopoly; while we have been quietly attending to our business, charging fair prices for good service, regardless of the policy of our competitor. Everything indicates that they have had an awakening. At any rate, many of their stockholders in the east have, and are insisting upon an accounting and a change in business management which will show proper returns upon the new money invested. They are not satisfied to increase the number of telephones, from twenty to thirty-five per cent in their subsidiary properties, and have them show less earnings than the previous year.

I have analyzed a number of statements of Independent telephone companies and in a great majority of cases I find that their additional telephones are earning as much and in many cases more than the average earnings of telephones previously installed.

#### COMPETITION AND DUPLICATION.

Twelve cities with competition, representing a population of over 2,000,000, show a development of one telephone for 7.4 population, while the same number of cities without competition, with a population of 650,000, show one telephone to 23.8 population with very much higher rates and unsatisfactory service.

A careful analysis of duplication of telephones in the following cities shows an average of only twelve per cent: Columbus, Cleveland, Dayton, Indianapolis, Kansas City, Louisville, Minneapolis and Toledo.

Mr. Nichols, in his New York report, claims an average of about fifteen per cent in thirty-six cities. Every one will agree, I

think, that if the two systems were owned and operated by the same company it would not be possible to save more than one-half of this duplication for the reason that a majority of the business houses and officers do not have any more telephones to-day than are necessary to adequately take care of the business, so that in reality there is possibly a duplication that could be avoided of approximately seven per cent. In other words, the general public is given more than three hundred per cent greater use of the telephone where there is competition than where competition does not exist at lower rates, and far superior service, with a possible waste from duplication of only seven per cent.

#### EQUAL RATES FOR EVERYBODY.

Allow me to suggest that the future policy of the various independent companies in the United States which compose the system represented here to-day should be to disregard the policy of our competitor when it adopts any other than sound business methods. Attend strictly to your own business, furnish good service and charge fair rates. Do not show partiality to your subscribers, but treat them all alike. You are then prepared to meet every patron face to face, to make the proper accounting to your associates, officers and stockholders and still be prepared to meet any investigation that may be made by state, provincial or United States authorities. If your competitor does not follow this policy to the letter, it is only a matter of time when he will have to account for his delinquencies to one or more of these authorities.

#### GOVERNMENT INVESTIGATION.

The United States government, and, in some cases, the state legislatures, as you all know, have insisted upon the right of investigating with reference to rates charged by certain other organizations, and where they are found to discriminate heavy fines are imposed.

Sooner or later similar investigation will be made of the telephone companies, and I think a majority of those assembled here will agree that it should be made, and then it would be as much of an offense to give telephone service at reduced rates or free as it is for the Standard Oil Company or the railways to discriminate.

The attacks of our competitor have been most vicious, not only through the press, but through hired field agents who are said to receive an allowance of nearly if not quite a million dollars per annum for distribution in this manner, or five per cent upon \$20,000,000 for war measures. A striking illustration was that of the proposed sale of the properties of The United States Independent Telephone Company in New York, which it announced as being the backbone of the Independent movement; while in reality it represents less than one per cent. All sorts of changes were also rung upon similarity of names until the public became hopelessly confused, until this association sent out a bulletin to all companies and the newspapers setting them right on the subject.

#### FACTS MORE CONVINCING THAN FICTION.

The press undoubtedly tries to print only information that is furnished on what it believes to be good authority, but in many cases it has found telephone items so far from the truth that a number of papers have been making investigations of their own and have found that they were being used as tools and thereby put in the embarrassing position of having to apologize and to furnish the other side of the proposition to square themselves with their readers. It therefore behooves us to attend strictly to our own business and give out only facts that can be substantiated. Do not overrate your position.

#### INDEPENDENT SECURITIES WITHSTAND ATTACK.

The securities of many of the other public-serving corporations of the United States have declined in value during the past ninety days from ten to thirty points, but Independent telephone securities seem to have withstood the attack during this period with slight loss, because, among other things, experience has shown that wire-using companies are making more money during periods of depression than during times of prosperity.

#### ONLY ABOUT SIXTY PER CENT OF THE DEVELOPMENT.

Why should there be any disposition to furnish service at less than cost, plus a fair profit? There are in the United States to-day approximately 7,000,000 telephones, or about one to thirteen of the population. If we had one telephone to 7.4 of the population we would have at least 12,000,000 telephones, or approximately seventy-five per cent greater development than we have to-day, and I do not believe the telephone business in any of the large cities in the 7.4 class has been fully developed, with the possible exception of Los Angeles, which has one telephone to every four of population. Mr. James J. Hill estimates that there will be 200,000,000 population in this country in 1950, which will require, at a conservative estimate, thirty-five million telephones, or five times the present number.

#### DEMANDS UPON ASSOCIATION.

The International association finds the demands upon it to be similar to that of the operating companies from the fact that the more active the association is in carrying on its work the greater the calls are upon it. The past two years' work has convinced me that there is a necessity for a good strong central organization.

During that time the Independent telephone business has been radically changed. We have been gradually systematizing our work along uniform lines so that to-day we have fair uniformity and methods of advertising, accounting, routing, of business over interconnecting toll lines, construction and operating rules and regulations, and while they are not analogous in all respects there is a certain uniformity running through them that makes the system more complete. There is, however, a necessity for a stronger and better organization. The plan we are working under has proved to be worthy of greater support than has been given it; or as some one has just put it, "The national, state and district associations are organized for the benefit of all the Independents, whether small or great, and the Independents should come to the support of this association as strong as possible, for the more they help the International association the more the association can help them." It has cemented together the various interests into a more perfect union and has furnished a foundation and superstructure sufficient to take care of the business of the future. Many of the state associations of bankers are organizing upon the district plan, or "group plan," as they call it, and in Ohio they promise to have nine districts like the Ohio Independent Telephone Association. Our system will require some slight changes and modifications from time to time in order to meet changed conditions. What the association needs to-day is sufficient funds to carry on its work without anxiety on the part of its officers as to where the money is to come from. It must not be dependent upon voluntary subscription or charity for its maintenance.

#### HEARTY CO-OPERATION NEEDED.

Our greatest danger to-day lies in the fact that too many of our members are overconfident, feeling that we have a strong organization and that it does not require any work or effort on their part to keep it in that condition. In other words, the burden is thrown upon some one else to do the work, pay the money and spend the time upon matters of special importance to every one in this business. Some of you come here representing your respective companies and make verbal promises with reference to funds to be provided during the year to carry on this work; endorse the work done and ask other work to be undertaken that means additional expense; elect officers to do this work, promising them support; in some cases find fault with what has been done in order to justify your neglect, and then go home and fail to carry out your part of the work planned for the following year. This organization, as I have said, is necessary, but in order to be a success it can not be run in a half-hearted way, neither can it be run so as to get the best results unless it has the active support, financial and otherwise, of all interests in the field.

#### INCORPORATION OF THE ASSOCIATION.

This association should be incorporated under the laws of some state favorable to the association's requirements. The corporate body so formed to acquire and own the records of the association, and to be presided over by fifteen trustees who shall be elected by this convention, three for five years, three for four years and so down. At the next convention they will elect three to succeed the three whose terms will then expire. This body should be the financial organization of the association, the president of the association to be chairman of the board of trustees, the trustees to be representative telephone men representing the various branches of the business; the trustees themselves to elect each year from their number a president, vice-president, secretary and treasurer, who may or may not be the same as the officers of the association. They shall take entire charge of providing funds and paying all bills, their treasurer to be also treasurer of the association. This would limit the liability of the association and yet provide it with sufficient responsibility so as to enable it to carry on its work, and I believe this plan is sufficiently broad so as to entirely eliminate political influences from the organization.

We should provide for additional groups, or sections, so as to take care of the manufacturers' section, supply men's section, publishers' section, engineers' group or section, and honorary membership section. These groups should be limited as to the number of representatives they would have so that the combination of the outside sections at no time should represent more than, say, one-third, of the total delegates entitled to attend any one convention. This representation should be based upon certain requirements from these different groups and upon certain payments to be made by them to the association at stated times during the year.

#### UNITY THE FIRST ESSENTIAL.

It is essential that we stand together for many reasons:

First. We need uniformity of action along every line.

Second. We need the assistance of all others engaged in the business, because it takes all to complete our system.

Third. As we now stand we are one big family.

The strength of organization was quite clearly demonstrated in both the Indiana and New York cases within the past six months, and has been of very great assistance in the states of Wisconsin, as well as Ohio, Michigan, Iowa, Texas, West Virginia and many other states.

#### COMPULSORY INTERCONNECTION.

Without organization the legislatures in many of the states

would be inclined to pass measures unreasonable and unjust to our interests, not to impose a burden on us, but through lack of information on the part of those introducing them. For instance, compulsory interconnection bills have been introduced into a number of the legislatures during the past year and the subject is being agitated by the press of almost every state where the Independents have a strong foothold. In most of the central, western, northwestern and southwestern states bills have been introduced during the legislative sessions just closed providing for compulsory connection. In states whose legislatures will not meet until next winter similar bills will be introduced. The officers of the various state associations should at once inaugurate a campaign of publicity, pointing out the injustice of compulsory connection, which is an interference with private property rights, and would have a tendency to stop all further development of long distance lines. Stockholders of local companies should be informed by the managers of their respective systems of the operating disadvantages incident to compulsory connection, so that they can represent the Independent side of the controversy intelligently to their representatives in the state legislatures. In all matters pertaining to legislative affairs telephone operators should secure the co-operation of their stockholders, because from a political point of view they have more influence than the men actively engaged in the management of the business.

Our business is one that is peculiar and can not always be properly analyzed along the same lines as other business. Many business organizations are raising from \$25,000 to over \$100,000 annually for the purpose of further developing their business and eliminating certain evils that have been gradually creeping in.

#### PUBLICITY DEPARTMENT.

The executive committee at its last meeting voted to establish a publicity department, which, in the judgment of the members of this committee, is of vital importance, in order that authentic information may be prepared to keep the press of the country properly informed with a view of strengthening our securities and educating the public to our business; the press department not to be used for the purpose of fighting our competitor, except in cases where our cause is misrepresented or unduly attacked by them; its principal purpose should, however, be constructive and in no sense destructive. It should also be educational and help to get the board of directors, managers, subordinates, stockholders and the subscribers to see and more fully appreciate the importance of the business they are engaged in or depending upon. How would you regard a bank in which you were interested that never published a statement or did anything to inform you about its business? There are thousands of security holders in the various companies represented here, who have no idea of the scope of the business in which they are interested. Therefore it is no wonder that they are in doubt about its substantial values.

#### CAUSE SHOULD BE BETTER UNDERSTOOD.

The necessity for this organization is well illustrated in the work being done by the local chambers of commerce in the various cities, which are supplemented by the state board of trade, and these by the national board of trade. Why do our companies get weak-kneed once in a while? Why do they consider at any time making a deal with their common enemy? Because the boards of directors and officers themselves do not understand their strength. The quicker they realize that strength and use it properly the quicker their proportion will become better regarded and stronger in their respective communities.

#### MEASURED SERVICE.

Telephone service which up to the present time has been given almost exclusively on a flat rate basis by the Independent companies is subject to the same abuses and waste as the unchecked supply of electric current, gas and water; and there is unquestionably a growing demand on the part of the consumers as well as the management of the companies to have the service placed on a meter basis that will equalize charges between the various consumers and eliminate many of the annoyances to which the business is now subject.

#### LONG DISTANCE LINES.

The year's record on long distance work shows up very favorably as compared with that of previous years! The high price of copper during the past six months has been responsible for closing down considerable construction work that would otherwise have been done. The various long distance companies are gradually increasing their earnings by leasing their circuits to brokers, manufacturers, newspapers and others for telegraph purposes.

In this connection I would call your attention to the fact that statistics show that over eighty-five per cent of the long distance messages are for points within a radius of fifty miles of the originating station, and might further state that the great majority of local companies are provided with adequate facilities for furnishing such connections now and are adding additional circuits to their lines, from time to time keep pace with the growth of local exchanges.

#### CONSOLIDATIONS.

A number of consolidations have been made during the year, confined principally to consolidating long distance lines into larger



groups and to exchange companies taking over the smaller exchanges surrounding them. There is an opportunity for doing very effective work along this line so long as it is done with care and not so fast as to make the new organization unwieldy. Care should be taken to finance such mergers conservatively as effected.

#### MAP DEPARTMENT.

Gathering data for the long distance maps, as will be shown by the secretary's report, has been very tedious work and yet it is a work that has great value. I recommend that each delegate in attendance examine the maps that are on exhibition. The association took up with this work not with a view of making a profit out of it, but for the purpose of gathering data that could be relied upon, as a great majority of the maps in existence at the time this department was started more than a year and a half ago were largely of a "chalk-talk" character. The maps on exhibition can be vouched for by the Independent telephone interests of the country. Copies of them can be had at a nominal cost and one or more will be of great value to all companies, as they show the development in practically all the states of the union.

The work in compiling data can be discontinued for a period of six or nine months, but I would recommend that it be followed up from year to year so that all new lines and additional data gathered may be properly recorded before each annual convention.

#### THE SUPPLY DEPARTMENT.

The supply department during the past year made a small profit over expenses, as it did the previous year, and its work, in my judgment, should be continued by the association for at least another year, and should be supported by the companies everywhere, because they are all interested in pushing their business, or should be. I am told that our competitors have more than fifteen signs on an average to our one. Is it any wonder that they are regarded as the long distance company of the country and we as the local companies?

#### TRAVELING SECRETARY NEEDED.

It has been frequently suggested that the association should have a traveling secretary who would give at least a portion if not all of his time to visiting the different state associations for the purpose of working out more uniform methods in the various states, helping to strengthen the state organizations and attending their annual conventions. During the early part of this year we had Mr. Stadelman of Iowa visit a number of the state conventions and the reports we received in Cleveland of his work indicated to us that such a plan could be made very effective. It has also been suggested that the various state associations should arrange a schedule for dates of holding their annual conventions to be arranged one or two weeks apart and with some regular order so that the traveling officer as well as any others who might be able to attend one or more of the conventions would be able to do so and minimize traveling expenses.

#### HONORARY MEMBERS.

At the January meeting of the executive committee a plan was submitted by a number of the operating men providing for honorary memberships in the association upon the payment of \$25, the association to issue cards entitling the holders to certain privileges. The association has issued 72 of these cards to representative telephone men scattered over the country. I would recommend that these honorary members hold a meeting and appoint a committee to co-operate with the committee on constitution and by-laws with a view of being made a part of the International organization by having an honorary members' section, which would be entitled to, say, one delegate for every ten members of the organization.

#### CONTRIBUTIONS FOR ASSOCIATION WORK.

Our present constitution provides for assessments to be levied against the various state organizations on a basis of not to exceed one cent per unit per year. A number of the manufacturers have expressed a desire to place stamps, to be furnished by the association, on a basis of one cent per unit on each telephone and each switchboard drop, while certain manufacturers of telephone supplies have announced their willingness to contribute one-twentieth of one per cent of their gross receipts from the Independent telephone interests. This plan has been discussed with a number of the leading operators and they feel that it is one that will probably equalize contributions from the supply houses and manufacturers better than than any other that has been suggested.

#### CONCLUSION.

In my remarks thus far I have attempted to give an outline of the Independent situation so far as it relates to the work of the association.

In conclusion, I may be pardoned for referring to matters personal. After three years of service I can not retire from the executive committee without thanking my fellow officers and committees for their co-operation and assistance. Through their substantial efforts the success of the association has been made possible. I also desire to thank the officers of the various state associations, the delegates to our conventions, the honorary members and all others who have given their support to the association.

On three different occasions this association has honored me by election to the highest office within its gift and has shown its faith

in my judgment by adopting the "Ohio plan" of organization which I originally worked out in that state, as well as by many other tokens of confidence. Friendships have grown out of these relations which are growing dearer from day to day, but the gratitude which I now express for the many honors conferred on me extends far beyond personal friends and acquaintances and embraces every man interested in the cause for the advancement of which we are all working together.

Much has been accomplished. More remains to be done. Therefore I would ask you to give to my successor the same loyal support which has enabled me to make the work of the association of practical value. This association is your association, and not until every Independent telephone operator in the United States and Canada has become one of our members and all are filled with the spirit of devotion to the movement must the work of propaganda cease. We must stand solidly together shoulder to shoulder, loyal to the cause, to our officers and to our associates, thus winning the approbation of our own conscience and the good will of the people.

President Hoge then called for the secretary's report, which was read by John A. Harney, assistant secretary. It will appear in the July TELEPHONY.

President Hoge then appointed the standing committees of the convention. They were:

Committee on Amendments to the Constitution.—Charles E. Sumner, chairman, Oregon; F. H. Woods, Nebraska; Theodore Gary, Missouri; M. B. Overly, Kentucky; Judge Smith, New York.

Committee on Credentials.—A. C. Lindemuth, chairman, Indiana; Alpheus Hoover, Canada; G. S. Shanklin, Kentucky; W. H. Nelson, Kansas; W. H. Bassett, Illinois; T. H. Ferris, New York; G. W. Thompson, Ohio; E. H. Pollock, Nebraska; F. D. Houck, Pennsylvania; J. B. Ware, Michigan; J. W. Barnes, West Virginia; E. H. Moulton, Minnesota; W. T. Wynne, North Carolina; F. H. Stowe, California; Houck McHenry, Missouri.

Committee on Resolutions.—James S. Brailey, Jr., chairman, Ohio; C. W. Kline, Pennsylvania; S. S. Lichty, Iowa; W. J. Uhl, Indiana; W. B. Woodbury, Michigan; Manford Savage, Illinois; H. D. Critchfield, Wisconsin.

Nominating Committee.—D. E. Sapp, chairman, Ohio; O. C. Snider, Missouri; Charles West, Pennsylvania; Richard Valentine, Wisconsin; H. S. Baker, Iowa; E. L. Barber, Kentucky; M. L. Clawson, Indiana.

Auditing Committee.—Charles West, chairman, Pennsylvania; C. C. Deering, Iowa; C. S. Norton, Indiana.

The president then announced that Charles S. Norton of Indianapolis would have charge of the question box and that he would be assisted by C. B. Cheadle of Joliet, Ill., and A. E. Bouqua of Arkansas.

The auditing committee, through its chairman, Charles W. West of Pennsylvania, reported that the total receipts from June 26, 1906, up to and including May 25, 1907, amounted to \$17,444.11. There was a cash balance on hand June 16 of \$1,113.73, making a total of \$18,557.84. The total disbursements amounted to \$18,241.60, leaving a balance in the treasury of \$316.24. The total assets of the association amount to \$4,254.39, and the total liabilities to \$5,845.51, leaving a deficit of \$1,691.12, which has since been provided for.

Senator C. W. Kline of Hazelton, Pennsylvania, moved that a committee to consider the incorporation of the International Independent Telephone Association be appointed. President Hoge named on this committee: Frank L. Beam, Ohio; R. E. Matteson, Nebraska; W. S. Vivian, Michigan; A. C. Davis, West Virginia; Alpheus Hoover, Canada.

When the feature of the program, "Short Talks on Practical Subjects," was reached, President Hoge called for brief remarks on "Construction Problems." C. E. Tarte of Grand Rapids was called to the floor and said: "Most of us have been more or less scared at the high cost of material, and many have ceased work at an inopportune time on this account to wait for prices to go down. I think this is not altogether wise, especially as regards the construction of toll lines. It is better in my opinion to

buy copper for toll lines and go ahead now, as we can make good profit even at existing prices of material." Mr. Tarte emphasized the advisability of proceeding with the building of toll lines so that competitors do not get ahead of the Independent companies and secure the long-distance business.

Charles E. Sumner of Portland, Ore., said: "If there is anything that I don't know much about it is construction work, so I must ask the president to excuse me at this time. I will say, however, that construction work in the Northwest is proceeding rapidly and indicates a healthy condition of business in our territory."

The subject of "Shield Advertising" was then taken up and Frank L. Beam and W. S. Vivian were called for, but neither was in the hall. J. B. Ware of Michigan was called upon to discuss the subject, but replied that he was unable to tell the officers of the association anything new about "Shield Advertising." "If anybody here can, he is a better man than I think he is," said Mr. Ware, at which there was much laughter.

C. W. West of Pennsylvania informed the convention that a bill has been introduced in the Pennsylvania legislature making it a felony to use any design similar to the American flag for advertising purposes. "We have made wide use of the shield in Pennsylvania," said Mr. West, "and it would be a serious thing if we were compelled to stop. The matter should be taken up at this convention." Senator Kline explained that the Pennsylvania legislature intended only to prevent any desecration of the flag and appeared to consider the matter one to cause no grave alarm.

"Collection Methods" was the last subject discussed at the first session. J. B. Rhodes was the only speaker, and gave his views as favoring the guaranty of good service to be followed by vigilant methods in making patrons pay promptly.

At 4:30 the convention adjourned until Wednesday morning at 10 o'clock.

#### WEDNESDAY MORNING SESSION.

President Hoge called the convention to order at 10:30 o'clock Wednesday morning, there being an even larger attendance than at the first day's session. A report from the chairman of the entertainment committee was called for, but F. W. Pardee, who headed that committee, asked for further time. The topic, "The Long Distance Business," was then taken up, the first feature of the discussion being a paper by C. E. Tarte, of Grand Rapids, Mich., on "Independent Improvements and Possibilities." Mr. Tarte's paper was listened to with much interest and received frequent applause. It will be published in July.

F. W. Pardee then reported as chairman of the entertainment committee, reminding the delegates and visitors of the outing at Sans Souci Park, for which 1,000 tickets were provided, and the arrangement for the banquet which was held Wednesday evening.

President Hoge then asked for a discussion of Mr. Tarte's paper. Mr. Tarte added that the traffic association established in Michigan had worked very satisfactorily. Before its formation the Independent companies found it difficult to furnish long distance service, as, for instance, his own company at Grand Rapids was unable to handle or control the toll business properly after it had left the lines of that company. Now every company felt assured that it would receive its just share of the haul and all concerned worked in harmony to make the service a success. He urged every state to form such a clearing association and offered to render any assistance within his power to help along that line.

A. L. Tetu, of Indianapolis, who is about to locate at Portland, Oregon, as manager of the Howe company of that city, was called upon and contributed a rousing address in favor of Independents standing together and making no

concessions to Bell competition. "I see your subject is 'Independent Improvements and Possibilities,'" said Mr. Tetu. "I will leave out the improvements and say a word about possibilities, although that is a big subject to handle on so short a notice. I regard the Independent telephone prospects as the most promising known in the history of the movement. My statement is largely based on the failure of the Bell, or Central Union, in Indiana to associate with decent people. (Applause.) I say this advisedly, because the tactics employed by the Bell places them outside of that category. We believe in the old Mosaic law, 'An eye for an eye and a tooth for a tooth.' Why should the Independents extend the olive branch to the Bell after the latter has used such tactics as it has used to destroy our business?"

Mr. Tetu then related the Roman legend of Spartacus and the gladiators and quoted the stirring lines, "Ye stand here like giants as ye are," and compared the Bell to the Roman Adonis who would seek to purchase the brawn and strength of the gladiators (the Independents). The closing words of the old poem wherein the appeal was made to "stand together" aroused the convention to a high pitch of enthusiasm and the hand-clapping was mingled with loud cheers.

"This is not the time to surrender to the opposition," said Mr. Tetu vigorously, "just when we have made the enemy realize our strength. They have never given us any consideration, but have fought us mercilessly. Why should we listen to their specious propositions? I am going far away, as far away as I can and stay in God's country, but I shall watch affairs with a keen interest. I feel that now is the time when we should stand together as firmly as ever." Mr. Tetu was loudly cheered as he resumed his seat.

Senator C. W. Cline of Pennsylvania took up the discussion of long distance lines and said that the sooner the Independents realize that the long distance must be divorced from local matters the better. How to accomplish this must be seriously considered. Speaking for himself, he favored all the interests of a state forming an overlying long distance company to take care of that sort of business. He urged the necessity of giving the public good service and convincing the people that the Independents can give as good service as the Bell. Senator Cline pointed out the unsatisfactory features of long distance communication under varying conditions because of different companies and said that in his experience he found that no matter how well his own company performed its work it was blamed for the shortcomings of other companies which had a part in the transmission of the messages. Each company had to be responsible for the weakest spot in the chain.

Following Senator Cline, Mr. Hulett said: "It seems to be the consensus of opinion to have long distance telephones. The question seems to be, How to get them? It takes money. The united action of the Independent telephone men will ultimately bring about a long distance telephone system. A careful study of the situation for the past four years leads me to believe that there is now an opening. I refer to the recent combination of the Western Union and Postal Telegraph Companies. I believe we must enter into the telegraph business. Some three years ago there was a movement started in Chicago to do that. Circumstances were against it at that time. There is no reason in my mind why the telephone and telegraph business cannot be consolidated. We saw in last Sunday's Tribune that the Western Union Telegraph Company and the Postal company have gone so far in New York city, where there are substations of both companies in a hotel, as to remove one or the other station, leaving but one station in the hotel. I believe that a movement emanating from the Independent telephone people will bring to your support capital and customers for the Independent telegraph-telephone people. To the leased wire people who are using from half a mile upward of leased wire I say make their fight your fight and

your fight their fight. With these people you can build your telephone lines and you can operate them. The Western Union Telegraph Company does not take into consideration the leased wires nor the clock or ticker business that goes along with their system. Their profits are so large that they do not look for small business. One firm here pays \$750.00 for leased wires and it is too small for the Western Union to take into consideration. Why cannot you arrange to do that business? Why cannot it be done? I believe the American people will rally to your support." (Applause.)

Mr. Gladden of Pennsylvania, chairman of the committee on resolutions, presented the following resolution:

"Whereas, James B. Hoge has well and faithfully served the International Independent Telephone Association as president for the past three years, giving freely of his time and means to advance the interests and further the cause of Independent telephony; and,

"Whereas, We fully appreciate his invaluable services to the association; therefore,

"Be it resolved, That this convention tender to James B. Hoge a unanimous vote of thanks for his able services in so successfully organizing and presiding over the destinies of the association for the past three years and that the secretary of the association is hereby instructed to have a copy of this resolution engrossed and presented to Mr. Hoge as a testimonial to the present as well as to all future generations of the high regard in which he is held by this association."

The resolution was unanimously adopted.

The following resolution was also adopted:

"Whereas, The Bell Telephone Company is insiduously proposing long distance connection to local Independent telephone companies in various parts of the United States and offering in consideration of entering into such connection to abandon the local field; and,

"Whereas, It is the sense of this convention that any such connection is bound to injure the Independent telephone cause as a whole;

"Therefore be it resolved. That this association frowns upon and denounces any affiliation or connection of Independent companies with the Bell company anywhere on the American continent as being injurious to the people as a whole."

The convention likewise adopted the following resolution:

"Whereas, There are difficulties and dissensions arising from an infringement by an Independent company on the territory already occupied and served by another Independent company; and,

"Whereas, Such an infringement is injurious to the cause of Independent telephony; therefore,

"Be it resolved, as the sense of this convention, That the company on the ground and satisfactorily serving the public shall be entitled to recognition by this association and any company or individual infringing on the rights of such Independent company shall be repudiated and shall not be admitted to membership in this association."

On the roll call of states President Hoge called upon the representative telephone men, who reported the conditions in their localities. These reports will be published in July.

C. S. Norton, secretary of the Indiana association, then read a paper entitled "The Indiana Situation." As his paper contains a valuable history of the recent attempt of the Bell to form a working agreement with the Indiana Independents, Mr. Norton's paper is given in full. It follows:

The Independent telephone business in Indiana was never stronger nor more firmly entrenched than it is to-day. While we have been working out the problem of universal telephone service at reasonable rates, we unwittingly developed another problem which we did not even dream a few years ago would ever be pre-

sented to us for solution. But it has been presented, and so far the solution seems to meet the approval of every one except those who demanded a solution but hoped for a different answer than the one so far given.

This new problem is no other than an unofficial proposition from the Bell interest to stop the telephonic warfare in Indiana by agreeing to abandon its exchanges in certain places and to a merger with the Independents in other places, so that there would be only one exchange, with dual toll line connection, in each community.

In order to understand why the Indiana Independent Telephone Association gave the answer which it did, a brief resume of the facts leading up to the present situation may not be amiss.

The Independent telephone movement has become one of the fixed factors in the commercial and social life of the Hoosier state. Its supremacy is not an accident, but has been attained by means of one of the fiercest commercial battles ever waged on Indiana soil. Like all great struggles for supremacy, the battle itself was not designedly planned at the beginning, but was the outgrowth of the conflict of opposing principles which uniformly manifest themselves in war measures when diplomacy fails.

Thirty years ago the principles of monopoly were so skillfully applied to the telephone business that for twenty years one corporation could truthfully say: "We own the exclusive right to operate the telephone." Having the "exclusive right," the telephone was operated for revenue only, with no thought of efficiency of service or public accommodation. During these twenty years, the Bell company unwittingly prepared the way for future Independent development.

Twelve years ago, a few venturesome individuals in Indiana had the temerity to question the correctness of the theory of monopolistic control, and to apply the principles of Independent ownership and operation to the telephone business.

The Bell telephone corporation, which was busy extending its principles of monopoly to every section of the United States, paid little attention at first to the new theory that was being applied to the telephone business in Indiana. But the people, who were beginning to despise monopolization of the telephone business as they despise monopolization of any other business, rallied to the support of the Independents.

At the beginning there was no thought on the part of the Independents of putting the Bell out of business; in fact, they cared not whether the Bell had much or little business. The two things which they sought to establish were local ownership and control of the telephone business, and telephone service for, all who wanted it, at reasonable rates. But the Bell soon realized that, if the people were permitted to establish plants upon Independent lines, the principle of monopoly—which is the very foundation of Bell corporate existence—was in danger of being driven from the telephonic field. No one knows better than the "telephone trust" that, under equal federal, state and municipal conditions, its principles of monopoly cannot survive Independent opposition.

Realizing that the Independent movement endangered its very foundation, the "telephone trust" declared a piratical war upon the Independent movement, and the Independents struck back as a war measure. This conflict—which has cost millions in money and has sent Bell subsidiary companies into virtual bankruptcy—was brought on by the Bell and not by the Independents. But, being in the fight, the Hoosier state will stay in the fight until the theories of the monopolistic control of the telephone business have been driven once and forever from our borders.

At the beginning of this conflict, the opposing forces seemed unequally matched. On the one side was arrayed the gigantic telephone trust, with its exclusive patents, unlimited franchises and millions in money, backed by Milk street and Wall street financiers. On the other side was a miscellaneous assemblage of a few scattering Independent exchanges, with no patents of value, limited franchises, meagre capital, but backed by the common people. Corporate power and greed for gain bound one side together into a well disciplined army. Fealty to Independent principles and loyalty to right, grouped the other side into a voluntary state association and made it a powerful fighting force.

The two forces in Indiana, as everywhere in the United States, became the exponents of two separate and opposing principles, as antagonistic to each other as good and evil or light and darkness.

The American Telephone and Telegraph Company, with its Central Union and Cumberland subsidiary companies, espoused the cause of monopoly. The Indiana Independent Telephone Association, with its 145 member companies, championed the principle of Independent ownership and control of the telephone business.

There is and can be no reconciliation between the two systems. No alliance can be formed in the telephone business which will preserve the two systems and keep alive the principles upon which each is founded, any more than monopoly and independence can be merged into one system in the oil trade, the railroad business or any other commercial enterprise that is national in scope.

It does not take a seer to see this fact, nor a prophet to tell which system will finally win. No monopoly has ever been more than temporarily successful. In fact, so far as Indiana is concerned, it is no longer a matter of speculation or doubt, for when recently the white flag of truce was unfurled by some of the Bell

lieutenants, their superior officers did not cite them to a court martial for any act of disloyalty to the Bell interest.

Twelve years of conflict in Indiana has resulted in the formation of about 400 separate Independent telephone companies, the installation of 200,000 Independent telephones and the extension of the Independent lines into every county in the state. At the same time, the monopoly, having only about one-fourth as many subscribers, acknowledges that it has lost all of its remunerative exchange business in every city in the state with the single exception of Evansville. While it has sunk millions in its futile campaign of extermination, it freely confesses that it is in worse financial condition, in Indiana, than ever before, and makes the bold admission, in its tax report, THAT IT HAS NOT PAID A DIVIDEND SINCE 1896 AND NONE IN SIGHT.

This is probably the reason why six of the field agents and division superintendents of the Central Union Telephone Company appeared at a joint meeting of the First, Second and Third districts of the Indiana association, at Logansport, on the 28th of March, and made a written proposition to abandon, sell, lease or merge its exchange property, wherever there was competition in these districts, and thereafter to connect the Bell toll lines with the remaining Independent exchanges. They also said that they would extend the proposition to cover the entire Central Union territory in Indiana; that the proposition was made with the consent of their superior officials and would be indorsed by the American Telephone and Telegraph Company, which owns 76.76 per cent of the Central Union stock.

These three districts referred the proposition to the state association, first passing a resolution that no proposition be considered that did not apply equally to the entire state.

Afterwards an unsigned tentative proposition, which did embrace the entire Central Union territory in the state, was presented to the executive committee of the state association.

The executive committee said: "If you mean business, and are willing to abandon the exchange business in this state, have your officials sign this proposition, and we will submit it to the association, which meets in regular annual convention at Indianapolis on May 15 and 16."

The executive committee believed that the Independents had nothing to fear from the Bell, for it goes on the theory that he who cannot hold by diplomacy that which he has won at arms ought never to have been a party to the conflict.

The Bell officials, however, did not sign the proposition, and the state association gave no official consideration to the unofficial proposition of the Bell field agents. What their actions mean we leave you to judge for yourselves, but the Indiana association believes that if the Independents in Indiana were willing to ignore the effect upon the Independent cause in neighboring states, terms advantageous to the Independents in Indiana could be speedily made with the Central Union Telephone Company.

But the Indiana Independent Telephone Association is loyal to the principles of Independent ownership and control of the telephone business, not only in Indiana, but throughout the United States. We realize that while the corporate existence of our many companies may stop at state lines, the principle upon which we are founded extends throughout the nation. Our fealty to you of other states is not because you are in the telephone business, but because you, like ourselves, are fighting for the rights of the people and against the greed of a monopoly.

Our association, fearing the monopoly might think we were willing to temporize with it in Indiana, while it was trying to crush our brethren in Ohio, Wisconsin and other states, and to present as solid a front in diplomacy as it has in warfare, amended its constitution so as to make ineligible to membership any company having a Bell connection, and to cause any present member making a future connection with the Bell to forfeit its membership.

We stand to-day a solid phalanx of 145 separate companies, controlling nine-tenths of the Independent telephone business of Indiana, and opposing, not the Central Union Telephone Company or the American Telephone and Telegraph Company, as individual companies, but the principle of monopoly, and these companies in so far as they are the exponents of that principle.

We realize that if the Bell subsidiary companies could be freed from the parent company's control, these companies would then be founded upon the same basis as our own Independent companies, and we would deal with them as allies or competitors, as their interest might harmonize or conflict with our own—just as we deal with other Independent companies. But as long as monopoly is the controlling principle of the companies forming the Bell system, they cannot be allies, they are not competitors, but are a piratical enemy to every Independent company.

There will always be more or less competition in the telephone business, dependent entirely upon conditions which may or may not necessitate competition. The same conditions that govern competition and absence of competition in other lines of business will ultimately control in the telephone field.

The telephone is no more a natural monopoly than railroading or the printing of newspapers is a natural monopoly. A town that can support only one newspaper need not hope for competition in the price of newspapers or in advertising rates. If a city is large enough to support two daily papers, the merchant in that city who

desires to reach all the people with his advertisement must patronize the advertising columns of both papers and pay for both. No one newspaper or railroad can adequately serve the public in our larger cities. It is a mechanical and human impossibility. It may serve them properly in the smaller cities and towns—conditions are different.

So with the telephone business. While one company may answer all of the requirements of the towns and smaller cities, no one company can ever properly serve cities like Chicago, New York, Boston, St. Louis and Indianapolis. If it is attempted, and municipal authorities refuse to allow competition, rest assured that the public will pay an exorbitant rate for inferior service, whether it be Bell or Independent.

As the lime light of publicity has recently been turned on the telephone situation in Indiana, because the Independent Association deigned to match its diplomacy with that of an enemy whom it had defeated in conflict, it is well that other states know Indiana's position in this matter.

We believe in competition in the telephone business, where conditions are such that competition is necessary to secure adequate service at reasonable rates. We do not believe in the monopolization of all the telephone business by one corporation under any condition. We believe that, when only one telephone company is necessary, it should be locally and independently owned and controlled. We are not averse to arranging with the Central Union Telephone Company and the American Telephone and Telegraph Company for joint service, whenever these corporations are ready to abandon their principles of monopoly and deal with the Independents on equal terms wherever they may be found throughout the United States.

Until the "telephone trust" will agree to deal as fairly with you of other states as it has agreed to do with Indiana, the Indiana Independent Telephone Association will reject any and all propositions for an alliance in the Hoosier state, for Indiana is no traitor to this, the greatest commercial propaganda of the twentieth century—the Independent telephone movement.

James S. Brailey, Jr., of the United States Telephone Company, Toledo, Ohio, announced that it was important that he leave the city this afternoon and requested that he might deliver his paper on "The Strength of the Chain," which was to have been given at the Thursday morning session. He was invited to proceed, and spoke as follows:

"With your permission, Mr. President and gentlemen of the convention, I wish to say that I would not have taken the liberty to have asked the president to make this change in the program, but for the fact that last Saturday when I left home for St. Louis I received an anonymous letter, postmarked Columbus, Ohio, stating that if I dared to address the telephone convention that things would be done to me. I want to say if the party who addressed that letter is in the hall I am here and would like to meet him, and for this reason I am addressing you now. I do not believe he is a member of this association.

"The strength of the chain in the Independent telephone movement represented by our association is our organization. The chain represents the business of the Independent telephone companies in this association and in the United States, and the strength and the foundation of the Independent telephone business is our organization. In every link in the chain, every part of the chain, the strength is organization. Our organization, including the Independent telephone interests of this country, to my mind represents two principal ideas. The first idea is the protection of our telephone business and the protection of the members of this association. During the time that the Independent telephone movement has been in existence we have had some sort of organization, not the perfect organization that we have today, but we have always had some sort of organization and these various organizations are growing stronger and stronger. In fact the reason that we are here to-day, the reason that we have Independent telephone companies today, is because we have always had some sort of an organization. Why, while I represent one or two fairly large companies, those companies could not prosper without organization or without this association accomplish what they have. What is a little railway system in this country to-day? Nothing whatever unless it is coupled up with some larger and more expensive system. And so, gentlemen, the first duty, I believe, of this organization is to



defend the Independent telephone business and defend each and every company represented in the association. I believe the second duty of this organization is to strengthen the chain of the Independent telephone business, the business which we are interested in. The three hundred millions of dollars which is invested in the Independent telephone business of this country is invested in the finest business in the world, and I believe it to be the duty of this association at all times and in every possible way to help and assist in advertising and upbuilding the telephone business. There are railroad business, gas business, oil business, etc., but the best business of all is the telephone business. We are in the best business on earth. Talk the telephone business, make your friends all understand what a wonderful business it is that we are engaged in. Why, I don't believe that we fully realize the wonderful business it is, the wonderful possibilities it has. We are all too busy to think about it. You know that the telephone business has grown upon the American people to such an extent that they have not taken into consideration its possibilities from a business standpoint. If hard times come along a man might go without eggs or ham but he would not go without his coffee. And so it is that a telephone user might go without electric lights, gas, etc., but he will not go without his telephone. It is these facts that we want everybody to know. Let us advertise the telephone business as a business. From the best of my knowledge the opposition expended in publicity \$500,000 a year, and I am sorry to state that practically all of that expense was not spent in advertising the telephone business—they were so small as to think that they could gain something by attacking us. Gentlemen, I want to say that every dollar of that \$500,000 a year that they have spent in fighting us has crippled their resources more than 100 to 1. Every penny that the Bell has spent has not only cost them 100 to 1 but 500 to 1 in the value of their properties and ability to raise money for future propositions. What a wonderful business the telephone business is! There is no business that has as solid a foundation as ours has. The people like the telephone business, the people are with the telephone companies when they do their business on a just basis. Our companies are doing business upon that basis. You all know, all of you who have a family, that there is hardly a child in this country but knows how to use a telephone and does use it, showing how thoroughly the public has become accustomed to it in the family. For myself, after ten years' study of the telephone business I do not think there is any business so good as ours."

Mr. Goodwine of Indiana made a motion that the reports presented by the different state association be accepted, which, after being duly seconded, was put to vote and carried.

The following resolution was presented by C. W. Kline of Pennsylvania:

"Resolved, That the anonymous and scurrilous attacks made upon individuals who are supporting Independent telephone interests in the interest of the Bell monopoly are hereby denounced as un-American, and that the authors of said anonymous attacks are declared as being without the pale of American gentlemen."

Upon receiving a second, the same was carried. Reference was made in the above resolution particularly to the attacks made on the author of "A Fight with an Octopus," which was published and given wide circulation by THE TELEPHONY PUBLISHING COMPANY, much to the disquietude of the Bell.

The following resolution was presented by D. A. Walker, Columbus, Ohio:

"Whereas, The Independent telephone journals of the country have rendered the cause of Independent telephony invaluable service during its existence, and are constantly placing before the public the whole truth in regard to the movement, and

"Whereas, We fully appreciate the great work they are constantly engaged in; therefore, be it

"Resolved, That this convention extend to them hearty thanks for their past efforts, and in order to encourage further efforts, recommend that the rank and file, in the Independent telephone field, support them loyally by patronage and subscription."

The report of the committee on forms of accounting was presented by Mr. West, of Pennsylvania, and upon motion, being duly seconded, was carried.

W. J. Stadelman, of Sioux City, Iowa, read a paper on "Long Distance Advertising," which covered practically the same ground traversed in an article on the same subject, which Mr. Stadelman prepared for TELEPHONY, and which was printed in the March issue.

Frank Hart, of Pittsburg, Pa., contributed a valuable paper on the subject, "How to Handle Long-Distance Business," which follows:

At the present time the long distance business of the Independent telephone companies is increasing so rapidly that it is crowding the circuit capacity, making it necessary to handle the business so as to get the greatest amount possible over the lines. In order to do this there should be a general system of rules under which the various companies operate so that they will work in harmony. I would suggest that good work can be done along this line by the International Independent Telephone Association adopting a set of rules governing the handling of long distance business and have them printed in book form, thereby being able to furnish same at a small cost to the companies and making it possible for the smaller companies who only require a few books to secure them without going to the expense of having them printed. By having the International Independent Telephone Association adopt the rules it would make them an authority and would be the means of settling many a dispute between companies as to the right of lines, etc.

I find that much time is consumed by over-zealous operators, in each trying to get their calls through first; neither will take the other's call, the subscribers are held up and the use of the line taken up by argument that often consumes more time than would be necessary in getting both calls through. This will eventually lead to losing calls on account of busy lines. I think that this is a very important subject and should be taken up by the association, discussed thoroughly and some action taken with the end in view of putting a universal system of rules in force. I find that the smaller companies who have not long had connections with long distance points are suspicious that they will not get fair treatment and it is much more difficult to get proper service from their operators than from the operators of larger companies who are working under some set of rules.

The rules used by larger companies are very much the same; there are cases where the originating operator works up the line to the point desired, while other companies relay the message, and other slight changes too numerous to mention. The merits of which are dependent largely on local conditions. I think better results would be accomplished by a universal system. Much can be said on the subject of the handling of long distance business, but I consider the rules under which the business is built of too much importance to be lost sight of by minor details. I submit this subject to the association hoping that you will consider it of enough importance to discuss and take some action that will lead to the adoption of some universal form of rules.

J. B. Earle, of Waco, Texas, read a paper on "Telephone Legislation in Texas." It follows:

Without the matter having been discussed before the people or in any way agitated, some member of the committee on resolution and platform at the democratic state convention, which met in Dallas, in August, 1906, introduced and had the committee accept a platform requiring all telephone and telegraph companies to connect. There was, however, more or less agitation on this subject in the papers after the convention adjourned. When the Texas legislature convened on the second Tuesday in January, of this year, two or three bills were introduced affecting telephone properties, one of which required all telephone companies to connect with all other companies of every kind, competing exchanges, competing long distance lines and lines that were not competing. This measure was bitterly opposed by the Southwestern Telephone & Telegraph Company (Bell) as well as by the Independents, all companies preferring to be left alone to make their own contracts for connection. The telephone companies were given ample time to discuss this matter before the committee on corporations and the result was the bill was killed in committee, but a substitute was reported by a majority of the committee, proposing to compel a connection between companies at common points for such business as originated at a point where only one company had an office and terminating at a point where only the other company had an office, that is, to take care of non-

competitive business. Another bill was proposed and offered as a substitute for this allowing either company, if it so desired, to go into the district court and on the merits of the case have an order entered by the district judge setting forth whether or not a connection should be made and if so the terms and conditions. At the suggestion of the Independent Telephone Association of Texas, the following section was incorporated in this bill for the protection of the small companies and the prevention of discrimination on the part of the Bell:

"Sec. 10. The schedule of regular rates for long distance business in force by telephone and telegraph companies in this state on the 1st day of January, 1907, shall be, and is hereby made, the maximum rate to be charged by the respective companies hereafter for such or similar service. The rate for telephone companies shall be non-discriminating and it shall be unlawful for any telephone company to charge a higher rate for any form of local telephone service or long distance telephone service between different persons in any one exchange or between any two or more points on its long distance lines; and for local exchange service a company shall charge the same rate for substantially the same service in one town as charged by said company in another town where the exchanges come within the same class as herein specified. Class No. 1, shall consist of telephone exchanges in which there are not more than five hundred telephones in operation in each said exchange; Class No. 2, shall consist of telephone exchanges in which there are not more than one thousand telephones in operation in each such exchange; Class No. 3, shall consist of telephone exchanges in which there are not more than three thousand telephones in operation in such exchange, and Class No. 4 shall consist of telephone exchanges in which there are three thousand or more telephones in operation in such exchange."

It has been the custom of the Bell company in Texas to use tactics they have unsuccessfully tried in the middle west, believing that probably the Texas people were different. The Bell methods have been that of discrimination and cut-throat rates, both local and long distance, followed by free service. If the above bill had been enacted into a law their rates would necessarily be the same for the same character of service the state over. These bills were never reached at the regular session. When the special session of the legislature was called this plank in the platform came in for mention by the governor. A bill to meet the demand was passed by the senate and sent to the house, and when the section quoted was offered as an amendment it would probably have carried but was held not to be germane to the connection bill—the regulation of rates, etc., not being mentioned in the governor's message, and was out of order. This bill, as passed, provides that telephone and telegraph companies shall be compelled to make physical connection between their toll lines at common points for the transmission of messages or conversations, from one line to another. Such connections to be made between the switchboards of such companies, if any is maintained at such points, and provides "that no telephone or telegraph company, under the provisions of this act, be compelled to receive from the wires or lines of any other company and carry to its final destination any message originating at any point on its own lines."

The bill also provides that this shall be done by order of the city council, in incorporated cities, and in the commissioners' court at points where there is no city council. After an application has been made, if it shall determine upon final hearing that it would be for public convenience and justice to the telephone or telegraph companies to make such connection, whereupon they shall enter of record their findings and shall also set out in their order the conditions upon which such arrangements of conversation shall be made. The bill carries the emergency clause and went into effect on May 12 last.

I take it, under the provisions of this bill, that a connection can be forced by one company upon another from a non-competitive point but the attitude of the Bell telephone system towards the Independents in Texas and that of the Independents towards the Bell system renders it very improbable that either company will ever make application for this connection. This kind of legislation is undemocratic but having been placed in a democratic platform, had to be passed where the democracy is as strong as it is in Texas.

There was another law placed upon the statute books during the last session of our legislature just adjourned, known as the anti-pass bill which applies to railroads, street cars, interurban, express and sleeping cars, telephone and telegraph companies, preventing discrimination at least in long distance service. Among other things this law provides in Section 4 that: "No company subject to the provisions of the act shall, directly or indirectly, by any special rate, rebate, drawback or other device or exchange demand, collect or receive from any other person, firm, association of persons or corporation a greater or less or different compensation for any service rendered or to be rendered, in the transportation of passengers, property or messages than it charges, demands, collects or receives from any other person, firm, association of persons or corporation for doing for him, them or it a like service, if the transportation or transmission is a like kind of traffic or service under substantially similar circumstances and conditions, and any such company violating this provision shall be deemed guilty of a misdemeanor, and for

each offense, on conviction, shall pay to the state of Texas a penalty of five thousand dollars."

While sections 6 and 7 provide that any person other than the person excepted in this act, who uses any such free ticket, free pass or free transportation, frank or privilege over any railway or other transportation line or sleeping or express car, telegraph or telephone line mention in this act, for any distance under the control and operation of either of said companies subject to the provisions of this act or under their authority, or shall knowingly and wilfully by any means or device whatsoever obtain, use or enjoy from any such company a less fare or rate than is charged, demanded, collected or received by any such company from any other person, firm, association of persons or corporations for doing for him, them or it, a like service under substantially similar circumstances and conditions, such person or such officer who acts for such corporation or company thus favored, shall be guilty of a misdemeanor, and on conviction for each offense, shall be fined not less than \$100 and not more than \$1,000.

Any director, officer, agent or any receiver, trustee, lessee or person acting for or employed by any company subject to the provisions of this act who alone or with any other corporation, company, person or party, shall wilfully suffer or permit to be done any act, matter or thing in this act prohibited or declared to be unlawful, or who shall aid or abet therein, or shall wilfully omit or fail to do any act matter or thing in this act required to be done, or shall cause or shall wilfully suffer or permit any act, matter or thing so directed, required by this act to be done, not to be done or shall aid or abet any such omission or failure, or shall be guilty of any infraction of this act or shall aid or abet therein, shall be deemed guilty of a misdemeanor and shall, upon conviction, be subject to a fine of not less than \$100 nor more than \$1,000, and if the offense for which any person shall be convicted under this section shall be unlawful discrimination in rates, fares or charges for the transportation of passengers or property or the transmission of messages such person may, in addition to the fines hereinbefore provided for, at the discretion of the jury, be imprisoned in the penitentiary for a term of not less than six months nor more than two years.

It is believed that in view of the above legislation, discrimination will cease and without discrimination and unfair methods the Bell telephone company will be unable to crush the Independent companies now operating in Texas or to prevent the steady invasion of other territory by new companies. Texas is democratic and opposed to monopoly and but for the protection afforded by the Independent companies it is more than likely diverse and drastic legislation would have been enacted into laws to reach the arbitrary methods of the larger company.

#### THE ANNUAL BANQUET.

Wednesday evening the annual banquet of the association was held in the banquet hall of the Auditorium. Nearly 400 were seated at the tables and the event was a most enjoyable one. Senator Kline of Pennsylvania acted as toastmaster of the evening. Music was furnished by the Weber quartet. Luke Lee, of Nashville, Tenn., responded to the toast "The New South," and painted the future of Independent telephony in the Southern states in glowing colors. The recent victory won by the Independents in Tennessee was referred to in a happy vein. T. Harvey Ferris, of Utica, N. Y., spoke on the subject, "The Empire State," and Helm Bruce, of Louisville, Ky., discussed "The Telephone in Modern Life." Toastmaster Kline called upon several other speakers to make remarks.

#### THURSDAY SESSION.

Thursday morning the convention reassembled at 10 o'clock and the announcement was made that an effort would be made to conclude the business before the delegates at one meeting, in order to give the visitors an opportunity to transact their private business before leaving the city.

J. M. Plaister, of Ft. Dodge, Iowa, read an interesting paper on "The Toll Line Clearing House."

J. S. Haley, of Livingston, Mont., read a paper on "Where the Copper Comes From."

At this time the question box was opened. The inquiries contained therein led to interesting discussions. The first question was: "What is the best illustration to impress upon the public the cost of operating an exchange increasing with the number of its subscribers?"

Mr. Polk: "The best answer to that question is that they buy and build a small exchange and then rebuild and enlarge it. Some of the companies have kept records from year to

year and are able by comparative statements to show the perceptible increase in cost as the exchange is enlarged."

Mr. Thayer: "The best way to induce the public to believe that the cost of operation increases as the exchange is enlarged would be to have them ask some Bell man who is seeking a franchise."

Mr. Thompson: "One of the best illustrations, it seems to me, and the best explanation to give the public, would be by taking them into your confidence; take people into a small exchange at some busy hour of the day and let them note what the difference would be if the exchange were increased. Place them in a position so that they can see for themselves the trained operators that it is necessary to have and the additional expense it would be were the exchange enlarged."

At this point W. B. Woodbury, of Detroit, chairman of the finance committee, announced that he wanted to go away, and requested that he be allowed to read the report of the committee appointed to raise funds to meet the deficiency. This report follows:

"At the meeting of the executive committee held at Indianapolis, May 15, President Hoge reported that there would be on June 1 a deficit of \$5,800, and that he had exhausted every means in his power to provide this amount. After some discussion, it was resolved to confer with the manufacturers and publishers with a view of financing this debt. To this end a committee was formed consisting of Ed. L. Barber, C. Y. McVey, and W. D. Woodbury, representing the operating companies; H. B. McMeal and W. H. McDonough, representing the publishers; J. G. Imhsen and Walter E. Doolittle, representing the manufacturers.

"This committee organized with Mr. Barber as chairman, Mr. McVey vice-chairman, and Mr. Woodbury as secretary and treasurer. They started at once upon the raising of the amount necessary, and solicited subscriptions from operators, publishers, manufacturers and supply dealers. The net result of their work is, that they have handed to Mr. Splane, treasurer of the International Independent Telephone Association, the sum of \$6,705.00, which is \$905.00 over and above the amount of the deficit. They have also handed to him a list of pledges amounting to \$1,775.00, which the committee has every reason to believe will be paid. This committee feels that at this time it should go on record as expressing to those who generously contributed their deep gratitude."

Discussion of the question box was then resumed. Mr. Fisher: "Many of the companies of the various states started out with too low prices and their plants have grown year by year beyond their wildest imagination, and now they are asking for a raise in rates and you can scarcely find an alderman or a city official who does not think that the larger the line the less cost per unit will result. We have been surprised at the great amount of ignorance along this line."

Mr. Tarte: "It seems to me that Mr. Thompson of Ohio has illustrated the best way of telling the public why the rates should be increased as the exchange grows larger."

The next question reached was: "Are the Independent telephone companies utilizing all of their facilities for revenue—are there not by-products which would materially increase the revenue?"

A. L. Tetu: "There has been during the last few days a device brought to my attention which may be installed by any company, which seems to me would furnish an excellent opportunity to gain additional revenue, and that is by establishing a protective police and fire protection service. The device which I saw will accomplish this purpose and I must say in no measured terms that it is worthy the investigation of every operator here. This device is of such a nature that it will not in any way injure the instruments, but it will place in the hands of the Independent telephone company the opportunity for additional revenue."

The next query was: "What is the best method of protection against wire thieves—can the association effectively take hold of this matter?"

This question was referred to the committee on litigation and legislation.

The fourth question read was: "Is there not some means by which the use of the shield can be prevented by any but Independent companies?"

This question was also referred to the committee on litigation and legislation. The following question was read: "What is the best way to get before the council of a small city a proposition to raise local telephone rates?" Question was passed.

The question, "What is the best method of securing prompt collections?" was greeted with the answer, "Use a screw-driver," at which there was laughter.

A paper on "Independent Telephone Securities as an Investment" was read by William L. Moellering, of Ft. Wayne, Ind. It follows:

Any enterprise launched under unbroken bright skies may reach a point where it becomes inviting to investors, but until it has successfully withstood the test of adverse conditions usually sure to come, its enduring ability to pay dividends and keep its principal unimpaired is a matter of conjecture. Any industry handicapped in all directions at the start and subject to unscrupulous competition and which, notwithstanding, carries its business to a successful issue and a growth beyond expectations has earned the right to invite capital. This being true the investigating investor must view with favor securities issued by carefully conducted Independent telephone companies.

Passing through years of constant warfare directed against them by one of the former great monopolies—the American (Bell) Telephone & Telegraph Company—a competitor who had at its command unlimited capital, a press bureau, trained legal and electrical talent, etc., while the Independent had no experience, no long distance service, exceedingly limited manufacturing facilities, with capital suspicious, threatened and actual lawsuits, the Independents have met every condition and emphatically have won the long fought battle. Today they are equipped with the best electrical appliance, both in the manufacturing and operating branches, enjoy a large and rapidly increasing long distance service, all legal battles are decided in their favor, the investor's confidence is gained and competition has largely ceased to be a disturbing factor. Almost without exception wherever both companies occupy the same field the Independents outstrip the old monopoly, in character of service they excel in a marked degree, in growth they surpass tenfold, and financially they are able to pay dividends, meet obligations and create a safe surplus. Has it ever occurred to you what the record will be in ten years from now under the changed conditions? Has the investor compared the present market value of independent securities, their rise during the recent years, with the present market quotations of the Bell, or its subsidiary companies' stock as compared to past years—is it eloquent of the situation. Is it not true that the best criterion of the value of a security is in the regard in which it is held among its home people who are in a position to best know its strength or weakness, and is it not a fact that home people are the largest and most constant buyers of Independent telephone stocks and bonds, in many instances absorbing the full issue? Witness Toledo, Ohio; Ft. Wayne, Ind.; Los Angeles, Cal.; Kansas City and St. Louis, Mo.; South Bend, Ind.; Grand Rapids, Mich.; Louisville, Ky.; Cleveland, Ohio; Columbus, Ohio; Muncie, Ind.; and hundreds of the larger cities in all sections of the country where home capital takes either all or the larger part of securities placed.

If you happen to live in a community where capital is timid try a tabulated statement showing in detail your earnings, expenses, growth, with all future possibilities, select a number of the larger telephone companies who have operated a number of years and give their experience, their rise in stock values, and let your statement contain a list of other home industries in comparison, you will be surprised how many good industries in your midst fail to show as good results as you do. The regular dividend distribution ranging from three per cent to ten per cent now being paid by most independent companies, and the creating of a surplus fund after having made proper deductions for depreciations has made the investor take notice, and former prejudice fostered by the opposition has given way to impartial investigation with most encouraging results. It must be patent to every observer that Independent telephone companies are more carefully and economically conducted than the Bell. local men of broad business experience constitute their boards of directors and they are in constant close touch with the company's affairs. Another great element of strength consists in the sentiment of the local community which is as a rule outspokenly and actively favorable to Independent interests.

Viewed from the standpoint of failures Independent telephone

securities are noticeable strong, the per cent of failures as compared with other industries being strikingly small. There are in the United States over 700 Independent telephone companies with a capitalization of \$350,000,000. Dun and Bradstreet weekly reports of bank, trust company and commercial failures very rarely include an Independent telephone company. Losses occur in every branch of business—there is no industry which can boast of absolute safety against reverses. Capital seeking investment with a view of increasing intrinsic as well as market values, earnings, and dividends, stability and permanence, must not overlook Independent telephone securities. A careful investigation will place the stocks and bonds of well managed companies among the list of high-class securities.

The Independents of the United States own today several hundred thousand miles of toll lines, and have over 3,000,000 telephones in service. They have during the last eight years averaged daily approximately 200 miles of new toll lines with a daily addition of over 1,000 new subscribers to their local exchanges, requiring daily more than \$100,000 of new capital, and their future increase can be measured not only by the growth of this growing land of ours, but by the fact that not a single operating company has its present territory fully covered, to say nothing of the numberless cities and towns yet to be built. Over 7,000 Independent telephone companies are now operating in 12,000 cities and villages. Investors will view with strong approval the present close organization, district, state and national throughout the United States. The element of security such organization brings is of immense value and capital is thereby assured of the systematic protection of all Independent interests. A continuation of systematic organization means not only increased security and prosperity to individual companies but increased confidence by the investing public.

Charles E. Sumner, of Portland, Ore., discussed briefly "Postoffice Telephones and the Washington Situation." He said that at the next session of Congress a bill will be introduced granting an Independent telephone franchise at the national capital. At present the Bell has a monopoly at Washington, and at one time the postoffice department issued an order which practically recognized and made effective that monopoly. Since then, Mr. Sumner related, that order has been rescinded, and there is now no reason why there should not be an Independent system operating in the District of Columbia. The speaker said that as everybody knows, an investigation will not uphold Bell rates and service, and that united effort on the part of Independents will result in getting a franchise at Washington. Mr. Sumner urged the members of the association to secure the support of their representatives in Congress for an Independent franchise.

Senator Kline reported from the committee on resolutions a resolution covering the Providence (R. I.) situation. The resolutions pledged the Independent telephone men who are trying to gain an entrance into Providence warm support and seconding their efforts in every way. A copy of the resolution proving that the International Association is back of the Providence men, will be sent to the mayor and city council of that city. The resolution was adopted, as was also the usual resolution of thanks to the manufacturers, supply houses, Chicago committee and everybody else who assisted in entertaining the convention. The resolution termed the 1907 meeting "the banner convention" ever held by the association.

President Hoge called for Dwight E. Sapp, of Mt. Vernon, Ohio, who was on the program for a paper on "Frenzied Finance in the Telephone Field." Mr. Sapp responded by saying that he was not prepared to deliver his paper on that subject, but was ready to report as the chairman of the nominating committee. There was some discussion as to the advisability of receiving nominations before the report of the committee on constitution and by-laws, but as Mr. Sumner, of Oregon, the chairman of the latter committee, was not ready to respond, it was decided by a vote to give Mr. Sapp the floor. In submitting the list of new officers, as recommended by the nominating committee, Mr. Sapp said that it was the purpose of that committee to select men who represented the different sections of the country and the different interests affiliated with the association. He then read the following list of nominations:

President—Theodore Gary of Missouri.  
 First Vice-President—Frank L. Beam of Ohio.  
 Second Vice-President—Charles E. Sumner of Oregon.

Third Vice-President—E. B. Fisher of Michigan.  
 Fourth Vice-President—Alpheus Hoover of Canada.  
 Secretary—Charles West of Pennsylvania.  
 Treasurer—Manford Savage of Illinois.

As the present constitution and by-laws made provision for only two vice-presidents, Frank H. Woods of Nebraska moved that the convention vote at first on the election of president, first and second vice-presidents, secretary and treasurer. The motion was carried and on a subsequent motion made by Mr. Sapp the above named nominees for the respective offices were unanimously elected. President Hoge then appointed Mr. Sapp and E. L. Barber as a committee to escort Mr. Gary, the new president, to the chair.

President Gary was loudly applauded as he took the chair. He made a brief address, in which he said: "I heartily appreciate the honor which this convention has conferred upon me. I am strictly within the truth when I say that I prize the honor of being selected to head the International Independent Telephone Association of America than I would to be the governor of a state. It will be my purpose to work faithfully for the interests of the association and all of its members. It has always been my custom to be frank and candid and if, during the coming year any of the members of this association thinks he is not receiving fair treatment I will consider it a favor if he will tell me about it. I say, gentlemen, that any mistakes that will be made by this administration will be the mistakes of the head and not of the heart. I ask your co-operation in making the work of the association a great success during the coming year.

"In assuming the duties of this high position I wish to say that I expect to carry out the motto which governs my own private business, 'Render good service.' In my private business it has always been my purpose to recognize the fact that one party to the contract is the public. In this instance the members of this association will be the public, and I shall endeavor to give you all a square deal. The motto of our organization is 'Each for All and All for Each.' This should be our guide in the future as it has been in the past."

Frank H. Woods, of Nebraska, and Charles C. Deering, of Iowa, were named a committee to escort Mr. West, the new secretary, to the secretary's desk. Mr. West, in a few well chosen words, thanked the convention for the honor conferred upon him and his promise to use every effort to advance the interest of the association was liberally applauded.

George H. Glass, of Illinois, and J. G. Splane, of Pittsburg, Pa., were appointed a committee to escort Manford Savage, the new treasurer, to the front. Mr. Savage addressed the convention and made a strong talk for the Independent movement.

At this time Mr. Sumner, the chairman of the committee on constitution and by-laws, announced that he was ready to report. He was recognized and read the following amendments, which makes important changes in the association's code:

Your committee beg leave to report that the constitution be amended in the following respects:

Article V.—The officers of this association shall consist of a president, first, second, third and fourth vice-presidents, a secretary and a treasurer, which latter two offices may be filled by one and the same person.

N. B.—The proposed amendment provides for two additional vice-presidents.

Article VI.—The president within sixty days after the annual meeting shall appoint, subject to the approval of the advisory board, six members, who with himself shall constitute an executive committee of seven. The president shall also fill all vacancies in said committee within thirty days after they occur.

N. B.—This amendment gives the president full power to appoint the executive committee from the association at large, whereas the unamended section provides that the president shall appoint the executive committee from the advisory board. The number of members constituting the executive committee are now five, while in the



section as amended the number shall be increased to seven. The appointment shall be approved by the advisory board.

Article IX.—The exact time and place of holding the annual meeting of this association shall be fixed by the executive committee at least three months in advance and shall be announced through the telephone journals. Special meetings may be held at such other times and places as the executive committee may from time to time direct. The call for any such special meetings (stating the time, place and objects) shall be mailed at least fifteen days prior to the time of holding the same to the members of this association, and no business affecting the general interests of the association shall be disposed of except as specified in the call.

N. B.—This amendment vests with the executive committee the power to fix the time and place of meeting, whereas the section as unamended provides that the annual meeting shall be held within 30 days of the first day of June of each year.

Article X.—The executive committee is authorized and empowered to create sectional memberships for manufacturers, supply dealers, engineers, publishers of telephone magazines and journals and honorary members and to fix the dues thereof; also to fix the representation to which such sections shall be entitled, provided, however, that the total representation of all of such sections combined shall not exceed one-third of the representation of the total delegates entitled to attend any convention.

Article XII.—The several state, territorial or provincial associations, members of this association, may be represented at the annual or any special meetings of this association by delegates chosen or appointed by said organizations in such manner as may be prescribed by the constitution and by-laws of such associations, but the number of delegates so chosen shall not exceed one for each 10,000 units or a majority fraction thereof as prescribed in article 10 of this constitution. The units herein referred to are only those represented by the membership of such state, territorial or provincial associations.

N. B.—This amendment provides for the additional sections such as suggested in the president's address and as recommended by the special committee appointed to report upon such recommendation.

Article XVII.—The duties of the treasurer shall be to receive all moneys of the association and to safely keep and pay out the same upon the approval of the president and secretary. He shall also be custodian of any contracts or other papers except the records of the proceedings of the association. He shall give bond of some approved surety company for such an amount as may be required by the executive committee, said bond to be approved by the executive committee and paid for by the association.

N. B.—The unamended section provides that all moneys shall be paid out upon the order of the president duly approved by the executive committee, while in the proposed amendment the approval of the president and secretary only is necessary.

Article XVIII.—The advisory board shall meet at the place of holding the annual convention the day preceding the first session of the convention at 2:00 o'clock A. M. It shall appoint the following committees, which shall report to the convention: Committee on credentials, committee on nominations, committee on amendments to the constitution. It shall hear reports of officers and executive committee and recommend a policy to be pursued by the association at its convention. It may be called together at any time by the executive committee upon ten days' notice, which notice shall also specify the object and necessity for calling the meeting. A majority of the members attending a meeting shall constitute a quorum for the transaction of business.

N. B.—This amendment changes the hour of the meeting of the advisory board from 10:00 A. M. to 2:00 P. M. and relieves the advisory board of the duty of appointing a committee of three to audit the vouchers of the association.

Article XIX.—The duties of the executive committee shall be to co-operate with the officers in promoting the interests of the association. They shall have the right to create the office of assistant to the secretary or treasurer and employ one or more to fill these offices, who shall give their entire time to the interests of the association. They shall appoint a public accountant, who shall audit the accounts of the association semi-annually in the months of May and November, who shall report the November audit to the president of the association and the May audit, which shall include the entire year's business, to the advisory board at the time of the annual convention. They shall fix salaries of all officers and employes, said salaries to cover actual time spent in the interests of the association. They shall allow actual traveling expenses when exclusively on business of the association. They shall assist the officers in doing all things necessary to make the organization a success and such other duties as are prescribed herein.

N. B.—This amendment strikes out of the original section the provision that the executive committee shall approve all bills of the association before payment is made and inserts in lieu thereof that the executive committee shall select an auditor, who shall audit the accounts of the association semi-annually in the months of May and November and who shall report the November audit to the president of the association, and the May audit, which includes the entire year's business, to the advisory board at the time of the convention.

The various amendments, as given above, were adopted by the convention. Former President Hoge submitted several others which were also carried by the convention. One of them was to drop the words "of America" from the title of the association, as he said the name was too long and unwieldy. Mr. Hoge also moved to amend the by-laws so as to continue the finance committee, and the president was authorized to name a finance committee within thirty days. There will be seven members. It was also agreed that states having less than 10,000 units shall not be debarred from representation in the association.

At this point the question box was again opened and was found to contain an inquiry regarding telephone charges. Upon motion this question and all others not settled were referred to Mr. Norton, who had charge of the question box.

President Gary then asked the convention if it desired to make any suggestions with regard to the rate of assessment. Last year the rate was one-half cent per unit and the year before the rate was one cent per unit. The president said that the lower rate did not seem to appeal any more to the various states than had the higher rate, as the collections were but little better. Mr. Hoge made a brief statement about the income of the association and urged the importance of all the members paying their dues promptly. He said at the rate of one-half cent for all of the Independent Telephones in the United States the revenue would be from \$15,000 to \$20,000 a year, but that it was impossible to realize from all that number. Mr. Hoge also said that for the first time in three years the association now had a surplus, and warned the members not to sit idle and wait until that surplus had disappeared. He spoke strongly of the necessity of each state doing its part towards furnishing means to run the organization.

At 1:30, there being no further business before the convention, Mr. Woods, of Nebraska, moved that the convention adjourn, and the motion was carried.

#### MANUFACTURING INTERESTS REPRESENTED.

Room 650—American Sewer Pipe Company, Pittsburg, Pa. Represented by W. R. Adams, sales manager.

Room 651—The Telephone Advertising Machine Company, Yonkers, N. Y. Represented by E. Atherton Lyon, patentee.

Room 661—Everstick Anchor Co., St. Louis, Mo. Exhibited the Everstick anchors. Represented by Jasper Blackburn.

Room 128—McRoy Clay Works, Brazil, Ind., and Chicago. Exhibited underground conduit. Represented by E. F. Kirkpatrick.

Room 614—Commercial Electric Supply Company, St. Louis, Mo. Exhibited telephone and supplies. Represented by H. L. Parker.

Room 534—The Standard Underground Cable Company, Pittsburgh. Exhibited cable and wire. Represented by Messrs. Wiley, Anderson and O'Neill.

Room 611—Miller Anchor Company, Norwalk, Ohio. Exhibited Miller Anchors, augurs and tamping bars. Represented by G. H. Miller, president.

Room 611—Fibre Conduit Company, Orangeburg, N. Y. Exhibited underground conduit. Represented by W. W. Smythe, Western representative, Chicago.

Rooms 130-132—Steel Gain Company, Chicago. Represented by Frank McDonough, sales manager; W. M. Trimm, general manager, and J. E. Norling, president.

Room 648—Chance Manufacturing Company, Centralia, Mo. Exhibited the Sky Rocket lightning arrester. Represented by A. B. Chance, inventor and manufacturer.

Room 652—National Carbon Company, Cleveland. Exhibited Columbia batteries. Represented by M. H. Moffatt, A. V. Ward, Wallace O'Connor and E. J. Kenny.

Room 657—United Brass Manufacturing Company, Cleveland, O. Exhibited wipe joint machine for cable splicing. Represented by W. J. Schoenberger and T. V. Daley.

Room 136—The Carnahan-Sherwood Company, Indianapolis, Ind. Exhibited telephone accounting systems. Represented by R. H. Carnahan, C. M. Glover, and H. E. North.

Room 646—Telephony Publishing Company, Chicago. Exhibited *Telephony*, telephone books, etc. Represented by H. B. McMeal, H. D. Fargo, W. H. Graffis and W. C. White.

Rooms 104-106—National Pole Company, Escanaba, Mich. Represented by H. W. Reade of Escanaba, secretary and treasurer, and A. D. McIntyre of Duluth, Minnesota, manager.

Room 613—Indiana Steel and Wire Company, Muncie, Ind.

Exhibited telephone wire. Represented by E. F. Kitselman, manager, and Robert Miller, general sales agent.

Room 628—The United States Coin Register Company, Toledo. Exhibited measured service apparatus. Represented by W. G. Nagel, president, and G. S. Powell, general manager.

Room 644—W. N. Matthews & Brother, St. Louis, Mo. Exhibited Stombaugh anchors and Hargis cable splicing joints. Represented by Claude L. Matthews and O. R. Johann.

Room 612—Belden Manufacturing Company, Chicago, Ill. Exhibited magnet wire, electrical cordage, switchboard wire, rosin core, solder, etc. Represented by Joseph Belden, president.

Room 609—Universal Pole & Post Preserving Company, Circleville, O. Exhibited sections of poles treated by a patent preservative method. Represented by H. P. Folsom, secretary.

Rooms 130-132—Protective Electrical Supply Company, of Ft. Wayne, Ind. Exhibited can top cable terminals. Represented by M. B. Larimer, F. X. Staub, E. M. Popp and M. Umbaugh.

Room 638—Rock Island Battery Company, Cincinnati, Ohio. Exhibited the Rock Island Batteries. Represented by M. A. Loeb secretary-treasurer, and Chas. Wilson of the sales department.

Rooms 130-132—United Clock Company, Chicago. Represented by Albert Tuerk, president; A. T. Bagley, vice-president; E. E. Yaxley, treasurer; R. W. Trimm, secretary, and J. E. Norling.

Room 637—The Select Telephone Manufacturing Company of Springfield, O. Exhibited selective lockout telephone apparatus and harmonic systems. Represented by W. M. Bruce, Jr., and C. D. Juvenal.

Room 616—Central Telephone and Electric Company, St. Louis, Mo. Exhibited telephones, parts and Ajax batteries. Represented by Jas. Cummins, president, and L. G. LeBourveau, sales manager.

Room 656—Eureka Electric Company, Genoa, Ill. Exhibited full line of switchboards and telephones. Represented by V. H. Messenger, H. W. Foote, G. H. Miller, J. H. Bell, E. L. Larabee and H. Mahren.

Rooms 610-612—Homer Roberts Telephone Company, Chicago. Exhibited new selective lockout telephones. Represented by A. F. Rosenberger, Homer Roberts, C. A. Soans, C. A. Bottorff and H. D. Nuttal.

Room 660—Nungesser Electric Battery Company, Cleveland, O. Represented by Thos. G. Grier and Hibbard S. Greene, of the Chicago office, and General Manager H. G. Robbins, of the Cleveland headquarters.

Room 628—Nagel Electric Company, Toledo. Exhibited metal operators' chairs, the Robinson distributing racks, the Hercules anchor, etc. Represented by W. G. Nagel, president, and H. E. Adams, secretary and treasurer.

Room 659—Julius Andrae & Sons, Milwaukee, Wis. Exhibited telephones, switchboards, condensers, the Treco electric whistle, etc. Represented by F. T. Andrae, Jno. C. Schmidtbauer, W. L. Pearne and H. P. Andrae.

Room 648—Long Distance Telephone Manufacturing Company, South Bend, Ind. Exhibited telephones and switchboard parts. Represented by R. E. Willard, C. K. Seibert and Messrs. Culp, Swanson, Hires and Osborne.

Room 138—H. E. Cobb, Chicago, Ill. Represented Crawfordsville Wire Nail Co., Acme Rubber Mfg. Co., Alfred F. Moore, Scranton Button Co. and Minnesota Electric Co. Exhibited wire, receiver shells, cords and lightning arresters.

Room 642—American Electric Fuse Company, Muskegon, Mich., and New York. Exhibited a full line of protective apparatus. Represented by F. G. Jones, president; Jas. A. Kenny, general manager, and Geo. W. Rodormer, traveling representative.

Room 608—L. M. Ericsson Telephone Manufacturing Company, Buffalo, N. Y. Exhibited telephones, desk sets, harmonic systems, etc. Represented by J. H. Montague, J. R. Powers, H. B. Hewitt, and the Durant Electrical Supplies Company of Chicago.

Room 530—Mountain State Electrical Company, Wheeling, W. Va. Exhibited the Poole lock-out apparatus and the Hall construction specialties, consisting of terminals, fuses and special hardware. Represented by Frank B. Hall, president; A. F. Poole and J. C. Frasher.

Room 614—Vote-Berger Company, LaCrosse, Wis. Exhibited telephones, ballast lamp switchboards, D. & T. Anchors and the "World" cable hanger (invented by J. W. Johnston). Represented by M. I. Berger, C. D. Enoch, J. F. Pfeiffer and J. W. Johnston.

Rooms 140-142—Dean Electric Company, Elyria, Ohio. Smoking and rest room. Represented by W. W. Dean, first vice-president; A. E. Barker, second vice-president; G. A. Scoville, E. M. Ford, A. B. Smith, W. H. Scott and L. G. Bowman, manager of the Kansas City branch.

Room 102—International Telephone Manufacturing Company, Chicago. Exhibited a full line of telephone apparatus, switchboards, etc. Represented by Henry Shafer, president; W. E. McCormick, vice-president; John C. Burmeister, secretary and treasurer, and Fred Freers, sales manager.

Room 640—North Electric Company, Cleveland, O. Exhibited North Synchronic system, operated by piano keyboard, and sectional type switchboards, with visual targets. Represented by C. H.

North, J. F. Engle, A. A. Marrs, A. A. Miller, R. Hendrickson, G. B. Pratt, and C. D. Boyd.

Rooms 604, 606—Frank B. Cook, Chicago, Ill. Exhibited a full line of the Cook protective apparatus, including a new all-porcelain terminal; also wire joints. Represented by F. B. Cook, J. F. Thompkins, H. R. Cook, S. C. Harvey, F. R. Parker and Messrs. Dewey and Moore.

Rooms 620, 622, 624—Chicago Telephone Supply Company, Elkhart, Ind. Samples of telephone apparatus, rest and smoking rooms. Represented by G. A. Briggs, president; George W. Brown, secretary-treasurer; F. P. McIntosh, chief engineer, and D. R. Roseborough, western representative.

Room 126—American Electrical Novelty and Manufacturing Company, New York and Chicago. Exhibited "Everready" batteries and miniature and switchboard lamps. Represented by A. E. Barlow, general sales manager; R. E. Bain, manager Chicago house, and P. E. Reiners of the central territory sales force.

Room 647—Wire & Telephone Company of America, Rome, N. Y. Exhibited the Easophone and parts, rubber covered wire and magnet wire. Represented by Frank Powell, vice-president; Harry Hammond, general sales manager; A. J. Kennedy, sales engineer, and J. Allen Haines, Chicago representative.

Room 658—Century Telephone Construction Company, Buffalo, N. Y. Exhibited complete line telephone apparatus, common and local battery, and selective ringing systems. Represented by W. W. Kidney, chief engineer; C. H. Macklin, sales manager; F. O. Rhode, manager of the Kansas City branch, and G. F. C. Bauer, of the sales department.

Room 618—American Steel & Wire Company. Exhibited telephone wire signal strand and all kinds of insulated and rubber covered wire. Represented by C. S. Knight, Jr., Western manager; B. B. Ayres, advertising manager; Frank Conklin and A. T. Merriman, of the Chicago office; G. E. Quigley, of the Kansas City branch.

Room 662-664—Electric Appliance Company, Chicago. Exhibited the improved "Eaco" switchboards and telephones, the Sheeley messenger clamp, the Wasson reels and other high grade construction material. Represented by E. R. Field, J. B. McMullin, J. K. Alline, M. I. Blakemore, H. N. Remington, M. L. Scobey, R. S. Mitten and P. R. Boole.

Room 638—Durant Electrical Supplies Company, Chicago. Exhibited construction supplies, electrose hard rubber substitutes, the Peru Manufacturing Company's porcelain specialties, the Rock Island batteries, the Ironite duplex and drop wire and the L. M. Ericsson telephone apparatus. Represented by H. S. Durant, J. F. Crook and F. W. Pardee.

Room 134—American Electric Telephone Company, Chicago. Exhibited telephones, switchboards and a complete line of telephone apparatus. Represented by P. C. Burns, president; J. G. Ihmsen, general manager; Max W. Zabel, sales manager; D. R. Hoffman, purchasing agent; W. J. Staunton, Ira Butterfield, H. T. Blackledge and J. A. Stratton.

Rooms 130-132—Monarch Telephone Company, Chicago. Exhibited telephones, switchboards, parts, etc. Represented by J. E. Norling, president; J. C. Hubacher, vice-president; E. E. Yaxley, treasurer; W. H. Trimm, secretary; R. C. Stone, Indiana representative; A. J. Carter, Iowa representative; T. L. Dunlap, Missouri representative; W. A. Fricke, engineer.

Room 639—Western Telephone Manufacturing Company, Chicago, Ill. Exhibited a full line of local and common battery apparatus, including Ideal and Economist telephones and automatic restoring target magneto switchboards. Represented by C. L. Johnson, treasurer; E. A. Anderson, acting manager; Eugene L. Brown, sales manager; C. G. Peacock, chief engineer.

Room 422 and writing room on ground floor—Sterling Electric Company, Lafayette, Ind. Exhibited a complete line of apparatus in room 422 and entertained with music, etc., in writing room. Represented by W. E. Doolittle, president; W. R. Coffroth, secretary; Harry Doolittle, purchasing agent; Evans Shelby, sales manager; Geo. Skinner, chief draughtsman, and O. P. Reed and C. R. Brown, salesmen.

Room 632—The Swedish-American Telephone Manufacturing Company, Chicago. Exhibited all kinds of telephone equipment. Represented by E. B. Overshiner, president; A. V. Overshiner, general manager; T. Lidberg, superintendent; F. M. Ferguson, of Grinnell, Ia.; M. L. Golladay, of Holden, Mo.; Stanley Duvall, of Elkhart, Ind.; C. L. Ward, of Sioux Falls, S. D., and Jas. Fox, of Toronto, Canada.

Rooms 601, 602—Automatic Electric Company, Chicago. Exhibited a 100-line unit common battery automatic switchboard, a combination wire chief and troubleman's desk, built for Campaign and Urbana, Ill., and a duplicate set 4-frequency harmonic converter for the Montana Independent Telephone Co. Represented by C. L. Fisher, sales manager; F. L. Middleton, assistant sales manager; H. H. Woodworth, advertising manager; P. J. Eubanks, J. A. Russell and J. E. Fisher, of the sales department, and Wm. Hannan, J. S. Engh, of the engineering department.

Rooms 634-636—Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., and Chicago. Exhibited a complete line of central energy and generator call telephones, construction ma-

terials and lead and wool cable, harmonic telephones being the main feature. Represented by A. M. Haubrick, western manager; Wm. Bowen, Des Moines; J. J. Nate, Minneapolis; D. C. Gould, Omaha; Paul D. Myers, Lincoln, Ill.; Ben. C. Hyde, Kansas City; E. P. Shafer, Indianapolis; A. B. Crawford, Columbus, O.; S. W. Meneff, Detroit; H. A. Jones, Philadelphia; Chas. F. Speed, Texarkana, Tex.; J. B. Wilkinson, Louisville; O. M. Leich, Wm. Roy McCann, C. W. Shafer and H. C. Slemeen of Rochester; A. O. Stigberg, F. G. Hudson, E. W. Lewis and A. L. Johnston of Chicago; and T. E. Wright of Pittsburg.

#### OTHER MANUFACTURERS AND DEALERS PRESENT.

The Edwards-Hine Co. of Grand Rapids. Represented by Chas. C. Wilmot.

The Clay Products Co., Brazil, Ind. Represented by F. W. Darling, Chicago.

The Chicago Electric Manufacturing Company, Chicago. Represented by H. F. Asbury.

W. J. Burns, Chicago, manufacturers' agent representing several prominent eastern concerns.

The Crescent Lumber Company, Pittsburgh. Represented by W. A. Kessler and R. A. Wolf.

The Vulcan Elec. and Heating Company, Chicago. Represented by L. P. Brown and G. M. Cox.

Among other manufacturers and dealers at the convention TELEPHONY caught the following:

The American Conduit Co., Chicago, New York and Los Angeles. Represented by General Manager Waterbury.

The Churchill Cabinet Company, Chicago. Represented by Ole Gullickson, treasurer, and Jno. J. Keenan, president.

The Peirce Specialty Co., Elkhart, Ind., and Chicago, Ill. Represented by A. L. Haase, Chicago, and R. L. Crane, St. Louis.

Hubbard & Co., Pittsburg, Pa. Represented by General Manager Carl Seyler and Chas. B. Holdredge & Son, western representatives, Chicago.

The Illinois Electric Co., Chicago. Represented by N. G. Harvey, C. J. Litcher, E. A. Quarfoot, F. D. Rustling, M. F. Cronin, Dewey Newman and C. McIntyre.

The Holtzer-Cabot Electric Company, represented by F. G. Meinema and E. R. Harding, of Chicago, and W. F. Taylor, engineer, from the factory at Brookline, Mass.

The F. Bissell Company, Toledo, O. Represented by F. Bissell, president; Walter Bissell, vice-president; C. M. Hamilton, sales manager; J. A. Navarre and Murray Townsend.

Chicago Electrical Exposition Company, Chicago. Represented by Homer E. Niesz, managing director. "Boosting" for the third annual Electrical show next January, which promises to be the biggest show of all.

#### CONVENTION NOTES.

Milo G. Kellogg, Chicago, was one of the many prominent telephone manufacturers present.

E. C. Hennis attended in the interests of the Sandwich Pole Changer Company, Sandwich, Ill.

H. B. Camp & Company had several representatives in attendance in the interest of their telephone trade.

The Illinois Specialty Manufacturing Company, Chicago, was represented by G. M. Kazanjian, proprietor.

Geo. W. Conover, the well-known telephone purchasing agent of Chicago, mingled with his friends at the meeting.

T. W. Warner of the Warner Electric Company, Muncie, Ind., never misses a national convention and was there as usual.

Among the engineers and contractors present were Messrs. G. W. Wilder, K. B. Miller, W. H. Crumb and Jones and Winter.

The Paducah Pole & Timber Company of Paducah, Ky., was represented by Mr. A. B. Smith, president and general manager.

W. R. Hauptman, Chicago representative, did the honors for the Rogers Telephone and Electrical Company of Danbury, Conn.

B. F. Wasson of Clinton, Ill., inventor and manufacturer of the Wasson reel, one of the latest and best things on the market, was present greeting his many friends.

President Fahnstock of the Fahnstock Electrical Manufacturing Company, Brooklyn, N. Y., was at the convention greeting his many friends among the telephone trade.

One of the surprises of the convention was the announcement that J. P. Cracraft had resigned as general manager of the Stromberg-Carlson Telephone Manufacturing Company.

The Dean Electrical Company, Elyria, O., reported its contract let on Saturday last for a new three-story factory building and power plant, which will increase its capacity threefold when completed by September.

Thos. G. Grier, western manager of the American Circular Loom Company,, entertained the salesmen for the electrical supply houses at a fine dinner at the Chicago Athletic Association on Tuesday evening, June 4.

Albert J. Cox of A. J. Cox & Co., Chicago, represented Croselmirre & Ackor Co., Delaware Hard Fibre Co., French Battery & Carbon Co., General Insulate & Machine Co., Legler, Grimes & Eilerman, the Riverside Metal Co., Trenton Porcelain Co. and other electrical and telephone material firms.

#### REGISTRATION LIST.

F. H. Be Vier, New York.  
 C. P. Burton, New York, N. Y.  
 F. M. Bailey, Chicago, Ill.  
 A. J. Carter, Sioux City, Ia.  
 H. D. Fargo, Chicago.  
 W. H. Graffis, Chicago, Ill.  
 J. E. McEdowney, Chicago, Ill.  
 W. F. Newgars, Chicago.  
 C. W. Forbrich, Chicago.  
 E. H. Fritchman, 100 William St., New York.  
 A. M. Fisher, Toronto, Ont.  
 C. R. Gough, Chicago.  
 A. B. Hulet, 356 Dearborn St., Chicago.  
 W. D. Kerr, Milwaukee, Wis.  
 P. Latzke, New York, N. Y.  
 L. W. Marshall, Chicago.  
 H. B. McMeal, Chicago.  
 W. H. McDonough, Chicago.  
 Anna Pollaschek, Chicago.  
 N. B. Pollaschek, Chicago.  
 J. Wildis, New York.  
 J. B. Taylor, 7 Jackson Blvd., Chicago.  
 M. M. Williamson, Charlotte, S. C.  
 G. W. Weippiert, Cleveland, Ohio.  
 W. H. White, Chicago.  
 Florence Wicklin, Monadnock Bldg., Chicago.  
 Edward Bol, 6822 Claremont Ave., Chicago.  
 Henry S. Burroughs, 49 Jackson Blvd., Chicago.  
 P. L. Burleigh, 177 Monroe St., Chicago.  
 John C. Burwinter, 15 Chalmers Place, Chicago.  
 J. K. Alline, Fort Dodge, Iowa.  
 Walter F. Bissell, Toledo, Ohio.  
 Geo. R. Blackburn, Cleveland, Ohio.  
 J. H. Bell, Salem, Ind.  
 H. E. Anderson, Chicago.  
 Arthur A. Anderson, Pittsburg, Pa.  
 Eugene L. Brown, Evanston, Ill.  
 A. E. Barlow, 184 E. Lake St., Chicago.  
 C. R. Brown, La Fayette, Ind.  
 J. B. Adams, 69 South St., New York.  
 A. E. Barker, Elyria, Ohio.  
 R. E. Bain, 184 Lake St., Chicago.  
 Edward Behrend, Chicago.  
 Wm. Howell, Des Moines, Iowa.  
 W. R. Adams, Pittsburg, Pa.  
 L. G. Bowman, Kansas City, Mo.  
 Fred Bissell, 2268, 30 Huron St., Toledo, Ohio.  
 Ira Butterfield, Kansas City, Mo.  
 W. H. Barker, Sanborn, Iowa.  
 J. G. Brobeck, 1144 Monadnock Bldg., Chicago.  
 W. H. Blakimore, Chicago.  
 C. D. Boyd, Cleveland, Ohio.  
 H. E. Adams, 28 St. Clair St., Toledo, Ohio.  
 H. F. Ashbury, 60 W. Van Buren St., Chicago.  
 G. A. Briggs, 200 W. Beardsley St., Elkhart, Ind.  
 M. Berger, 226 N. 7th St., La Crosse, Wis.  
 Gustav T. C. Bauer, 53-59 Adelaide St., Toronto, Ont., Canada.  
 J. W. Bigley, 56-58 Van Buren St., Chicago.  
 H. W. Black, 3605 Grand Ave., Des Moines, Iowa.  
 H. P. Blackledge, Omaha, Neb.  
 Alex. T. Bagley, 207 S. Canal St., Chicago.  
 F. B. Cooke, 286 W. Van Buren St., Chicago.  
 R. C. Dacosta, Muskegon, Mich.  
 J. D. Converse, 55 Market St., Chicago.  
 H. B. Davis, Chicago.  
 H. S. Canover, 135 Adams St., Chicago.  
 R. H. Carnahan, 229 E. Ohio St., Indianapolis, Ind.  
 H. Roy Cook, 628 N. Humphrey Ave., Chicago.  
 T. L. Dunlap, 728 E. Elm St., Springfield, Mo.  
 H. L. Davis, 708 Electric Bldg., Cleveland, Ohio.  
 W. B. Crawford, Columbus, Ohio.  
 Albert J. Cox, 921 Stock Ex. Bldg., Chicago.  
 Wm. W. Dean, Elyria, Ohio.  
 R. T. Crane, St. Louis, Mo.  
 Frank B. Cook, 240-244 Lake St., Chicago.  
 H. T. Doolittle, La Fayette, Ind.  
 Frank W. Darling, 508 Isabella Bldg., Chicago.  
 H. S. Greene, 128 W. Jackson Blvd., Chicago.  
 J. F. Croon, Chicago.  
 S. A. Dinsmore, 134 Van Buren St., Chicago.  
 E. E. Dewey, 6418 Drexel Ave., Chicago.  
 F. J. Conkling, Chicago.  
 W. E. Doolittle, La Fayette, Ind.  
 W. H. Crumb, 835 Monadnock Bldg., Chicago.  
 J. Cadwell, 115 Foote Ave., Jamestown, N. Y.  
 W. J. Crawford, Kansas City, Mo.  
 J. W. Culp, 307 Division St., Elkhart, Ind.  
 Geo. W. Conover, 135 Adams St., Chicago.  
 J. S. Caning, 2135 Lucas Ave., St. Louis, Mo.

- F. A. Daley, Cleveland, Ohio.  
 S. R. Fralick, 269 S. Canal St., Chicago.  
 G. C. Fricke, Chicago.  
 E. R. Field, Detroit, Mich.  
 W. A. Fricke, 14 S. Clinton St., Chicago.  
 J. S. Cummings, 2135 Lucas Ave., St. Louis, Mo.  
 Morris Green, 152 Lytle St., Chicago.  
 J. F. Engle, Cleveland, Ohio.  
 J. E. Eipper, Chicago.  
 P. F. Hensel, 324 Dearborn St., Chicago.  
 A. B. Ferdinand, Milwaukee, Wis.  
 D. L. Fisher, Chicago.  
 J. F. Frasher, 911-913 Market St., Wheeling, W. Va.  
 J. E. Fisher, Chicago.  
 E. B. Fahnestock, 129 Patchen Ave., Brooklyn, N. Y.  
 H. A. Ford, First National Bank Bldg., Chicago.  
 H. F. Greene, Milwaukee, Wis.  
 P. J. Eubanks, 3600 Wabash Ave., Chicago.  
 Fred E. Freers, Chicago.  
 Peter H. Fox, Chicago.  
 D. Gould, Omaha, Neb.  
 O. E. Gullicksen, Chicago.  
 E. S. Yaxley, 14 Clinton St., Chicago.  
 J. S. Eugh, Chicago.  
 H. Jackson, Chicago.  
 J. Johnston, Tempelin, Wis.  
 C. B. Haldrye, Chicago.  
 Mrs. G. Hottinger, Chicago.  
 S. C. Harvey, Bowling Green, Ohio.  
 W. H. Hamptman, Chicago.  
 E. R. Harding, 395 Dearborn St., Chicago.  
 C. M. Hamilton, Toledo, Ohio.  
 A. Haase, Chicago.  
 A. M. Haubredt, Chicago.  
 R. Hendrickson, Cleveland, Ohio.  
 E. C. Hennis, Sandwich, Ill.  
 B. C. Hyde, Chillicothe, Mo.  
 A. Johnson, 70 W. Jackson Blvd., Chicago.  
 H. B. Hewitt, Chillicothe, Mo.  
 L. E. Hamilton, 126 Broad St., Elyria, Ohio.  
 E. H. Hammond, 135 Adams St., Chicago.  
 H. A. Harris, Chicago.  
 O. R. Johann, St. Louis, Mo.  
 J. G. Ihmsen, 6400 State St., Chicago.  
 F. G. Hudson, Chicago.  
 H. A. Jones, 24 De Long Bldg., Philadelphia, Pa.  
 P. J. Hertz, Chicago.  
 R. C. Houck, St. Louis, Mo.  
 J. S. Jackson, 330 W. Randolph St., Chicago.  
 O. E. Johnson, South Bend, Ind.  
 J. C. Hubache, Chicago.  
 Oscar M. Leich, 37 N. Goodman St., Rochester, N. Y.  
 A. J. Kennedy, Rome, N. Y.  
 E. Atherton Lyon, 103 Elm St., Yonkers, N. Y.  
 W. H. Liveimore, Boston, Mass.  
 W. A. Hessler, Pittsburg, Pa.  
 W. W. Kidney, Buffalo, N. Y.  
 L. G. Le Bouwean, 2135 Lucas Ave., St. Louis, Mo.  
 N. A. Loed, Cincinnati, Ohio.  
 E. C. Lewis, 70 Jackson Blvd., Chicago.  
 E. L. Larabee, Beatrice, Neb.  
 T. Lidberg, 1760 Ravenswood Park, Chicago.  
 C. J. Litscher, Grand Rapids, Mich.  
 Chas. W. Keeler, Chicago.  
 Mrs. C. J. Litscher, Grand Rapids, Mich.  
 G. S. Lindsley, Chicago.  
 E. W. Kearns, Chicago.  
 E. J. Kearney, Indianapolis, Ind.  
 E. F. Kitselman, Muncie, Ind.  
 J. A. Kenny, Muskegon, Mich.  
 E. F. Kirkpatrick, Chicago.  
 P. F. Lyons, Bristol, R. I.  
 J. J. Keenan, 72 Churchill St., Chicago.  
 F. B. Miller, Norwalk, Ohio.  
 A. D. MacIntyre, Duluth, Minn.  
 Robt. Miller, Muncie, Ind.  
 J. H. Montague, 369 Norwood Ave., New York.  
 A. A. Miller, Kansas City, Mo.  
 G. F. McCabe, Paducah, Ky.  
 J. C. Murray, Chicago.  
 C. L. Matthews, St. Louis, Mo.  
 C. H. Macklin, Buffalo, N. Y.  
 F. L. Middleton, Chicago.  
 J. M. Moore, Chicago.  
 J. E. Myers, Dayton, Ohio.  
 U. T. Messenger, Genoa, Ill.  
 W. R. McCanne, Rochester, N. Y.  
 M. H. Moffett, Cleveland, Ohio.  
 C. MacIntyre, Lincoln, Neb.  
 H. E. Mason, Chicago.  
 A. A. Marrs, Dallas, Tex.  
 P. D. Myers, Lincoln, Ill.  
 F. P. McIntosh, Elkhart, Ind.  
 J. J. Nate, Minneapolis, Minn.  
 Wm. E. Perry, 363 Warren Ave., Chicago.  
 Louis Privat, Chicago, Ill.  
 J. E. Norling, Chicago.  
 G. M. Painter, Chicago.  
 C. C. Newborn, Chicago.  
 J. E. O'Neill, Chicago.  
 E. J. Pertzcker, St. Louis, Mo.  
 F. M. Patter, Rome, N. Y.  
 W. L. Parker, St. Louis, Mo.  
 W. Kearne, Milwaukee, Wis.  
 H. N. Powers, New York.  
 J. R. Power, Des Moines, Iowa.  
 G. Powell, Toledo, Ohio.  
 F. B. Patten, Rochester, N. Y.  
 F. R. Parker, Chicago, Ill.  
 W. Olomar, Chicago.  
 H. E. North, Indianapolis, Ind.  
 L. F. Osborne, South Bend, Ind.  
 G. B. Pratt, Cleveland, Ohio.  
 J. A. Navarre, Toledo, Ohio.  
 F. W. Pardee, Chicago.  
 A. Poole, Wheeling, W. Va.  
 L. M. Parkinson, Pittsburg, Pa.  
 Homer Roberts Telo Co., Chicago.  
 H. G. Robbins, Cleveland, Ohio.  
 G. W. Rodormer, Chicago.  
 A. F. Rosenberger, Chicago.  
 J. A. Russell, Chicago.  
 A. Robinson, St. Louis, Mo.  
 Homer Roberts, Evanston, Ill.  
 D. F. Rosenborough, Norfolk, Neb.  
 W. O. Rhode, Kansas City, Mo.  
 O. P. Reed, La Fayette, Ind.  
 H. N. Remington, Peoria, Ill.  
 J. F. Scott, Indianapolis, Ind.  
 A. Swanson, South Bend, Ind.  
 C. Schafer, Rochester, N. Y.  
 M. L. Scoberg, Lincoln, Neb.  
 E. Shelby, La Fayette, Ind.  
 F. J. Skelley, Collinswood, Ohio.  
 G. Scoville, Elyria, Ohio.  
 W. M. Smith, Chicago.  
 J. Stanton, Waterloo, Va.  
 W. H. Scott, Elyria, Ohio.  
 H. Schafer, Chicago.  
 I. Schoenberger, Cleveland, Ohio.  
 N. C. Slein, Rochester, N. Y.  
 E. P. Shafer, Indianapolis, Ind.  
 J. S. Matton, Topeka, Kan.  
 W. H. Trimm, Chicago.  
 C. D. Wilson, Cincinnati, Ohio.  
 M. W. Zabel, Chicago.  
 H. F. Taylor, Brookline, Mass.  
 R. A. Holf, Pittsburg, Pa.  
 J. Wagner, La Fayette, Ind.  
 W. F. Wagner, Detroit, Mich.  
 C. C. Wilmot, Grand Rapids, Mich.  
 J. B. Wilkinson, Louisville, Ky.  
 J. R. Wiley, Chicago.  
 R. E. Willard, South Bend, Ind.  
 H. H. Woodworth, Chicago.  
 C. H. Wallis, St. Louis, Mo.  
 M. E. Townsend, Toledo, Ohio.  
 E. D. Taylor, South Bend, Ind.  
 C. L. Ward, Sioux Falls, S. D.  
 T. E. Wright, Cleveland, Ohio.  
 M. McGravy, Sioux City, Iowa.  
 F. M. Fergerson, 1421 Broad St., Grinnell, Iowa  
 O. Friburg, La Fayette, Ind.  
 R. S. Mitten, Chicago.  
 W. G. Peacock, Muskegon, Mich.  
 V. V. Mann, South Bend, Ind.  
 C. I. Lortte, Cleveland, Ohio.  
 G. R. Newhall, New York.  
 H. M. Roade, Escanaba, Mich.  
 E. Quigley, Kansas City, Mo.  
 C. Seyler, Pittsburg, Pa.  
 H. Stratford, Chicago.  
 W. B. Bryant, Mobile, Ala.  
 W. C. Polk, Birmingham, Ala.  
 A. E. Boqua, Fort Smith, Ark.  
 C. F. Speed, Texarkana, Ark.  
 D. S. Parker, Pomona Valley, Cal.  
 M. L. Pany, Dumuth, Ontario.  
 F. Dagger, Winnipeg, Manitoba.  
 O. F. French, Winnipeg, Manitoba.  
 E. E. Clement, Washington, D. C.  
 J. A. Bortz, Nauvoo, Ia.



- C. I. Arterburn, Kansas, Ill.  
 W. R. Arsthorpe, Cairo, Ill.  
 F. A. Bowdle, Chatham, Ill.  
 H. E. Attebery, Virden, Ill.  
 J. W. Barrett, Pekin, Ill.  
 H. C. Barbour, Ottawa, Ill.  
 L. S. Bowen, Savanna, Ill.  
 E. D. Boynton, Pleasant Plains, Ill.  
 C. B. Cheadle, Joliet, Ill.  
 O. E. Daggett, Macon, Ill.  
 J. S. Campbell, Tuscola, Ill.  
 W. D. Clingman, Janesville, Ill.  
 J. S. Donaldson, Taylorville, Ill.  
 G. L. Chapman, Newman, Ill.  
 H. A. Nuttall, Chicago, Ill.  
 J. A. Cupin, Niantic, Ill.  
 E. E. Darrow, Chicago, Ill.  
 G. N. Fenn, Chicago, Ill.  
 C. M. Erwins, Macomb, Ill.  
 S. Ford, Mansfield, Ill.  
 E. L. Farnam, Pawnee, Ill.  
 H. E. Farnam, Pawnee, Ill.  
 H. F. Farwell, Bloomington, Ill.  
 E. Farwell, Manchester, Ia.  
 C. W. Forbes, Chicago, Ill.  
 E. E. England, Mt. Pleasant, Ill.  
 W. F. Goodrich, La Crosse, Ill.  
 W. E. Gart, Kenney, Ill.  
 W. C. Fisher, Kankakee, Ill.  
 G. H. Glass, Pekin, Ill.  
 E. D. Glandon, Pittsfield, Ill.  
 W. S. Hancock, Aurora, Ill.  
 R. W. Hall, Westfield, Ill.  
 E. W. Herman, Bethany, Ill.  
 W. W. Halliday, Jacksonville, Ill.  
 J. Hoobler, Streator, Ill.  
 L. A. Herrick, Freeport, Ill.  
 W. Johnson, Pittsfield, Ill.  
 C. S. Hankins, Decatur, Ill.  
 A. G. Newley, Fulton, Ill.  
 L. Lee, Champaign, Ill.  
 M. G. Kellogg, Chicago, Ill.  
 F. W. Kelley, Springfield, Ill.  
 W. W. Lam, Arrowsmith, Ill.  
 S. J. Kennedy, Rochelle, Ill.  
 T. A. Legris, Kankakee, Ill.  
 N. L. Mamer, Campus, Ill.  
 C. E. Munday, Altamont, Ill.  
 H. Martens, Peru, Ill.  
 K. B. Miller, Chicago, Ill.  
 Grace Maurice, Arrowsmith, Ill.  
 R. D. McCulloch, Varna, Ill.  
 A. W. Miller, Varna, Ill.  
 W. J. McQuiston, Monmouth, Ill.  
 H. W. Miller, Rock Island, Ill.  
 J. W. Mount, Williamsville, Ill.  
 J. A. Peterson, Manchester, Ia.  
 W. S. Ramsey, Auburn, Ill.  
 M. Pierce, Freeport, Ill.  
 G. R. Pierce, Freeport, Ill.  
 W. G. Olwin, Peoria, Ill.  
 C. R. Peel, Springfield, Ill.  
 G. W. Pitcher, Galena, Ill.  
 T. Scott, Petersburg, Ill.  
 W. C. Scott, Petersburg, Ill.  
 H. G. Schweitzer, Peoria, Ill.  
 M. Savage, Champaign, Ill.  
 A. C. Schuler, Paris, Ill.  
 A. R. Patterson, Streator, Ill.  
 I. C. Sabin, Clinton, Ill.  
 C. W. Shumel, Casey, Ill.  
 G. A. Vint, Pekin, Ill.  
 R. Valentine, Janesville, Ill.  
 A. T. Vaniman, Girard, Ill.  
 U. G. Tucker, Virden, Ill.  
 F. Zinnel, Savanna, Ill.  
 F. Zeller, Campus, Ill.  
 B. F. Wasson, Clinton, Ill.  
 D. Wasson, Clinton, Ill.  
 C. O. White, Princeton, Ill.  
 H. G. West, Pontiac, Ill.  
 H. C. Batteman, Lowell, Ind.  
 J. J. Brown, Danville, Ind.  
 F. F. Bingham, Bedford, Ind.  
 J. P. Boylan, Detroit, Mich.  
 J. A. Browne, Winchester, Ind.  
 J. E. Brailey, Indianapolis, Ind.  
 C. C. Darnell, Elendal, Ind.  
 R. O. Dorland, La Porte, Ind.  
 J. V. Dorland, La Porte, Ind.  
 F. O. Cuppy, La Fayette, Ind.  
 M. L. Clausan, Indianapolis, Ind.  
 L. A. Frazee, Connersville, Ind.  
 F. J. Goodwin, W. Lebanon, Ind.  
 R. B. Gallup, Aurora, Ill.  
 G. C. Hitt, Indianapolis, Ind.  
 J. L. Hasea, Indianapolis, Ind.  
 J. G. H. Klingler, Brazil, Ind.  
 F. C. King, Logansport, Ind.  
 M. B. Larimer, Fort Wayne, Ind.  
 C. E. Koontiz, Bremen, Ind.  
 G. Kinzle, Decatur, Ind.  
 A. C. Lindemuth, Richmond, Ind.  
 L. Manin, Frankfort, Ind.  
 L. B. Morris, Lafontania, Ind.  
 M. Neubach, Fort Wayne, Ind.  
 C. C. Norton, Indianapolis, Ind.  
 E. M. Popp, Fort Wayne, Ind.  
 H. Phend, Nappanee, Ind.  
 G. E. Spake, Monroeville, Ind.  
 W. L. Shoots, Elkhart, Ind.  
 J. W. Scott, Warsaw, Ind.  
 C. R. Stoops, Nappanee, Ind.  
 F. H. Sumner, Waynetown, Ind.  
 F. M. Schirmeyer, Decatur, Ind.  
 C. F. Stevens, Oakland City, Ind.  
 A. L. Staderman, Terre Haute, Ind.  
 F. S. Shoemaker, Bloomington, Ind.  
 F. Staub, Fort Wayne, Ind.  
 W. J. Uhl, Logansport, Ind.  
 W. O. Taylor, Andrews, Ind.  
 W. A. Wright, Hillsboro, Ind.  
 N. H. Bratt, Davenport, Ia.  
 W. E. Bryan, New Sharon, Ia.  
 Mrs. W. E. Bryan, New Sharon, Ia.  
 J. S. Bellamy, Knoxville, Ia.  
 J. S. Appleman, Oskaloosa, Ia.  
 N. F. Baker, Sioux City, Ia.  
 R. U. Bandy, Des Moines, Ia.  
 G. N. Bandy, Des Moines, Ia.  
 Mrs. O. F. Blasier, Greene, Ia.  
 O. F. Blasier, Greenc, Ia.  
 R. H. Carothers, Earlham, Ia.  
 E. D. Chepmain, Maquoketa, Ia.  
 H. A. Douglas, Cedar Rapids, Ia.  
 J. A. Duncan, Sioux City, Ia.  
 C. G. Cockerill, Sioux City, Ia.  
 C. C. Deering, Boone, Ia.  
 W. H. Fowler, Pella, Ia.  
 P. C. Holdoegel, Rockwell City, Ia.  
 W. F. Hutton, Holstein, Ia.  
 H. H. Herr, Ottumwa, Ia.  
 G. Hewes, Des Moines, Ia.  
 C. A. Laubach, Council Bluffs, Ia.  
 S. S. Lichty, Vinton, Ia.  
 E. H. Martin, Webster City, Ia.  
 J. M. Plaister, Fort Dodge, Ia.  
 C. W. Putlyman, Oskaloosa, Ia.  
 J. H. Shoemaker, Waterloo, Ia.  
 F. L. Wilson, Washington, Ia.  
 Mrs. A. T. Whittle, Waterloo, Ia.  
 A. T. Whittle, Waterloo, Ia.  
 G. Crawford, Girard, Kans.  
 A. A. Godard, St. Joseph, Mo.  
 W. P. Hemphill, Topeka, Kans.  
 M. G. Miller, Olatho, Kans.  
 J. A. Plotner, Pittsburg, Kans.  
 W. H. Nelson, Smith Center, Kans.  
 C. H. Smith, Sioux City, Ia.  
 J. A. Zimmerman, Valley Falls, Kans.  
 H. Bruce, Louisville, Ky.  
 A. H. Bartin, Lancaster, Ky.  
 R. E. Cooper, Hopkinsville, Ky.  
 C. N. Caster, Owensboro, Ky.  
 H. W. Gillis, Shelbyville, Ky.  
 F. B. Jones, Louisville, Ky.  
 H. C. Jones, Owensboro, Ky.  
 R. T. Henderson, Henderson, Ky.  
 F. G. Hoge, Elkton, Ky.  
 G. Hirsch, Hopkinsville, Ky.  
 J. L. Lynch, Nicholasville, Ky.  
 J. C. Montieth, Louisville, Ky.  
 J. A. Quisenberry, Austin, Ky.  
 M. B. Overly, Louisville, Ky.  
 L. G. Parker, Louisville, Ky.  
 G. S. Shanklin, Lexington, Ky.  
 W. J. Thomas, Shelbyville, Ky.  
 W. G. Turpin, Henderson, Ky.  
 W. C. Davis, Walworth, Ky.  
 F. Bromley, Heart, Mich.  
 M. W. Briggs, Dowagiac, Mich.  
 J. P. Boylan, Detroit, Mich.

- J. Babcock, Quincy, Mich.  
 E. P. Chamberlain, Grand Rapids, Mich.  
 L. L. Jones, Alma, Mich.  
 E. B. Fisher, Grand Rapids, Mich.  
 H. H. Ide, Grand Rapids, Mich.  
 R. L. Hinebaugh, Burr Oak, Mich.  
 A. C. Hinebaugh, Burr Oak, Mich.  
 F. M. Howard, Burr Oak, Mich.  
 C. B. King, Ann Arbor, Mich.  
 E. Land, Grand Rapids, Mich.  
 A. C. Ludington, Ishpeming, Mich.  
 O. Morsman, Pontiac, Mich.  
 M. A. Porter, Detroit, Mich.  
 W. Robinson, Grand Rapids, Mich.  
 A. Slacey, Grand Rapids, Mich.  
 R. C. Smith, Homer, Mich.  
 W. L. Vivian, Alma, Mich.  
 C. E. Tarte, Grand Rapids, Mich.  
 W. B. Woodbury, Detroit, Mich.  
 W. F. Warner, Grand Rapids, Mich.  
 N. F. Wing, Grass Lake, Mich.  
 G. F. Stratemeyer, Grand Rapids, Mich.  
 J. B. Ware, Grand Rapids, Mich.  
 W. H. Jones, Meridian, Miss.  
 W. H. Jones, Hattiesburg, Miss.  
 N. D. Smith, Jackson, Miss.  
 A. F. Adams, Joplin, Mo.  
 J. F. Barnet, Rutledge, Mo.  
 W. H. Bassett, St. Louis, Mo.  
 J. F. Casey, St. Louis, Mo.  
 A. B. Chance, Centralia, Mo.  
 H. L. Gary, Macon, Mo.  
 T. Gary, Macon, Mo.  
 W. Galladay, Holden, Mo.  
 C. R. Harns, St. Louis, Mo.  
 Mrs. E. A. Hook, Appleton City, Mo.  
 E. A. Hook, Appleton City, Mo.  
 A. B. Hughes, Hardin, Mo.  
 J. Harrison, St. Louis, Mo.  
 H. S. Jones, Hannibal, Mo.  
 A. Kalman, Kansas City, Mo.  
 H. McHenry, Jefferson City, Mo.  
 F. L. Rebor, Jefferson City, Mo.  
 S. T. Neill, Clinton, Mo.  
 G. B. Roberts, St. Joseph, Mo.  
 R. H. Scott, Nelson, Mo.  
 O. C. Snider, Kansas City, Mo.  
 J. S. Haley, Clinton, Mont.  
 J. C. Ball, Billings, Mont.  
 T. S. Lane, Butte, Mont.  
 W. H. Caman, Beatrice, Mont.  
 F. G. Hummel, Omaha, Neb.  
 L. E. Hurtz, Lincoln, Neb.  
 R. E. Mathison, Lincoln, Neb.  
 T. H. Pollock, Omaha, Neb.  
 F. H. Stow, Omaha, Neb.  
 F. H. Woods, Lincoln, Neb.  
 H. R. Swartz, Trenton, N. J.  
 S. A. Douglas, New York City, N. Y.  
 H. H. Curran, New York City, N. Y.  
 T. H. Ferris, Utica, N. Y.  
 W. Eaton, Niagara Falls, N. Y.  
 H. A. Hamond, Rome, N. Y.  
 J. B. Pierce, Syracuse, N. Y.  
 S. M. Strong, Schenectady, N. Y.  
 J. H. Wright, Jamestown, N. Y.  
 H. D. Critchfield, Buffalo, N. Y.  
 W. A. Wynne, Raleigh, N. C.  
 D. B. Middleton, Bottineau, N. D.  
 H. R. Allenworth, Columbus, Ohio.  
 J. H. Ainsworth, Dayton, Ohio.  
 J. M. Beem, Dunkirk, Ohio.  
 H. L. Beatty, Ravenna, Ohio.  
 F. L. Beam, Columbus, Ohio.  
 E. L. Barber, Wauseon, Ohio.  
 H. R. Burter, Ada, Ohio.  
 G. Adams, Millersburg, Ohio.  
 J. Brailey, Jr., Toledo, Ohio.  
 K. Davis, Middletown, Ohio.  
 E. L. Coen, Vermillion, Ohio.  
 F. P. Diemer, Napoleon, Ohio.  
 N. A. Clark, Ada, Ohio.  
 C. E. D. McMiller, Mansfield, Ohio.  
 Wm. Day, Bradford, Ohio.  
 S. Day, Bradford, Ohio.  
 Mrs. W. Day, Bradford, Ohio.  
 G. W. Christian, Troy, Ohio.  
 H. P. Folsom, Circleville, Ohio.  
 C. R. Graham, Oberlin, Ohio.  
 W. E. Fuller, Clyde, Ohio.  
 H. E. Hageman, Lorain, Ohio.  
 H. E. Graham, Cygnet, Ohio.  
 W. B. Gregson, New Philadelphia, Ohio.  
 J. A. Giedeman, Sandusky, Ohio.  
 W. H. Fox, Union, Ohio.  
 C. G. Jones, Athens, Ohio.  
 W. Hyde, Warren, Ohio.  
 F. J. Hanna, Dayton, Ohio.  
 J. A. Harney, Cleveland, Ohio.  
 G. R. Johnston, Columbus, Ohio.  
 J. B. Hoge, Cleveland, Ohio.  
 J. K. Johnston, Sandusky, Ohio.  
 M. M. Herron, Millersburg, Ohio.  
 R. E. Hamblin, Toledo, Ohio.  
 C. E. Hollander, Newark, Ohio.  
 S. C. Kissner, Coshocton, Ohio.  
 F. A. Knapp, Belleview, Ohio.  
 H. O. Leinard, Cleveland, Ohio.  
 A. J. Lathoure, Irvington, Ohio.  
 C. H. Lee, Lima, Ohio.  
 G. H. Matheany, Lima, Ohio.  
 G. M. Miller, Norwalk, Ohio.  
 W. H. Munsen, Ashtabula, Ohio.  
 C. McVey, Cleveland, Ohio.  
 E. G. Miller, Warren, Ohio.  
 W. W. Morrison, Toledo, Ohio.  
 A. C. Morse, Cleveland, Ohio.  
 O. C. Reed, Cleveland, Ohio.  
 J. B. Rhodes, Fanesville, Ohio.  
 S. R. Newberry, Ashtabula, Ohio.  
 D. Odell, Springfield, Ohio.  
 G. H. Palmer, Columbus, Ohio.  
 W. H. Robb, Springfield, Ohio.  
 R. Owens, Columbus, Ohio.  
 A. R. Pollock, Piqua, Ohio.  
 A. D. Schrader, Cleveland, Ohio.  
 D. E. Sapp, Mt. Vernon, Ohio.  
 C. E. Stinson, Mt. Vernon, Ohio.  
 T. J. Smith, New Lexington, Ohio.  
 G. P. Thorpe, Wilmington, Ohio.  
 W. G. Thompson, Hamilton, Ohio.  
 S. E. Ward, Mansfield, Ohio.  
 L. R. Wittener, Mansfield, Ohio.  
 F. Wolfrom, Belleview, Ohio.  
 C. E. Yoder, Bellefontaine, Ohio.  
 W. S. Raupe, Wellston, Ohio.  
 W. P. Burlingham, Spartansburg, Pa.  
 N. T. Folwell, Philadelphia, Pa.  
 F. B. Hall, Rochester, Pa.  
 T. B. Lee, Washington, Pa.  
 W. L. Malin, Harrisburg, Pa.  
 H. McNeal, York, Pa.  
 G. B. Rudy, York, Pa.  
 N. E. Robb, Bellefontaine, Ohio.  
 J. G. Splane, Pittsburg, Pa.  
 E. D. Schade, Johnstown, Pa.  
 S. C. Thayer, Rochester, Pa.  
 C. West, Allentown, Pa.  
 W. H. Areson, Harrisburg, Pa.  
 F. E. Rebnan, Brookings, S. D.  
 Harvey Myers, Memphis, Tenn., Memphis Telo. Co.  
 L. Lea, Nashville, Tenn.  
 M. F. Wortham, Waco, Tex.  
 J. B. Earle, Waco, Tex.  
 Dr. A. Walker, San Antonio, Tex.  
 A. S. Schaffer, Waxahachie, Tex.  
 B. S. Young, Beaumont, Tex.  
 E. W. Hammer, Salt Lake City, Utah.  
 E. W. Hammer, Salt Lake City, Tex.  
 J. W. Bames, Fairmont, W. Va.  
 A. C. Davis, Parkersburg, W. Va.  
 L. Hutchison, Huntington, W. Va.  
 E. K. Hartford, Charleston, W. Va.  
 S. L. Von Ahnen, Appleton, Wis.  
 J. M. Baer, Appleton, Wis.  
 H. D. Critchfield, Milwaukee, Wis.  
 W. W. Dilworth, Dewit, Wis.  
 E. J. Kneen, Bangor, Wis.  
 R. W. McGellan, Appleton, Wis.  
 J. S. Van Nortwick, Appleton, Wis.  
 H. R. Ritter, Madison, Wis.  
 C. M. Smith, Sioux City, Ia.  
 A. Slater, Detroit, Wis.  
 F. G. Short, Walkerson, Wis.  
 J. G. Schweizer, La Crosse, Wis.  
 W. Van Lindlesworth, La Crosse, Wis.  
 R. R. Watrous, Milwaukee, Wis.  
 H. C. Willitz, Janesville, Wis.  
 G. W. Wilder, Cambridge, Wis.  
 J. F. Demers, Quebec, Canada.  
 A. Hoover, Green River, Ontario.  
 J. G. Sprague, Ontario.

**A SPECIAL WORD TO SUBSCRIBERS**

In requesting change of address, always give the name of the post office to which your magazine is sent. Your name cannot be found on our books unless this is done.

TELEPHONY is not returnable from the newsdealer. If you desire to purchase the paper from a dealer it will be to your advantage to notify him that you will want it, in order to insure his having a copy for you. If you wish to receive the paper regularly, please send in your subscription so that we can mail it to you direct.

*Copyrighted, 1907, by The Telephony Publishing Company. All rights reserved.*

# Telephony

With which is incorporated The Telephone Magazine.  
Published on the first of every month by

**THE TELEPHONY PUBLISHING COMPANY**  
301-306 Manhattan Bldg., Chicago, Ill.

H. B. McMeal . . . . .	President
E. M. McMeal . . . . .	Vice-President
H. D. Fargo . . . . .	Secretary and Treasurer
W. H. Graffis . . . . .	Advertising Manager
H. A. Downey . . . . .	Subscription Manager

Edited by H. B. McMeal and H. D. Fargo

VOL. XIII.	TELEPHONY	No. 6.
VOL. XXIX.	THE TELEPHONE MAGAZINE	No. 6.

**THE PRICE OF TELEPHONY**

By subscription: One Dollar a year, postage free in the United States, Canada, Alaska, Cuba, Porto Rico, Mexico, and the Hawaiian and Philippine Islands. Single copies: 15 cents each.

In Foreign Countries in the International Postal Union other than those named above: Subscription, postpaid, per year, 10 shillings, 2 pence, payable by international money order (\$2.50 in American money); Single copies, 11 pence each (22 cents in American money).

*Entered at the Chicago Post Office as second class mail matter.*

## EDITORIAL DEPARTMENT

### A GREAT CONVENTION.

NEVER was a more enthusiastic and loyal convention held than that of the International Independent Telephone Association, which met at Chicago, June 4, 5 and 6. Coming on the heels of the many reports circulated by the Bell members of the Ananias Club to the effect that Independent companies were dickering with the monopoly preparatory to forming an alliance with the Bell in certain states, the decisive action of the convention and its no-surrender spirit served both as a peculiarly crushing denial of such malicious tales and a ringing reaffirmation of permanent independence in the telephone world.

The resolutions adopted by the convention left no doubt in the public mind that the blandishments of the Bell trust have had no effect on the Independent movement and its leaders—except, no doubt, to make them all the more determined to continue the fight which is becoming more successful every day. And that, by the way, is the very reason why the Bell is so eager to establish amicable relations with Independent companies. The convention went squarely on record as being unalterably opposed to any agreement with the Bell or its licensees. The sentiment which led to the adoption of such a platform was manifested in other ways equally strong, for the feeling of “no compromise with the octopus” was in the air. Naturally enough, the firm impression that the Bell is offering peace proposals through fear rather than love only strengthened the conviction that it is no time to parley with an enemy when you have him down after a hard battle—especially when it is self-evident that were the conditions reversed that enemy would be satisfied with nothing less than your heart’s blood.

The International convention was a brilliant success. The attendance was unusually large and the spirit which dominated the proceedings was aggressive and hopeful of the future. The papers contributed and the discussions furnished proof that Independent telephone men are advancing rapidly in every branch of the business. Moreover, the delegates and visitors demonstrated that the movement contains wide-awake, brainy men of affairs, men typical of American enterprise and progress.

The International association elected new officers to carry on the work for the ensuing year. The administration headed by Theodore Gary, the new president, enters upon its duties under favorable auspices and should make a splendid record. Mr. Gary has done much for Independent telephony in Missouri, where he has organized a fine system, and he brings to his task the qualities which should insure a successful administration. TELEPHONY wishes the new officers God-speed in their work, and, as ever, stands ready to cooperate for the good of the cause, however possible.

TELEPHONY is gratified to be able to present to its readers a complete report of the great convention of 1907 in this issue, to accomplish which task the publication of the June number has been delayed a week.

Here’s a great big hope that the Independent movement will find the coming year the best of its history!

### BELL PROPOSAL REJECTED.

THE hope of the Bell interests to induce the Independents of Indiana and Ohio to form a compact looking to a working agreement between the two forces has been shattered. At the annual convention of the Indiana Independent Telephone Association, held at Indianapolis, May 15 and 16, decisive action was taken against any such plan. Coming after the Bell press bureau has gleefully forecast the success of the proposed merger, the decisive turn-down proved a bitter disappointment to the would-be “peace commissioners.”

After a thorough discussion, the convention not only rejected the proposed arrangement but amended the by-laws of the association so that hereafter any Independent company having Bell connections shall not be permitted to become a member of the organization. It was also decided that any company now a member of the association who is detected forming Bell connection shall forfeit that membership at once. As an effective rebuke to the Bell proposal the Indiana convention certainly left nothing to be desired.

So ended the efforts of the Bell to lure the Independents into a cleverly contrived trap. As TELEPHONY pointed out in the May issue, there was extreme danger in the Inde-

## TABLE OF CONTENTS

International Convention of 1907 . . . . .	H. B. McMeal	349-367	Illinois Telephone Convention . . . . .	P. G. Franklin	393-395
Editorial Mention . . . . .	H. B. McMeal and H. D. Fargo	368-371	Questions and Answers . . . . .	H. P. Clausen	396-399
Chicago Telephone Report . . . . .			Digest of Telephone Patents . . . . .	E. E. Clement	400-403
. . . . . D. C. Jackson, W. H. Crumb and G. W. Wilder		372-386	The Homer Roberts System . . . . .	N. D. Featherstone	404-409
Decisions Affecting Telephony . . . . .	G. W. Hand	387-389	Manufacturers’ Department . . . . .	W. H. Graffis	411-417
Indiana Independents Meet . . . . .	R. D. Fisher	390-392	In the Rural Districts . . . . .	O. H. Brandenburg	418

pendents accepting the Bell proposal, and it was the part of wisdom to pass by on the other side. It was several months ago that the Bell agents began to lay their plans. The first meeting was arranged by T. P. Sylvan of the Central Union Telephone Company, a Bell licensee, who requested a meeting with the Independent men of Indiana at Fort Wayne. At this conference the Bell people opened negotiations for an agreement with the Independents whereby the latter should have a clear field in the operation of local exchanges where they had most of the business on the condition that the Bell had the long-distance business. As soon as the proposal was submitted the Bell agents spread the report broadcast that the plan was accepted. Not only in Indiana, but in Ohio, the story was circulated that the "Independents had sold out to the Bell," and that competition was at an end. This was counting the chickens before they were hatched with a vengeance, for as soon as the proposition was generally discussed indignant dissent came from Independents all over the country.

The danger signs were alarmingly prominent the more closely the Independent leaders investigated the Bell proposition. For years the Bell had refused to admit there was any competition in the telephone business, and would not recognize the existence of the Independent movement. When the monopoly came "bearing gifts" it looked too suspicious; the indications savored strongly of a plot to disorganize the Independent industry, and, in short, it looked reasonable that if it was a good thing for the Bell it must be a bad thing for the opposition. So the plan was declined with thanks. Having won supremacy the Indiana Independents mean to keep it and, needless to say, Ohio will follow that example.

#### BELL HAS NEW PRESIDENT.

THE Bell monopoly—officially known as the American Telephone & Telegraph Company—has a new president. Frederick Perry Fish, of Boston, who was head of the concern six years, has been succeeded by Theodore N. Vail, of Lyndonville, Vt. The change was made at a special meeting of the board of directors held at Boston April 30. As usual, formal statements were given out to the public that no friction or trouble of any kind caused the change in the presidency, but that Mr. Fish had desired for several years to retire and enjoy a much-needed rest. All of which may be true, but it did not put a stop to a vast number of rumors that were generally along the line that the executive management of the Bell trust was changed because its policy has not been altogether pleasing to the directors and stockholders. The fact, too, that Mr. Fish was receiving the salary of \$100,000 a year for guiding the affairs of the Bell combine was a strong and compelling reason for the belief that all was not so harmonious as the official statement endeavored to prove. There are not many men in this country who would voluntarily surrender a position paying twice the salary of the President of the United States, and the inference is drawn that before Mr. Fish's divorce from the Bell management was accomplished there must have been a strong intimation that it would be wise to select another head. So Mr. Fish retires from the presidency, and returns to his place in the legal department of the monopoly whence he was graduated to the executive department in 1901.

That many believed there was foundation for the report of friction in the Bell camp is evidenced by the fact that the stock slipped back four points when the news of the change became known. During his term of office, Mr. Fish carried on the policy of intolerance that has made the Bell combination so obnoxious to the telephone public. Refusing to acknowledge the right of anybody else to engage in the telephone business, the Fish administration has left no stone unturned to discredit the Independent telephone forces in

everyway. By fair and foul means—mostly the latter, too—it was the bigoted policy of the A. T. & T. to use all conceivable methods to ruin existing Independent companies and stifle those in process of formation. This dog-in-the-manger course of procedure inevitably acted as a boomerang in many respects, and it is hinted that the more prudent men in the Bell councils reached the conclusion that a change in executive management was advisable.

It is to be hoped that Mr. Vail, the new president will see the wisdom of adopting a broader policy. For the benefit of the telephone industry as a whole this is necessary. The Bell magnates must realize by this time that Independent telephony is here to stay, and that no rabidly partisan, one-sided, "rule or ruin" plan of opposition can crush it out of existence. If such a result were possible it would have been achieved under the Fish regime.

Theodore N. Vail, the new president of the parent Bell, is a wealthy man, who has made his fortune in the telephone and street railway business. When a young man he was a telegraph operator. Since acquiring wealth he has divided his time between Boston, New York and Lyndonville, Vt., where he maintains a fine country place. He has been a member of the directorate of the A. T. & T. several years, and at one time was president of the New York operating company which is a subsidiary of the Bell combination. In Wall street the impression prevails that Mr. Vail was made president in response to the belief that New York financial interests should be in closer touch with the direction of the Bell affairs. In this connection the report that the Mackay interests, owning 75,000 shares, dictated Vail's selection, is given considerable credence.

From the Independents' standpoint the retirement of Mr. Fish is of no little interest. In discussing its significance, James B. Hoge, the late president of the International association, said: "I think that while Mr. Fish may have been due for retirement, his passing still has some significance as to the changed tactics of the Bell people. They have evidently abandoned the ruinous competitive policy, and to my mind both the Independents and the Bell will profit thereby. There has undoubtedly been a great change going on in the inner councils of the Bell, and I think we have seen the end of the rate cutting policy designed to squelch the Independent movement. It will be better for everyone engaged in the telephone business."

#### THE TELEPHONE AND RAILROADS.

NIKOLA TESLA, the electrical expert, is of the opinion that the use of the telephone in connection with the running of railroad trains will add so much to the safety of railway travel that public sentiment will soon demand the adoption of that safeguard. In a communication to the New York Times, Mr. Tesla dwelt on the value of wireless signals on railroads and commented on the superior utility of the telephone for such service. While he believes that the widest field of application for wireless telegraphy is the conveyance to moving trains of such information as is indispensable for keeping the traveler in touch with the world, and predicts that "in the near future a telegraph printer of news, a stock-ticker, a telephone, and other kindred appliances, will form parts of the regular wireless equipment of a railroad train," Mr. Tesla regards the telephone as the best possible safety contrivance for future railroading. He says that the railroads are rapidly adopting electric motor power thus placing themselves in position to take advantage of all sorts of signaling devices. In his opinion the telephone is the best of these, as it will enable the engineer or conductor of a train to call up any other train or any station along the track and obtain full and unmistakable information and thus reduce the liability of collisions.

In every industry where time is a factor—and where is it



not?—the value of the telephone as a safeguard to life as well as property is becoming more apparent every day.

Admiral H. N. Mannly, of the United States navy, who was one of the American representatives at the international conference on the subject of wireless telegraphy, says that since the adjournment of the conference, so much advancement has been made in wireless telephony that it is now possible to communicate by telephone at sea a distance of thirty miles. Naval engineers are of the opinion that wireless telephony is adapted more to marine use than to use on land, as it would be more expensive and less effective on land than at sea.

#### INDEPENDENT GROWTH IN OHIO.

THE soil of the Buckeye state is annually proving its fertility for the development of Independent telephony. During the last year the Independent companies in Ohio increased their number of subscribers 42,000, which brings the total to 290,400. This gratifying information is contained in a statement issued by Frank L. Beam, president of the Ohio Independent Telephone Association, which incidentally discloses the fact that in 1905 the number of Independent telephones in the state was 196,937. Thus in two years the movement has planted 93,463 Independent telephones in that state. This is truly a splendid showing, and a fine testimonial to the efficient work of the state association managed by President Beam and his associates.

Accompanying his statistical statement, President Beam sent out strong denials of the reports circulated by the Bell that the monopoly was about to absorb the strong Independent companies of Ohio and Indiana. These denials are contained in letters from James S. Brailey, Jr president of the United States Telephone Company, Cleveland, and C. D. Young, president of the Citizens' Telephone Company, of Delaware. These letters are conclusive. After branding the Bell reports as false, Mr. Brailey says: "By presenting a solid front the Independent telephone interests in this state are not only indestructible but they are supreme. I hope to see the time come in the very near future when every Independent company in the state will agree in matters of mutual interest to act with the state association and to act only through the association. When such a thing is accomplished our securities and properties will be largely increased in value, and our future success will be even greater than our present success."

Regarding the reported action of the Marion County Telephone Company in buying the Central Union (Bell) exchanges in that county, the latter agreeing to retire from the local field, President Beam says: "This method of dealing with the opposition is wrong in principle and bound to injuriously affect Independent telephone interests throughout the state."

In Indiana the same proposition was turned down by the state association, as related elsewhere in this issue of TELEPHONY.

#### BELL AT ITS OLD TRICKS.

WITH clock-like regularity the Bell publicity bureau circulates the story that some one of the big Independent telephone companies has wearied of the strife and is about to surrender to the Bell system. Sometimes these reports are sent out in the spring and concern eastern Independents; on other occasions they crop up in the fall and relate to western companies. Anyway, not a year passes that the Bell does not float a choice line of these rumors, calculated to shake public confidence in the Independent movement and picture the Bell as a hundred-armed octopus raking business competitors into its maw day after day. The Bell aspires to be an octopus certainly, but its tentacles have not been capturing much of late despite the reports circulated by its press bureau.

Within the past few weeks the Bell press agents have widely spread the report that the trust was about to absorb the three following Independent companies:

The Milwaukee Independent Telephone Company.

The Indianapolis Telephone Company, and tributary Independent lines.

The Home Telephone Company of Detroit and other Independent concerns in Michigan.

Elaborate stories of how the Bell was about to secure control of these companies have flooded the country, and on the theory that a lie travels faster than the truth it is possible their denials have not yet caught up with the allegations. In every instance the reports of surrender to the Bell have been branded as false by the heads of the companies involved. H. D. Critchfield, president of the Milwaukee Independent Telephone Company, has the following to say of the report that the Bell has acquired an interest in that concern:

"Such statements are absolutely and unqualifiedly false, without a shadow of foundation, and such rumors are only in line with the general policy pursued by the Bell telephone organization since the inception of the Independent telephone movement. The Bell telephone company is not in a position to buy any Independent telephone property, as is evidenced by the fact that three year notes recently floated by the American Telephone and Telegraph Company cost it approximately 14 per cent per annum; that even if Independents would sell to the Bell company, it could not purchase, for it has not the money and cannot afford to pay that rate of interest to buy telephone properties which, according to the statements of the Wisconsin Telephone Company, only earn 6 per cent on the actual investment. The best evidence that the Wisconsin Telephone Company and the Bell sub-licensees generally, are afraid of the Independent movement, is their persistent, continuous agitation and misrepresentation of the business. If the Wisconsin Telephone Company is satisfied that we are not going to build our plant, why does it continue to fill the press and flood the banking institutions and other monied interests with nonsensical literature which is usually also misleading? This conduct would seem to indicate a fear of the establishment of our plant, not in keeping with their claim of immunity. Our plant will be built and operated, just as we have said it would."

Concerning the rumor that the Bell has purchased the Independent lines in Indiana, A. C. Lindemuth, president of the Indiana Independent Telephone Association, says: "No such deal has been made or is contemplated. This rumor has probably originated from the fact that recently certain Bell representatives have proposed to abandon the entire local telephone field in Indiana to the Independent companies upon conditions that the Independents take care of the Bell long-distance business within the state."

In Detroit, W. D. Woodbury, general manager of the Home Telephone Company and also of the Inter-State Long-Distance Telephone Company, is the man who nails the canard that the Bell has bought up that company and the Michigan Independent interests. He said: "Yes, I have seen the article to the effect that we were to be gobbled up by that octopus. It is only a joke, and if it was not such an old chestnut and had not bobbed up at such frequent intervals, this business of the Bell absorbing the Independent telephone companies, I might laugh myself, but the fact is I am getting rather blasé regarding this matter. It is a case of the press bureau of the Bell interests getting busy again. The statements that our company in Detroit, and other companies in Michigan, together with companies in Indiana, are going to the Bell, is almost too ridiculous to warrant even a passing denial. The Home Telephone Company is controlled by a voting trust. This voting trust is for a period of ten years and was formed for the purpose of keeping control of the company away

from the Bell. It would be impossible for the Home company to go to the Bell. The same interests that control the Home company of Detroit are in the controlling interest in the Kansas City Home Telephone Company and the Kinloch Telephone Company of St. Louis, are largely interested in the United States Telephone Company of Cleveland, the Cuyahoga Telephone Company of Cleveland, and the Home Telephone Company of Toledo, and are also directly in control of the Inter-State Long-Distance Telephone Company, which is a \$15,000,000 corporation recently established to give long-distance service in Michigan, and to build such exchanges and toll lines as may be necessary to complete the system of telephone communication in this state. The Inter-State company is also controlled by a voting trust, which consists of Max Koehler, vice-president of the St. Louis, Rocky Mountain & Pacific Railroad; C. Marquard Forster, chairman of the board of the Missouri Lincoln Trust Company, also of St. Louis; Fred T. Moran, Detroit; W. B. Woodbury, Detroit; George E. Lawson, vice-president of the People's State Bank of Detroit; with the Detroit Trust Company as registrar, transfer agent, etc., so it would be impossible to dispose of the Inter-State Long-Distance Telephone Company. Outside of Detroit, in Michigan, the Bell interests are out-numbered by the Independents, and the local and long-distance lines of the Independents are superior in Ohio and Indiana. The Bell company has expended millions in a useless attempt to stifle competition and is to-day paying the freight. The Bell long-distance has canceled orders for millions of pounds of copper which Independent telephone companies have bought eagerly in the present stringency in copper. So, considering all the facts, this, as I say, makes the story of the Bell interests gobbling up the Independent telephone companies around the country rather amusing, especially in view of the fact that the investment in Independent telephone property aggregates nearly \$400,000,000, which is in excess of the investment by the Bell interests. In many states in the Union there is little or no field left for the Bell and there are many cities in Ohio, Indiana and Michigan which have absolutely no Bell service and the likelihood is there never will be."

The destruction of these claims made by the Bell—that the Independents are striking their colors—however, will probably not discourage the trust's press bureau, for every so often it repeats these unfounded statements regardless of consequences. It is well, though, to spike these attempts to discredit the movement as often as they are made.

#### DO THINGS WELL.

"THERE is one thing which is ever worth doing well. That thing which you do each moment of your life is the one. Remember, not that thing you have done; not that task you are going to do; but the one thing you are *doing*. That is it. It matters not if it be following the plow; if it be directing some great enterprise, or whether you are doing the drudgery of office work, or writing a book or reading one, or doing any one thing which is the lot of someone to perform."

The above very good advice is from a publication called Opportunity, and should be taken to heart by every reader of TELEPHONY. We are all prone to put things off until to-morrow, or do them in a half-hearted way. We should do each piece of work as it comes, to us and do it well.

#### MISSOURI INDEPENDENTS MEET.

A very successful convention was held by the Missouri Independent Telephone Association which met at Kansas City, May 8 and 9. The convention met at the Coates House and was attended by prominent telephone men from all parts of the state. Many interesting and useful papers were presented, and a resolution was passed by the convention inviting all Independent telephone people in the state to

attend the next convention, which will be held at the Coates House in Kansas City next spring.

The convention ended with a banquet at the Coates house. About 250 telephone men sat down to the table. The menu card was unique in that each dish was given some name technically significant to the trade. Mayor H. M. Beardley, James A. Plotner and James A. Reed, Kansas City; Dr. S. T. Neill, Clinton; E. J. Roth, Chicago, and M. L. Golladay, of Holden, were the principal speakers.

The association elected the following officers: President, Houch McHenry, Jefferson City; secretary and treasurer, George Schweer, Windsor.

#### VIRGINIA INDEPENDENTS MEET.

The Virginia Independent Telephone Association held its first annual convention at Norfolk, Va., May 21 and 22. The meeting was held at the Lorraine Hotel, and was attended by delegates from companies all over the state. There are upwards of forty Independent companies in the state and the new association starts out with fine prospects of development and helpfulness. One of the important questions discussed was the building of long-distance toll lines, which was referred to a committee to be appointed by the president, who will report at a special meeting to be held during the summer. A number of interesting papers were read, after which the convention selected W. N. McAnge, of Suffolk, as delegate to the International convention at Chicago. F. W. Davie, of Lawrenceville, was chosen alternate. The following officers of the association were elected: President, Albert Parlett, Bristol; vice-presidents, F. F. Marbury, Alexandria; W. N. McAnge, Suffolk; secretary-treasurer, B. L. Fisher, Rocky Mount; executive committee, C. Fred Bonney, Norfolk; George B. Keezel, Keezeltown; Albert Parlett, Bristol; W. N. McAnge, Suffolk; F. W. Devie, Lawrenceville.

After the convention adjourned the delegates attended the Jamestown Exposition.

#### WEST VIRGINIA CONVENTION.

The West Virginia Independent Telephone Association held its annual convention at Wheeling, W. Va., May 10. The meeting was well attended, and proved to be instructive and helpful to those present. At the morning session papers were read by Frank B. Hall, Rochester, Pa., on "Standard Construction"; Frank Hart, superintendent of the Pittsburgh and Allegheny Telephone Company, on "Value of Good Toll Lines"; W. C. Handlan, general manager of the National Telephone Company, of Wheeling, on "Pooling of Toll Lines"; J. Walter Barnes, Fairmont, on "The Folly of the Sub-Licensee," and by L. H. Hutchinson, general manager of the Huntington Mutual Telephone Company, on "Our Employes." At the afternoon session J. W. Downs, general manager of the Buckhannon Telephone Company, read a paper on "The Right of Territory," and A. C. Davis, of Parkersburg, general manager of the West Virginia Western Telephone Company, discussed "Independent Telephone Securities." T. B. Lee, general manager of the State Mutual Telegraph and Telephone Company, read a paper on "Rural Telephones." E. D. Schade, of Johnstown, Pa., addressed the convention on "Toll Traffic."

At the election of officers A. C. Davis, of Parkersburg, was elected president, and W. C. Handlan, of Wheeling, secretary. Vice-presidents were elected as follows: First district, J. H. Wise, of Cameron; second district, William Line, of Morgantown; third district, J. W. Downs, of Buchannon; fourth district, Hugh Amos, of Pine Grove; fifth district, Lon H. Hutchison, of Huntington. Lloyd Beeghly, of Weston, was chosen treasurer, and J. W. Barnes a member of the advisory board.

The following executive committee was named: A. C. Davis, W. C. Handlan, J. W. Barnes, Lon H. Hutchison, E. K. Hertford.

# CHICAGO TELEPHONE REPORT

*An Exhaustive Review of the Telephone Situation as Submitted to the City Council*

By D. C. Jackson, W. H. Crumb and G. W. Wilder

[TELEPHONY herewith presents the second half of this important contribution to telephone literature, which is the result of a thorough investigation of conditions in Chicago by a special commission of experts engaged by the city council. The first installment of the report appeared in the May issue. TELEPHONY is the first publication to print verbatim this comprehensive study of telephone conditions in the second largest city of the country, and believes the space devoted to the matter is justified by its great significance to the industry. The commission's findings with regard to service, rates and their regulation are worthy of close scrutiny. The May and June numbers of TELEPHONY, therefore, should be carefully preserved by all students of telephone conditions.—Ed.]

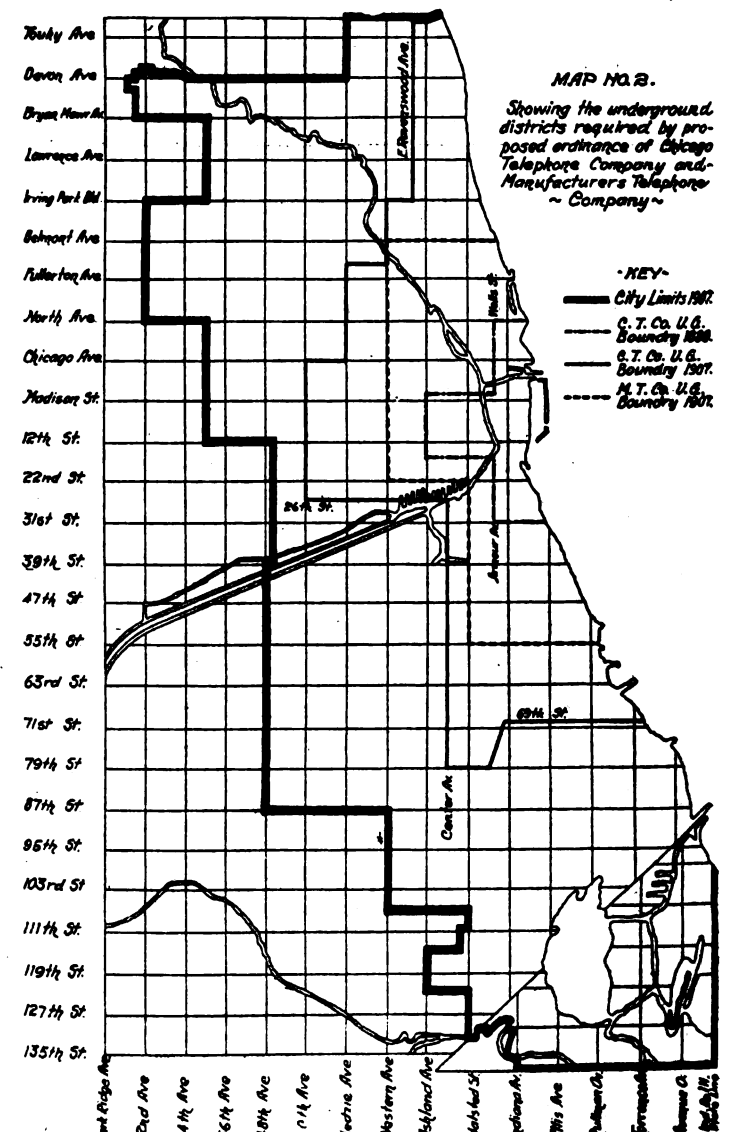
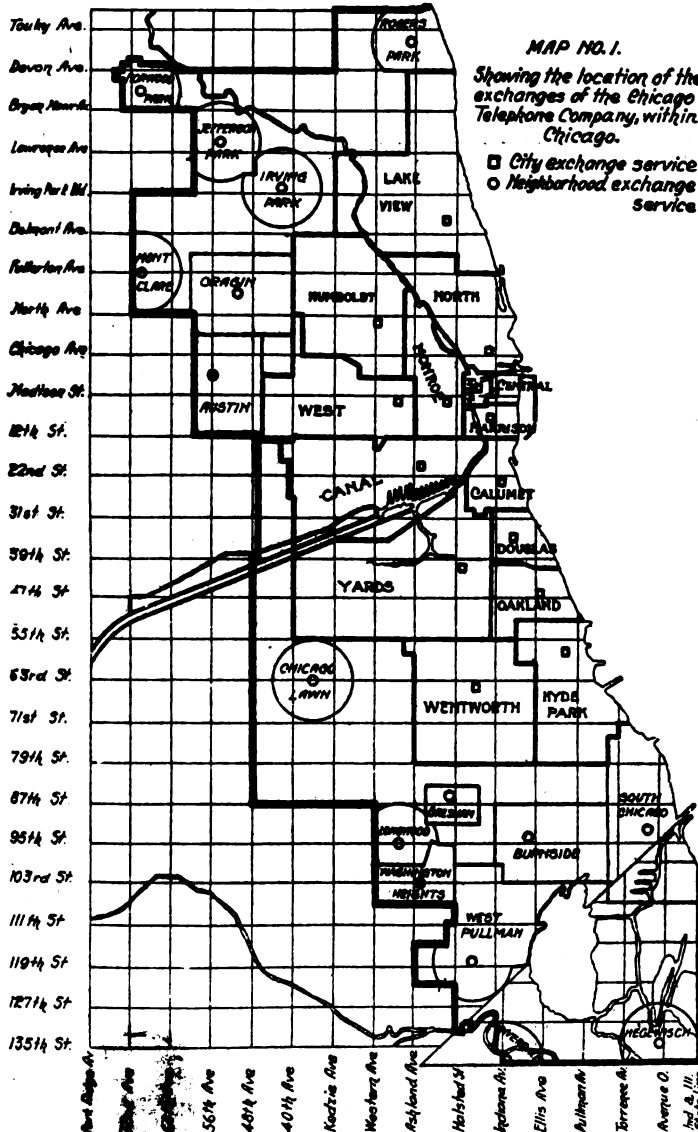
### III.

#### THE APPLICATION OF THE CHICAGO TELEPHONE COMPANY.

The application of the Chicago Telephone Company differs from the application of the Manufacturers' Company in consisting essentially of an application for a renewal or extension of franchise for twenty years, by a company now in

phone Company as far as the time afforded us would warrant, and have given considerable attention to its methods of operating.

The book value of the entire fixed plant, including real estate and buildings, of the Chicago Telephone Company on December 31, 1905, aggregated, according to the report of the city auditor, \$15,827,033.42. The company's construc-



the position of operating an extensive telephone plant in the city of Chicago. We have directed our attention very fully to the reasonableness of the provisions in the franchise asked for by this company, and especially those provisions that relate to the proposed schedule of rates, the regulation of rates by the city council, and compensation to the city.

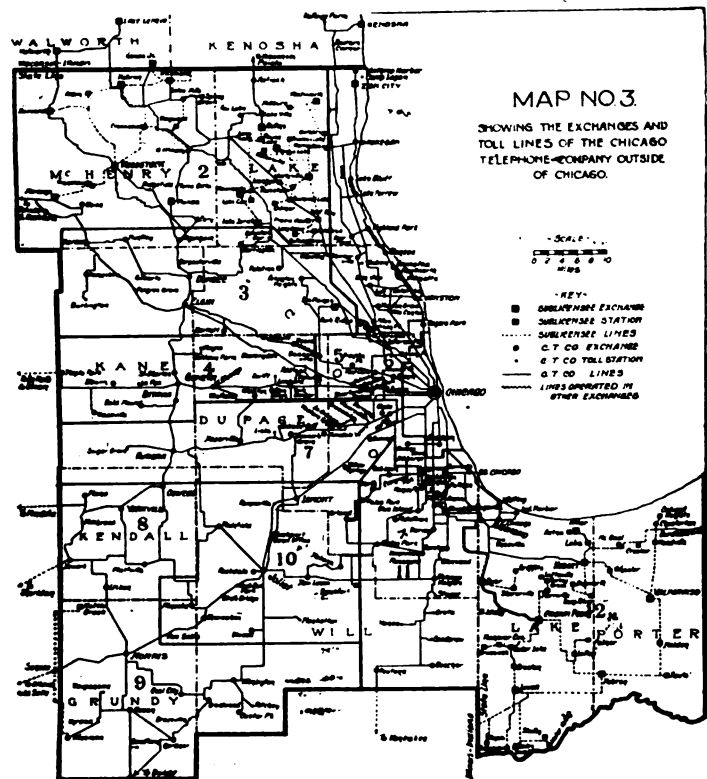
We have also inspected the plant of the Chicago Tele-

phone Company as far as the time afforded us would warrant, and have given considerable attention to its methods of operating. The book value of the entire fixed plant, including real estate and buildings, of the Chicago Telephone Company on December 31, 1905, aggregated, according to the report of the city auditor, \$15,827,033.42. The company's construc-

tion account for the year 1906, to be added thereto, amounted to \$3,343,673.88 according to the statement of the company's auditor. The city auditor has examined these expenditures and traced the charges, and has found that they are properly posted and agree with the statement submitted. Our examination of the plant leads us to believe that the figures are correct.

Subtracting \$700,000, which was written off by the com-

pany for Depreciation for the year 1906, makes a total book value for fixed plant, including real estate and buildings, at the opening of 1907 of \$18,470,707.30. This is the valuation shown on the books of the company for the entire system, which gives service to 170,834 telephone inside and outside of the limits of the city of Chicago, of which 131,747 (on January 1, 1907) are within the limits of the city. The plant includes an extensive development of interurban lines, which lead between the various cities and villages in a dis-



trict surrounding Chicago that is shown in our Map No. 3. This district extends northward to the Wisconsin state line, westward about forty-five miles from the Chicago city limits, and southeastward into the state of Indiana.

Within the limits of the city of Chicago the company has in operation a large number of closely interconnected exchange offices of which the company's records show that the largest (called Central office) gives (on January 1, 1907) service to 6,268 subscribers' lines with 14,274 connected telephones, while the smallest, which is a neighborhood exchange and is called Mont Clare, gives (on January 1, 1907) service to nine subscribers' lines with 24 telephones connected. Our Map No. 1 shows the locations of these various exchanges and the outlines of the several districts particularly served by each. In various instances several exchange designations are included in one exchange office. This makes it possible to limit each switchboard on which the talking connections of subscribers' lines are made to a size that comes within the reasonable reach of the young women operators and to confine the subscribers' numbers to not exceeding four numerals, thereby aiding in maintaining the speed and accuracy of operating.

An instance of this introduction of more than one exchange designation into a single building is found at the exchange office located at 100 Washington street, which is called Central, and which has become crowded and is now being extended by the installation in an adjoining building erected by the Chicago Telephone Company of an additional complete unit of switchboards and wire frames. The latter switchboard will be designated as the Randolph exchange, though it is substantially one with the Central switchboard. The necessary extra expense required for this

complete additional equipment is justified in order to bring the service up to a proper degree of efficiency.

Also, in other exchange offices different designations are used to indicate whether the lines are arranged for connection with one, two, four or ten telephones, the different designations being introduced particularly for the purpose of giving the operators information which is necessary to the most rapid and accurate handling of the talking connections. For instance, in the North exchange office, one-party direct and two-party lines are designated as North exchange, four-party lines are designated as Dearborn exchange, and ten-party lines are designated by the exchange designation Black and White, thus making four separate designations for the lines entering the North office.

Each of the important offices of the company affords such illustrations of processes intended for improving or maintaining the service at a high quality. Our examination and observation of the service given to its subscribers by the Chicago Telephone Company shows that it is of good quality in comparison with the service of other great cities.

Much attention is given by the company to the selection and instruction of applicants for operators' positions, and they are constantly supervised after they are placed on duty. The accompanying Photograph No. 1, which shows a part of the Central exchange office and force on regular duty during the afternoon of a weekday, illustrates the manner in which the supervision of operators is provided for. The young women seated in a row at the left hand are operators in position at the switchboard for making talking connections between the lines of subscribers. Whenever a call comes in from a subscriber, a small signal lamp lights in front of one of the operators. She thereupon places herself in communication with the calling subscriber, learns his wishes, and executes them by making suitable connections to enable him to get into communication with the desired person. The women who are to be seen standing in the photograph, are supervisors, each of whom has the duty of watching the performance of several operators, directing them or assisting them as may be needed. Each supervisor is provided with apparatus so that she can get into communication with any calling subscriber for the purpose of



Photograph No. 1.

quickly adjusting any mistakes or misunderstandings which may arise through errors or haste of either subscriber or operator.

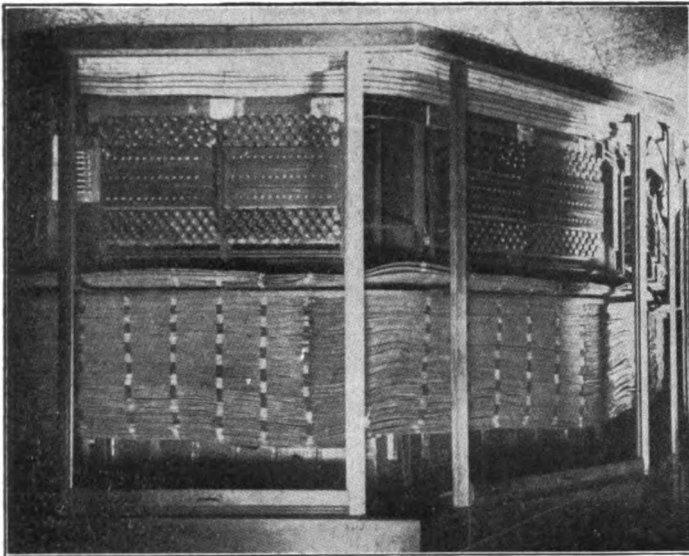
Photograph No. 2 shows a portion of the rear of the same switchboard, and illustrates the complexity of the apparatus and wiring that is necessary for use in telephone service.

When considered from the standpoint of ideally perfect



service, there are various directions in which improvement may be and should be effected in the service of the Chicago Telephone Company. At times the service seems to be unnecessarily slow, and too many operators' mistakes which result in connecting a calling subscriber with the wrong number, disconnections of talking subscribers, etc., are made. Other faults, considered from the standpoint of ideal service, seem to reside in the difficulty of operators in receiving the directions of calling subscribers, and the indistinct manner in which the operators often answer calls. The latter faults may be due either to insufficient training of the operators, or to imperfections in the speech transmitting and receiving apparatus. The other faults of the operators, in our opinion, can be reduced by more effective methods of making and recording the results of inspections of operators' work. Permanent records of the details of each operator's work, as shown by frequent inspections, ought to be given a place of greater importance, and these records ought to be under the constant scrutiny of a vigilant traffic manager which is responsible for the employment of the operating force.

The complaints of the business methods and service of the Chicago Telephone Company which have come to our



Photograph No. 2.

attention from various sources, including the transcript of the proceedings of your committee, lead us to the opinion that too much time is allowed by the Chicago Telephone Company to elapse between the dates subscribers' orders are given for telephones and the dates when the telephones are installed, and, also, too much time is lost or inconvenience caused the subscribers in the work of correcting faults of apparatus and lines. The company apparently does not properly follow up complaints or keep a proper permanent record of these matters. In our opinion it is essential to the maintenance of perfect service that full permanent records shall be kept of all instances of defects arising in apparatus and lines, and the length of time elapsing before each defect is removed, and that such records shall be constantly before a competent superintendent of maintenance and his superior officers. Such records are a part of those which would come under the supervision of the city comptroller in the form of ordinance outlined by Mr. Hoyne.

In case a franchise is granted to the Chicago Telephone Company, or any other company, by the honorable mayor and city council, under terms corresponding to the ordinance outlined by Mr. Maclay Hoyne, in which we herein concur, the most important sources of faulty service that now exist will be removed. At the present time the service of the company is overwhelmed by a tremendous number of unavailing calls, that is, calls from the subscribers

which never become completed messages on account of the called lines being busy, or through some similar contingency. As pointed out in our discussion of measured rates versus flat rates, these unavailing calls can be greatly reduced by the general introduction of measured rates; and the extinction of the ten-party lines with their common nuisance of mutual interference, to which a large portion of ten-party subscribers are subject, will aid in the same direction. The ten-party line traffic is particularly disturbing to the service because it is inevitably slow and subject to error. Under the present method of operation, it has been found that on an average it requires approximately 44 seconds for a subscriber to one of the higher grades of service to get communication with a ten-party line subscriber, and only 26 seconds to get communication with a subscriber in his own grade.

In the foregoing enumeration of the book value of the property of the company, it is pointed out that the value there given relates to the whole property of the company. The proportion of the book value on January 1, 1907, that pertains to property of the company within the limits of the city of Chicago, is estimated by the engineering department of the company to be \$14,240,728.41 for fixed plant, real estate and buildings. The time which has been afforded us has been too short for us to undertake the appraisal of the property and verification of this estimate, as that would occupy additional weeks of time; but our inspections of the plant, as far as we have been able to make them, indicate that the actual value of the plant, real estate and buildings, within the city of Chicago, aggregates fully the figure given. In fact, the figure given seems to us an undervaluation of the plant, which was built largely during the times of low prices, and that an equally effective plant could not be built to-day for that figures, or, indeed, for less than 25 to 35 per cent more.

The company also owns extensive outfits of construction material on hand, tools, teams, furniture and fixtures, which the books of the company at the opening of 1907 valued at \$602,148.30. We have not had an opportunity to verify this figure, but our inspection indicates that probably half of the amount pertains to the business within the city.

The application of the Chicago Telephone Company is complicated by the license contract which the company has with the American Bell Telephone Company, and also the contract with the Western Electric Company whereby the latter company acts as purchasing agent for the Chicago Telephone Company. We have therefore given extended consideration to these two points.

The contract with the American Bell Telephone Company extends back to the early days of the Chicago Telephone Company's existence, and was originally drawn to cover various business relations based on the exclusive license of the Chicago Telephone Company to operate within its territory under the fundamental Bell and other telephone patents. The contract originally included royalty charges at a figure which would be extremely high to-day, but these have been gradually reduced. The earlier patents have been expiring from time to time, and the contract has been correspondingly modified. The American Bell Telephone Company continues to furnish and maintain the telephone transmitters (with accompanying induction coils) and receivers used by the Chicago Telephone Company, and to perform other services besides licensing the latter company to operate under existing patents, and the payment for these services and the license is being made by the Chicago Telephone Company at the rate of 4½ per cent of its gross receipts. The amount paid during the year 1906 aggregated \$351,860.68 for the entire territory of the Chicago Telephone Company, according to the statement of the company's auditor, of which \$282,264.32 was paid on account of the business within the city of Chicago.

The Chicago Telephone Company reports that it had in use and in stock during the year 1906 an average of nearly 195,000 telephone sets in its entire area, and we estimate that over 150,000 of these were on account of the Chicago business. These telephone sets, each comprising a transmitter, receiver and induction coil, are worth approximately three dollars per set, and are furnished and partially maintained free to the Chicago Telephone Company by the American Bell Telephone Company, under its contract. The depreciation on these is large, and it is generally considered that the average life does not exceed a period of between six and ten years, so that the depreciation allowed should be between ten and sixteen per cent. A maintenance figure of three and one-half per cent per year is small for the part of the American Bell Telephone Company. Interest, insurance and taxes will probably cost eight and one-half per cent more. Taking an average rate of twelve per cent for depreciation, making due allowance for the scrap value, and allowing eight and one-half per cent for interest, insurance and taxes (of which two and one-half per cent is allowed for the latter two items), and three and one-half per cent for maintenance, makes a total annual item of cost to the American Bell Telephone Company that amounts to twenty-four per cent of their first value of three dollars per set. As the Chicago Telephone Company, in the Chicago business, has now (January 1, 1907) more than 131,000 telephones in actual use, we assume that our estimate of an average of 150,000 complete telephone sets in use and in stock during 1906, is approximately correct, though we have not had time to verify this figure. At three dollars per set, the total value of these 150,000 sets is \$450,000, and twenty-four per cent of this amount is \$108,000, which is a fair payment to the American Bell Telephone Company for furnishing these instruments. This leaves a balance of approximately \$174,000 in the license account.

The Chicago Telephone Company urges that they get the value of this sum through the engineering work which is done for them by the American Bell Telephone Company and the American Telephone & Telegraph Company, which is an offshoot of the American Bell Telephone Company, and also through the associations with the other great Bell telephone operating companies, and especially the companies at New York, Boston and Philadelphia, from whom they are at liberty to ask for information through their Bell Telephone Company relations. The company's engineers report that they receive working specifications for switch-board installations, line and conduit work, pole line construction, cable construction, building materials, etc., etc., of which several hundred specifications are now on file, and others are being furnished from time to time; and bulletins are supplied, treating of engineering practice and operating methods which summarize the experience and practice of the various large Bell telephone companies. Special studies of the best methods of operating are carried on whenever the occasion arises by the engineers of the American Bell Telephone Company, and that company maintains a well equipped laboratory in Boston, wherein tests and investigations are carried on for the benefit of the local companies. All of which service is rendered without direct expense to the Chicago Telephone Company, and paid for through this so-called royalty account.

It is also urged that a portion of this payment is justified on account of the exclusive license to use, in Chicago, apparatus coming within the patents of the American Bell Telephone Company and its off-shoots. The most important of such patents which are now in force is probably the Pupin patent for improving telephonic transmission by the use of what are called "loading coils," and we believe that this is of material financial value to the Chicago Telephone Company by enabling that company to reduce the cost of the copper wire in its cables and especially in its trunk con-

ductors which lead from each exchange to the other exchanges.

In our opinion the advantages derived from this contract by the Chicago Telephone Company are worth a very considerable sum of money. We are not prepared to make an exact estimate of its value without time for additional investigation.

Under the terms of the contract the company is permitted to carry on hand, without extra charge, an additional number of telephone instruments equal to three per cent of the total number of instruments in service, but all additional telephones carried in stock in excess of the three per cent must be paid for at the rate of 81 cents per set per year. The company's business is growing at the rate of over 20,000 telephones per year, and the three per cent does not permit it to keep on hand enough instruments to carry on the business without paying royalties on telephones from which no revenue is received. This rate of growth and the other exigencies of the business require the company to keep on hand additional instruments equalling in number about ten per cent of the number of instruments in use, and we believe that these should be supplied under the contract without the extra charge.

Consideration of the contract with the Western Electric Company is a delicate question, because we understand that the American Bell Telephone Company owns a controlling interest in both the Chicago Telephone Company and the Western Electric Company. We have therefore scrutinized the contract between the Chicago Telephone Company and the Western Electric Company with much care. This is a contract which makes the Western Electric Company the purchasing agent for the Chicago Telephone Company under certain conditions which seem to us to be reasonable and to the advantage of the Chicago Telephone Company. The Western Electric Company is a large manufacturer of electrical apparatus, and therefore a large user for itself of copper wire and of other materials needed by the Chicago Telephone Company, which makes it a purchaser that is able to gain the best market prices for large purchases.

The Western Electric Company is also the purchasing agent of other Bell telephone operating companies, which farther improves its opportunity for purchasing at low figures. The contract between the Chicago Telephone Company and the Western Electric Company may be terminated by either party upon three months' notice given in writing. The telephone company is privileged to purchase of other parties any materials that can be purchased for less money direct than through the Western Electric Company. The Western Electric Company is under obligation to sell any of its manufactured products to the telephone company for not exceeding the price at which similar products can be bought elsewhere, and at a price not exceeding that at which it sells to any other purchaser. The Western Electric Company receives two per cent commission for handling the general supplies furnished to the telephone company which the Western Electric Company does not manufacture, but this commission is only paid on it on the condition that the total price to the Chicago Telephone Company, with the two per cent commission added, shall not exceed the price the telephone company would pay if it purchased its supplies at the most favorable figures in the open market. The telephone company has the privilege of buying a special list of apparatus and supplies anywhere at its pleasure, and this list of apparatus and supplies may be changed by adding thereto or deducting therefrom at the pleasure of the telephone company.

This contract appears to us favorable to the telephone company, and it is in such form that it gives the telephone company the privilege of purchasing in the lowest market in case the Western Electric Company fails to meet the prices of other vendors.

It is our opinion that the aforesaid two contracts which the Chicago Telephone Company has heretofore made respectively with the American Bell Telephone Company and the Western Electric Company are not harmful, but enable the Chicago Telephone Company to improve its service and purchase its supplies at a less expense than it otherwise could.

In the report of the city auditor on audit of Chicago Telephone Company's books for the year 1905, there are in exhibit "K" certain items which caused some question in the meetings of the committee; these are as follows:

1. "Thirty-five items of expenditures charged to 'Operating and Maintenance,' questioned by the auditors, for which the telephone company refused to furnish any data supporting same, total \$269,884.66."

We understand that these items have since been audited and classified by the city auditor and made the subject of a supplemental report to your committee.

2. "Reserve for 'Insurance,' set up from one year's profits, \$150,000."

This seems to be a reasonable appropriation for starting an insurance fund for the purpose of enabling the company to carry its own insurance on its switchboards and other parts of the plant which fire insurance companies refuse to underwrite at reasonable rates. A smaller amount should be set aside in succeeding years after the fund is properly established. We have covered the object of this reserve as one of the purposes of a depreciation and insurance fund which is described later in this report, and which, if adopted, will take the place of this and other reserves in the affairs of whatever company is granted a franchise.

3. "Exchange Royalty or Rentals paid American Bell Telephone Company for rental of parts of telephones, \$305,000.00"

This item we have treated above.

4. "Reserve for litigation set up from profits of 1905, \$275,000."

The Chicago Telephone Company has been involved in expensive litigation since 1901 regarding the validity of their charge of \$175 per year for metallic circuit telephone service, and since January, 1905, regarding the amount of compensation which should be paid to the city under the terms of their present franchise. The questions involved in both these cases were decided unfavorably to the company in February, 1906, and since that time the company has paid to the city \$260,000 on account of back compensation due. In addition to this payment to the city the company's auditor advises us that during the year 1906 they refunded to subscribers \$85,129.33, the same being the amount due them on account of overcharges collected for metallic circuit service. The amount of this payment we have not verified.

The appropriate amount to have been set aside for this fund during 1905, and charged against the earnings of that year, should have been the amount which the city was entitled to as compensation on business done in annexed territory plus the total amount which the company collected in excess of \$125 from each metallic circuit subscriber, and which it was not entitled to and later had to refund. A determination of this amount is more a question of auditing than a technical one, and, as it is wholly a matter in the past, we have not considered it our duty to make a further examination into it without receiving specific instructions from your committee.

We have carefully scrutinized the proposed franchise of the Chicago Telephone Company as printed in a pamphlet which was prepared for distribution through your committee, and we have conferred with Mr. Maclay Hoyne, special counsel of the committee, in regard to the same.

Section 2 of the proposed franchise as printed does not appear to us to be satisfactory, and should be altered to afford the city comptroller the right to examine all original

papers, vouchers and items of earnings and receipts, in addition to the ultimate records and books of account, and it should require the company to keep one set of records and books of account for its business done in the city of Chicago, and another set for its business done outside thereof. The city comptroller should have access to both of these sets of books, records, vouchers and other original papers. The records and accounts of the company relating to traffic and business done inside the city should be required to be kept in a manner satisfactory to the comptroller. The latter requirement is for the purpose of insuring that the records and accounts shall be kept in a manner to afford data for determining the relative costs of the different classes of service, with the object of bringing about an improved classification of service, and to give the city council suitable information for consideration in connection with their privilege of regulating rates.

This section should also be made specific in showing what is to be comprised within the gross receipts upon which the city's compensation of three per cent is to be paid. We understand that your committee has decided as a matter of policy that the compensation shall be paid not only on the receipts collected for local messages and equipment within the city, but also such money as is paid to the Chicago Telephone Company by the long-distance company (the American Telephone & Telegraph Company) for messages delivered to the said company's lines for long-distance transmission, and all receipts for other toll messages. Mr. Hoyne has modified the section with this in view.

The contract with the American Telephone & Telegraph Company gives the Chicago Telephone Company twelve cents for each outgoing message as a commission for handling both outgoing and incoming messages, no specific payment being made on incoming messages. This seems like a fair remuneration for the service, and is similar in amount to the commissions for such service paid elsewhere in Bell and Independent circles. At the most, it aggregates less than one per cent of the total income derived by the company from its city business.

The last item mentioned above, the toll business from Chicago to points outside of the city limits by the Chicago Telephone Company over its own lines or its own lines in association with those of the Central Union Telephone Company in Illinois and Indiana and the Wisconsin Telephone Company in Wisconsin, amounts to a much larger sum. During December, 1906, there were 112,775 outgoing messages handled in this service solely over lines of the Chicago Telephone Company, bringing a revenue of \$23,370.95 for the month, according to the books of the company; besides which there were 7,495 messages from Chicago to points in the Central Union territory, affording total receipts of \$3,823.20, of which \$2,677.22 belongs in the gross receipts of the Chicago Telephone Company, and there were 2,889 messages from Chicago to points in the Wisconsin Telephone Company's territory, bringing the total sum of \$1,183.80, of which \$1,072.23 belongs in the gross receipts of the Chicago Telephone Company. This gives a gross revenue to the Chicago Telephone Company from the aforesaid toll connections of \$27,119.40 for the month of December, 1906. The statement of the toll business of the Chicago Telephone Company for December, 1906, shows that 49.6 per cent of this sum was earned on account of mileage within the city of Chicago. This is so near 50 per cent that we feel justified in recommending that the ordinary toll service of the company, aside from that going to the long-distance company (American Telephone & Telegraph Company) shall be considered as having an earning capacity of 50 per cent within Chicago and 50 per cent outside of Chicago. It is reasonably fair to assume that as much traffic comes into the city as goes out over the toll lines. Upon these assumptions, it is proper that the three per cent compensation (if applied at all to the

service to exterior points) shall apply to all of the receipts of the Chicago Telephone Company for toll business originating in Chicago, except as described for the long-distance company. This arrangement, it will be noted, makes it unnecessary in the accounting with the city to enter upon any consideration of incoming toll messages, because the receipts of the Chicago Telephone Company for the ordinary outgoing toll messages aggregate substantially an amount which will account for both outgoing and incoming toll messages when prorated according to the proportion earned within the city of Chicago.

We here give a portion of this section of the proposed franchise as recast by Mr. Hoyne to include the features which we recommend:

**SECTION.** —During the term of this grant the Chicago Telephone Company shall, at all times, keep at the principal office of the company, in the City of Chicago, all its records, books, accounts, contracts and vouchers of receipts and expenditures, and a complete and separate set of accounts, books, records and vouchers showing in detail all the investments, expenses, receipts and earnings of its Chicago or local business. The said set of accounts, books, records and vouchers, relating to the Chicago or local business of said Chicago Telephone Company, shall be kept in a form and manner satisfactory to the comptroller of the City of Chicago. The City of Chicago, by its comptroller or any person designated by him in writing, shall have and may exercise the right at any time or times during business hours, to make a complete examination of all said records, books, accounts, contracts and vouchers for the purpose of verifying any of the statements of gross receipts herein provided for, and for any other purpose whatsoever connected with the duties or privileges of the city or company under this ordinance, and may audit the same at or about the end of each year. The said Chicago Telephone Company shall file with the comptroller of the city, within thirty (30) days after the first days of January and July in each and every year, an itemized statement of all its gross receipts from all of the business done by said company within the City of Chicago for the six (6) months next preceding said first days of January and July, which statement shall be sworn to by the president and secretary of said company, and at the time of filing said statement the company shall pay into the city treasury three per cent. (3%) on all such gross receipts. All moneys received by said Chicago Telephone Company for telephone service, communication and messages from the exchanges, offices, stations or telephones of the said company, or of its lessees, subscribers or patrons, located within the City of Chicago, to any exchanges, offices, stations or telephones now or hereafter owned or operated or leased by or to said company outside the City of Chicago (commonly known and designated as "toll" service, communication or messages), together with all moneys received by said Chicago Telephone Company, or which it is entitled to receive, as its share of the gross receipts from other telephone service, communication and messages between the exchanges, offices, stations or telephones of any other company or person outside said City of Chicago (commonly known and designated as "long distance" service, communication or messages), shall, for the purpose of computing the compensation semi-annually due the City of Chicago hereunder, be deemed and treated as a part of the gross receipts from the telephone business done by said Chicago Telephone Company within the City of Chicago, and the business hereinabove described, from which any or all of the said moneys are derived, shall be deemed and treated, for all the purposes of this ordinance, as local business. Provided, that the share of the gross receipts from long distance service, communications and messages of the Chicago Telephone Company, which said Chicago Telephone Company is hereby obligated to include in its computation of compensation due to the City of Chicago, shall be computed for the purposes of this ordinance by allowing to, and charging against, said Chicago Telephone Company at least twelve cents for each and every outgoing long distance message from any exchange, office, station or telephone of said Chicago Telephone Company, or of its lessees, subscribers or patrons located within the City of Chicago. Provided, also, that the first statement of gross receipts filed hereunder shall cover the period from the date this ordinance goes into effect until the first day of the next following July or January, as the case may be.

\* \* \* \* \*

In conference with Mr. Hoyne we have proposed extended changes in the section of the printed proposed franchise which relates to rates. We have made an industrious effort to gather data relating to the cost to the telephone company for the average completed message in each class of service, but have been unable to derive the information from the records which the company keeps, on account of the fact that their traffic records are not kept in sufficient

detail, and their books of account are not kept in such a manner as to separately show the receipts and expenses relating to the several classes of traffic. We have endeavored also to get information bearing upon this question through the Chicago Telephone Company from other Bell Telephone companies, but without success; and we have also endeavored to get information bearing upon the question from certain of the larger Independent telephone operating companies, but likewise without success. None of the telephone companies seem yet to have reached a point in their development where their records are kept with a view toward determining the cost of each class of service and the most economical way of providing for the requirements of each class of service. The telephone art has progressed at such a tremendous pace and the companies have been so busily occupied in developing their business and improving their methods considered as a whole that they have not yet come to carefully study the different classes of service considered in detail. We have recommended that the books of the company to which a franchise is granted shall be kept in a manner satisfactory to the city comptroller, in order that he may require the records to be kept in such form that the council may in the future have information as extended as practicable in regard to the costs of different classes of service upon which to base any future regulation of rates which the council may desire to make.

As we have been unable to gain actual data upon which to found an estimate of the cost of service in each class, our data applying only to the average cost of service and not to the individual classes, we recommend the following schedule of rates as the maximum which may be charged by any telephone company to which a franchise is granted; and we couple this with the recommendation, hereinafter fully explained, that either a suitable limitation be placed on the company's net earnings which will automatically result in the gradual reduction of rates, or else that a contract right to regulate rates be reserved to the city. It is our opinion that the schedule given below will result in an immediate reduction in the average prices paid for telephone service, but still leave the company a reasonable return on the investment when the rates are fully in effect:

**SECTION.** —The company shall at all times maintain its plant, wires, cables, electrical conductors and other equipment at the highest practicable efficiency, and to that end shall promptly adopt and put into use within the City of Chicago all improved apparatus, appliances, equipment and methods of service developed in the progress of the art of telephony which shall have come into common use from time to time if experience has shown them to be practicable and shall furnish the same to its lessees, subscribers and patrons within said City of Chicago without extra charge therefor.

Said Chicago Telephone Company during the term of this ordinance shall not charge its present or future lessees, subscribers or patrons within the City of Chicago rates for telephone service in excess of the following maximum rates and shall furnish all kinds of telephone service it supplies promptly on demand:

(a) *Maximum rates for telephone service furnished for the use of subscribers and their employes in their business.*

For a single party line including three hundred outgoing conversations or messages from said line and all incoming conversations or messages, \$15 for each quarterly period of three months.

For the next six hundred outgoing conversations or messages during the quarter, 3 cents each.

For all additional outgoing conversations or messages during the quarter, 2 cents each.

Every subscriber who will contract to use or pay for eighteen hundred outgoing conversations or messages during the quarter at the above rates per message shall be furnished with a second single party line without extra charge, and every subscriber shall be furnished with an additional single party line without extra charge for each additional fifteen hundred outgoing conversations or messages he will contract to use or pay for during the quarter at the rate of 2 cents each.

Every subscriber shall also be furnished with as many single party lines as he may demand in addition to the first party line he contracts for, without contracting to use or pay for any particular number of outgoing conversations or messages per quarter, at the rate of six dollars per quarter for each line.

Every subscriber who is furnished with single party lines in addition to his first line under the above mentioned quarterly guar-



antees or at the above mentioned rate may use each or any, or all of his lines wholly for incoming messages or wholly for outgoing messages or for both, as he may elect.

A single party line including the right to transmit outgoing conversations or messages without limit and without any charge per conversation or message, shall be furnished at the rate of one dollar per day. Every subscriber to such a line as that just mentioned shall be furnished with an additional single party line, during any quarter without extra charge for each 1,500 outgoing conversations or messages he will contract to use or pay for during the quarter, at the rate of 2 cents for each message.

Subscribers or lessees contracting for two or more single party lines when said lines are contracted for at the same premises shall be furnished, if they desire, without additional charge, private branch exchange switching apparatus, appliances and equipment including an operator's telephone, but a charge of \$1.50 per quarter may be made for each terminal telephone connected with the private branch exchange switching apparatus upon the same premises.

In computing the amount due to the company from any subscriber for the total number of outgoing conversations or messages transmitted during any quarter at message rates, by means of more than one single party line, the same rates per message shall be charged in such computation as would be charged if said total number of outgoing messages had been transmitted over one single party line. The Chicago Telephone Company shall make no charge to any subscriber for any incoming conversation or message transmitted over any line furnished at any of the rates herein mentioned. All such conversations or messages shall be regarded and treated as prepaid.

(b) *Maximum rates for telephone service furnished for the use of subscribers at their private residences.*

For a single line including all incoming and outgoing conversations or messages, \$18 per quarter.

For a two party line including also all conversations or messages, \$15 per quarter.

For a three party line including also all conversations or messages, \$12.75 per quarter.

(c) *Nickel prepayment service shall be furnished by said Chicago Telephone Company upon demand, by means of telephone instruments equipped with a coin box and slot or similar device for receiving 5 cent pieces, without charge for incoming conversations or messages, and upon guarantees not in excess of the following rates:*

Nickel Prepayment Service, with outgoing message at 5 cents, each, as follows:

One-party line at a guarantee of 20 cents per day, including four messages.

Two-party line at a guarantee of 15 cents per day, including three messages.

Two-party line (for private residences only) at a guarantee of 10 cents per day, including two messages.

Four-party line (for private residences only) at a guarantee of 5 cents per day, including one message.

When any lessee or subscriber in making settlement with said Chicago Telephone Company at the time of collection under the guarantees above mentioned shall pay any amount to make up a deficiency between the amount in the coin box or similar device used and the sum guaranteed, he shall be given at the time of making such deficiency payment a receipt or some written or printed evidence showing the amount and date of such deficiency payment. Any payments made subsequently for service in excess of the amount guaranteed up to the time of any succeeding collection (made not less than fifty days after said payment of a deficiency) shall be repaid to said subscriber or lessee wholly or in part, as may be necessary to equal the amount paid by him to make up such deficiency.

The said Chicago Telephone Company is hereby expressly forbidden to furnish telephone service to more than four subscribers, lessees or patrons by means of a single circuit or line.

Said Chicago Telephone Company shall be obliged to furnish four-party line service only when at least two subscribers located within the limits of a single block desire such service.

(d) *Public telephone service.*

The charge for a single conversation or message from any telephone located within the City of Chicago to any other telephone within the city shall not exceed 5 cents. Any charge in excess thereof shall be unlawful. Said Chicago Telephone Company is hereby expressly forbidden to authorize or permit any of its lessees, subscribers or patrons to whom it has furnished or hereafter furnishes a telephone instrument or instruments, line or lines, to charge any person more than the rate above prescribed without regard to how or where such telephone instrument or instruments, line or lines, may be installed.

If said Chicago Telephone Company shall become aware that any of its subscribers or lessees within the City of Chicago is charging more than 5 cents for a single conversation or message, it shall notify the guilty subscriber or lessee that upon the repetition of the offense he will be denied telephone facilities and service, and upon evidence being submitted to said Chicago Telephone Company

that the subscriber or lessee so notified has subsequently made or permitted to be made an excessive charge for a single conversation or message, the company shall remove its telephone lines and instruments from the premises of said subscriber, and deny him telephone facilities or service for not more than one year nor less than three months, as it may elect. Said Chicago Telephone Company is also forbidden to authorize or permit any of its subscribers or lessees to make any charge for any telephone communication, facilities or service in excess of or in addition to the rates prescribed in this ordinance and shall take steps to prevent excessive charges of any kind by giving notice substantially as indicated above, and by the enforcement of the penalty mentioned.

(e) *Neighborhood exchange service.*

In addition to the Chicago exchange system, extending throughout the city limits, local or neighborhood exchanges within those limits may be maintained or established by the company; but any subscriber therein may communicate with any telephone anywhere within the city limits outside of the local or neighborhood exchange by a message, for which a charge of not more than 5 cents may be made.

The rates for such local or neighborhood exchange service, under yearly contracts, shall not exceed the following:

	BUSINESS.	RESIDENCE.
One-party line.....	\$4.00 per month	\$3.00 per month
Two-party line.....	3.00 per month	2.00 per month
Four-party line.....	2.00 per month	1.50 per month

But said Chicago Telephone Company shall not make, impose or collect any extra charge, rate, price or toll for any communication from any telephone within the City of Chicago, not served by one of said neighborhood or local exchanges, to any other telephone located within the City of Chicago; and said Chicago Telephone Company shall not make, impose or collect any extra charge, rate, price or toll for any communication from any telephone served by one of said neighborhood exchanges to any other telephone whatsoever located within the area or district lying within the boundaries or limits of said neighborhood exchange and served by any of the exchanges of said Chicago Telephone Company located within the City of Chicago.

(f) *Toll service.*

Said Chicago Telephone Company shall not charge more than ten cents for each conversation or message transmitted from any telephone located within the City of Chicago to any other telephone which is located outside the City of Chicago, but within fifteen (15) miles of the present City Hall in said City of Chicago, or within one mile of the city limits and within the State of Illinois.

The Chicago Telephone Company may reasonably limit the length of each toll conversation or message transmitted from the City of Chicago to any point outside the city to not less than two minutes with the right to charge not more than five cents for each additional minute which the transmission of such toll conversation or message occupies.

(g) *Unlimited telephone service—Meters.*

The Chicago Telephone Company shall upon demand furnish unlimited telephone service for business use by means of single party lines to any person, firm or corporation at any point within the City of Chicago at an annual charge of not exceeding \$125 for each line required instead of furnishing service at message rates within the maximum schedule of rates hereinabove prescribed unless and until it is able and ready to install in connection with his, their or its telephone line or lines a meter, register or similar device which can count or record each message or conversation transmitted therefrom only once and can make no count or record unless a connection for a conversation or message has been actually made.

The Chicago Telephone Company shall not make any charge to its telephone lessees, subscribers, patrons or users unless a conversation or message has been actually transmitted, except in any cases herein expressly provided.

(h) *Extension telephones.*

Said Chicago Telephone Company shall furnish to any of its lessees or subscribers upon demand at least two extension telephones for each line used by the lessee or subscriber and located in the same premises with the principal telephone of the lessee or subscriber at not exceeding fifty cents (50c) per month for each extension telephone, provided that the company shall not be compelled to furnish extension telephones to lessees or subscribers served by three or four-party lines.

(i) *Telephone directory.*

The Chicago Telephone Company shall at least three times during each year print and publish and furnish to each of its lessees and subscribers free of charge a directory containing in alphabetical order the names, with addresses and telephone numbers of all its lessees and subscribers. Said Chicago Telephone Company shall include and list in each of the said directories at the request or with the consent of any of its lessees or subscribers in connection with the address and telephone number of such lessee or subscriber in their proper alphabetical order free of charge the names of not more than three partners, officers, employes or members of the family of such lessee or subscriber for each single or two-party line

contracted for by such lessee or subscriber, and make one such free listing for each three-party and four-party line, and also one more of such names for each extension telephone used by the said lessee or subscriber, and in addition thereto as many more of said names as said lessee or subscriber may request or consent to upon payment to the Chicago Telephone Company of not more than \$3 per annum for each additional name so included and listed.

(j) *Rates defined—Equipment charges.*

All rates, prices or charges for telephone service, facilities or equipment herein prescribed are maximum rates only, and nothing herein shall be construed as an admission by the City of Chicago that such maximum rates are reasonable or proper rates.

Said Chicago Telephone Company is hereby expressly forbidden to make any charges for any telephone apparatus, appliance, device or equipment not specifically mentioned herein, and for which some maximum rate is not prescribed herein.

It is our opinion that the monthly charge to be made for extension telephones on flat rate lines should be higher than for that made for extension telephones on measured rate lines, because with the flat rate lines no charge is made for the individual messages, and an additional monthly charge for extension telephones may be considered as corresponding to the charge per message for those messages originating in extension telephones attached to measured rate lines.

Mr. Hoyne feels that some difficulty exists in respect to making such a difference in the monthly charge by ordinance and we therefore concur in the above section as drawn.

We recommend that the company shall be required to keep its plant at the highest practicable efficiency and promptly adopt improvements arising in the course of the development of the art of telephony which come into common use, and that the company shall furnish to the subscribers in any portion of the city of Chicago telephone facilities under yearly contracts and shall do this without discrimination as between classes of service. We also recommend that the company be required to abolish its ten-party line service, and in no instance place more than four parties on a line where rental is paid for telephones.

We consider the schedule of rates recommended by us a tentative schedule which is subject to regulation automatically by the limitation of net earnings or by the action of the city council from time to time after two years when information in regard to its operation may be laid before the council. We have made the schedule upon the basis that five cents shall be the maximum charge per message and that the price per message shall be steadily decreased after a reasonable use of any particular telephone has been reached. We have added to the Chicago Telephone Company's list of classes an additional class which comprises three-party residence flat rate telephones at \$51 per annum.

A message is defined to mean a communication or conversation between two subscribers' telephone stations anywhere within the Chicago city limits, and it is provided that messages shall be without toll charge when extending between any telephones paying Chicago rates (whether message rates or flat rates) and also for messages from all telephones paying Chicago rates to all telephones in neighborhood exchanges. In case of any neighborhood exchange telephone the privilege of a flat rate conversation only holds in the individual neighborhood, and a toll of not exceeding five cents each may be charged for conversations from any neighborhood telephone to Chicago rate telephones or neighborhood telephones located in another neighborhood.

We recommend that the present charge of 10 cents for local messages from hotels, depots, restaurants and other public telephones be reduced to 5 cents for each message.

We recommend that the price of toll service to suburban points in Illinois within a radius of fifteen miles from the present City Hall or within one mile from the city limits shall not exceed ten cents for two minutes' conversation and five cents for each additional minute or fraction thereof.

In respect to the message rates, we recommend that it be required that the company shall use meters wherever the

messages are counted and that these meters shall be arranged so that only a single registry can occur for a single message. In this way subscribers are protected against double registry from any message. The meters should also be arranged so that the registry can be made only after the plug has been inserted in the subscriber's switch on the switchboard or other suitable connection has been made for conversation.

It is also recommended that the guarantee sums required from subscribers using telephones provided with nickel boxes shall be settled for approximately quarterly, or the equivalent thereof. The company may collect the guarantee from month to month but in this event it shall count the messages and settle by refund, if necessary, at the ends of periods not exceeding approximately three months' duration. It is proposed to meet this requirement by having the Chicago Telephone Company issue to this class of subscribers credit slips at the time when collections are made, in case the amount paid for messages at the tariff price is not enough to meet the required guarantee. These credit slips shall indicate the amount paid by the subscribers to make up the guarantee over and above the price paid for the messages used, and shall be good to apply as payment on a corresponding number of messages, in excess of those paid for by the guarantee accruing during the next succeeding period of not less than fifty days.

Table No. 5 shows a comparison of various flat and measured rate charges made by the Bell telephone companies operating in New York, Philadelphia, St. Louis, Boston and Baltimore, as taken from the schedules of rates prepared for your committee by Chairman Linn H. Young, November, 1906, and the maximum charges allowed in the foregoing schedule for the same classes of service. We have included in the latter the flat rate for three-party lines at fifty-one dollars per year, which we recommend.

If in Chicago the direct-line sixty-dollar measured rate telephone is subscribed for by a person who requires less than twelve hundred outgoing messages per year, the cost to him per message will exceed five cents, but it is not contemplated that this class of service will be subscribed for by persons whose requirements are below twelve hundred outgoing messages per year, as they will probably take some form of nickel prepayment service, in which they can obtain their service at a rate not exceeding five cents per message.

Chart No. 17 shows comparative rates per message for direct-line measured service business telephones, according to quantity used per year, platted from the above table.

Applying the above proposed rates to the present telephones of the Chicago Telephone Company in the city of Chicago, we estimate that it will require the expenditure of approximately \$1,500,000, which is chargeable to construction account, to prepare the present plant for the purpose of properly furnishing the service under the conditions set up by the foregoing proposed schedule of rates. This sum includes allowances for the purchase and installation of meters, the changing of switchboards and subscribers' instruments and the addition of circuits demanded by changing the ten-party lines to four-party lines, additional underground conduits and cables to fulfill the requirements of the proposed underground limits, and additional trunk conductors to carry the extra traffic which may be reasonably expected to arise from the reduction of the toll rates from neighborhood exchanges.

This brings the book value of plant investment account within the city (excluding cash for working capital) to approximately \$16,130,000. We estimate that the present telephones (132,000) will earn \$6,336,000 per year, and that the gross expense, including compensation to the city, but excluding an appropriation to a depreciation and insurance fund, will be \$4,092,000 per year. This leaves a difference of \$2,244,000 which may be applied to the payment of divi-

dends and the depreciation and insurance fund. This amount is sufficient to permit the company to pay a dividend of 7 per cent on its investment including a fair allowance for working capital, and to set aside \$1,097,400 to the fund for depreciation and insurance, and is less than the

lines. Investigation shows that during the past two years the flat rate lines, including the flat rate trunk lines to private branch exchanges, originate approximately 60 per cent of the total traffic in the Chicago exchange district; whereas the total amount paid for the use of these lines is

	CHICAGO		NEW YORK		PHILADELPHIA		ST. LOUIS		BOSTON		BALTIMORE	
	Rate per Year Dollars	Rate per Message Cents	Rate per Year Dollars	Rate per Message Cents	Rate per Year Dollars	Rate per Message Cents	Rate per Year Dollars	Rate per Message Cents	Rate per Year Dollars	Rate per Message Cents	Rate per Year Dollars	Rate per Message Cents
Business flat rate.....	a365		None		b 160		125		162		b 125	
Direct Line, Measured—												
600 messages.....			48	8.00	69	8.62	60	7.50	60	10.00	48	8.00
800 messages.....			57	7.12	78	7.80	66	6.60	70	8.75	57	7.12
1,000 messages.....			66	6.60	88	7.33	72	6.00	78	7.80	66	6.60
1,200 messages.....	60	5.00	75	6.25	98	7.00	78	5.57	84	7.00	75	6.25
1,400 messages.....	66	4.71	85	6.07	105	6.56	84	5.25	90	6.43	84	6.00
1,600 messages.....	72	4.50	92	5.75	114	6.33	90	5.00	96	6.00	90	5.62
1,800 messages.....	78	4.33	99	5.50	124	6.20	96	4.80	102	5.66	96	5.33
2,000 messages.....	84	4.20	109	5.45	150	5.00	126	4.20	108	5.40	102	5.10
3,000 messages.....	114	3.80	147	4.90	200	5.00	156	3.90	138	4.60	132	4.40
4,000 messages.....	140	3.50	178	4.45	246	4.92	186	3.72	168	4.20	162	4.05
5,000 messages.....	160	3.20	209	4.18	286	4.77	216	3.60	198	3.96	192	3.84
6,000 messages.....	180	3.00	240	4.00					228	3.80	222	3.70
Residence—												
Flat rate, Direct Line.....	72		None		Zone rate only.		60		116		48	
Flat Rate, 2-party Line.....	60		None		Zone rate only.		42		90		36	
Flat Rate, 3-Party Line.....	51		None		None		None		None		None	
Flat Rate, 4-Party Line.....	None		None		Zone rate only.		36		None		None	
Measured Service—												
Single Line, minimum charge.....	60	5.00	48	8.00	60	7.50	48	4.80	60	10.00	48	8.00
Additional messages, each.....		3.00		5.00		5.00		3.00		5.00		5.00
2-Party Line, minimum charge.....	36.50	5.00	42	7.00	33	8.25	36	4.50	45	9.00	30	8.33
Additional messages, each.....		5.00		5.00		5.00		3.00		5.00		5.00
4-Party Line, minimum charge.....	18.25	5.00	36	6.00	None		None		None		36	6.00
Additional messages, each.....		5.00		5.00								5.00

a—For private branch exchange trunk lines.  
b—No longer quoted.

TABLE NO. 5.

return, which in our opinion is reasonable, as heretofore pointed out in this report.

We estimate that these figures are fairly applicable to conditions that would exist during the next two years, while the necessary changes are being made, in case the

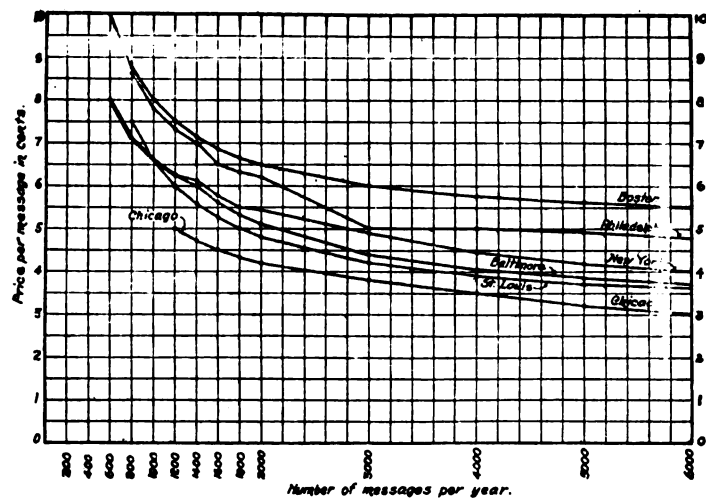


Chart No. 17.—Showing comparative rates per message for direct line measured service business telephones, according to quantity used per year, charged by Bell telephone companies in New York, Philadelphia, St. Louis, Boston, Baltimore and rate proposed by Chi-

Chicago Telephone Company should receive a franchise; but after that time, as the plant increases, the average cost of producing the service will decrease per telephone with good management, and the charges for service should also ultimately decrease.

We estimate that the proposed new rates are low enough to at once reduce the gross receipts per telephone in comparison with the gross receipts obtained per telephone by the Chicago Telephone Company under its existing rates. The rates are also planned with a particular view to bringing about the best practicable service to all users.

At the present time the service in Chicago is impaired, as we have earlier pointed out, by the over use of the flat rate

only approximately 42 per cent of the amount collected by the Chicago Telephone Company for exchange service in the same district. This indicates that the flat rate subscribers, as a class, are getting relatively more for their money than the measured rate subscribers, even taking into consideration the fact that the large user should, on account of his large use, receive his service at a smaller unit cost than the small user. The above being true for the average flat rate subscriber, we must conclude that the flat rate subscriber, whose use for the telephone is above the average of his class, is receiving relatively much more service than the amount he pays entitles him to.

These estimates of receipts and net earnings on the new rates are made without consideration of the effect of competition; but if extensive telephone competition is established, especially with the competing prices consisting of comparatively low flat rates, the earnings indicated by our estimates would be reduced in a degree which it is impossible to estimate with reasonable accuracy.

The question of regulation of rates has caused us a great deal of difficulty. We have discussed four means which substantially amount to regulation, by the city, of the rates for telephone service.

1. The first involves the reservation by contract of a simple right of regulation at certain intervals by the city council, naming the intervals preferably as two years after the acceptance of the franchise and at the end of five year periods thereafter. This is simple and ought to prove effective, if the law department approves the plan as coming within the powers of the city, and the comptroller appropriately requires the company to make its accounting so as to lay the necessary information in regard to the cost of service before the council, but it leaves the door open for litigation regarding the reasonableness of any changes of rates which may in the future be required by ordinance.

2. The second method involves limiting the returns on the investment of the company to some suitable figure over and above which all additional net earnings shall be paid to the city. This involves fixing by franchise the return on the investment which may be taken by the company. For

a twenty year franchise such as your committee proposes, without a guarantee of purchase by the city or other corporation or a guarantee of an extension to the franchise at the end of the period, the returns paid annually on the investment must be large enough to include (1) ordinary interest on money, and (2) an appropriate amount to meet the risk of business and serve in a sense as a sinking fund for the investors. Under the circumstances, it is our opinion that ten per cent is a reasonably low figure. Limiting the annual return on investment to this figure would in a sense provide automatic regulation of rates, since the operating company would be likely to lower its rates from year to year and thus satisfy its customers, in case it made net earnings larger than ten per cent, in preference to paying sums of money into the city treasury, unless the city council interfered. This process seems to us less likely to result in future litigation over rates than the first-named plan and therefore more desirable, provided Mr. Hoyne finds it practicable to draw a suitable form of ordinance grant. In our opinion, it would also place upon the company a greater incentive to maintain the best possible service at reasonable rates.

The adoption of this process makes it necessary to verify the amount of investment now in the plant within the city of Chicago, as the books do not separate the investment which has been made within the city of Chicago from that which has been made by the company outside of the city of Chicago; and it is also necessary to make provisions for setting aside a depreciation account to meet the requirements for the renewal of apparatus and plant. We have below set forth careful estimates of depreciation for your information, so that you may see the way in which we have arrived at the percentage. In our opinion, a reasonable percentage to set aside for a depreciation and insurance fund, to apply at the present era, is 8 per cent of the value of the whole tangible property of the company, excluding land, stock of materials and cash on hand, but it is our further opinion that it is desirable to provide for a readjustment of this percentage at certain periods in the future, because the proportions of short-lived and long-lived plant may change with the advance of the art during the next few years. We believe that the depreciation rate is likely to decrease, but it is impossible to foresee what the future rate should be.

The fund to be set aside must include provision for replacing plant which has come to the end of its useful life on account of age or on account of advances of the art; it must also include provision for reconstruction of portions of the plant not yet ready for "scrapping" but which must be reconstructed on account of changes required by city improvements ordered by the city council (these reconstruction expenditures are now included in maintenance by the Chicago Telephone Company); and it must include provision for fire insurance on those portions of the plant which the fire insurance companies will not underwrite at reasonable terms. An amount proportional to the value of the plant should be put into the fund each year, and the amount must be computed from experience of the average life of the different parts of the plant making due allowance for the "scrap" value of discarded apparatus or material, judgment of the rate at which street, bridge and park improvements are likely to be made which will interfere with the company's plant, and experience of the fire hazard. Disbursements from this fund should be allowed to occur only for the specific purposes to which the fund is allotted.

We have carefully studied this problem and have discussed it with the engineers of the Manufacturers' Telephone Company and the Chicago Telephone Company. The former (Mr. Johnston) submitted a brief table of depreciation with his revised estimate but did not include reconstruction or insurance. The figure as given by him

averages just under six per cent on the value of the plant per annum, without consideration of salvage or accretions to the fund by interest. When the latter are taken into account (interest at three per cent per year), the average figure is reduced to 4.11 per cent. Mr. Johnston makes allowance for reconstruction in his expense estimate by setting up a special reserve of \$390,000 per year.

The engineers of the Chicago Telephone Company at our suggestion went into an extended study of the depreciation of their plant, and have arrived at a figure of 6.8 per cent each year for depreciation and 4.1 per cent each year for reconstruction made necessary by city improvements, due account being taken by them of accretions to the fund by compound interest at three per cent per year. This makes a total annual contribution to the fund of 10.9 per cent of the cost of plant.

It is our opinion that the engineers of the Chicago Telephone Company have not given sufficient consideration to the improvement in conditions that now pertain to the telephone situation compared with the past, and that their percentages are too high; and as Mr. Johnston has confessedly not made allowance for the various contingencies that arise in the telephone art his depreciation percentage is too low. It is our opinion that 5.75 per cent for depreciation and 2.25 per cent for reconstruction and such insurance as comes within the scope of this fund are reasonable figures. This makes the total sum to be properly set aside each year for the depreciation and insurance fund as defined in an alternative franchise section printed below, equal to 8 per cent of the value of the tangible property, excluding land, stock of materials and cash on hand. This percentage is named with due consideration of accretions to the fund by interest. The manner of maintaining the fund and the purposes of its expenditure are defined in the alternative franchise section printed below.

3. A third method of automatic rate regulation, corresponding somewhat to the preceding, consists in fixing a certain figure for the return on the investment, with the proviso that all net earnings beyond that amount shall be divided between the city and the company. The conditions in the telephone business, however, are so complex in respect to the different classes of customers that we do not recommend this for adoption in the telephone situation.

4. A fourth method involves limiting the return on the investment with the requirement that all excess net earnings shall be refunded or rebated pro rata to the subscribers at the end of the year. This is a form of profit sharing which is also too complex, in consideration of the conditions in the telephone business, to make it desirable, and we do not recommend it.

In consultation with Mr. Hoyne, your special counsel, we have arranged for drafting appropriate ordinance clauses which will cover respectively the first and second of these methods, and we here present them to you for your consideration. Mr. Hoyne will advise you in regard to their relative merits from the legal standpoint. We believe that either will give satisfaction to the city if adopted; and that either will bring about a gradual decrease in rates after two years from the acceptance of the new ordinance, in case it is granted to the Chicago Telephone Company so that experience may be gained in the application of the rates in the meantime.

The following is an ordinance section drawn by Mr. Hoyne to meet the requirements of the first method:

SECTION —. The City Council, as one of the conditions of the grant of the privileges herein conferred upon the Chicago Telephone Company, hereby reserves to itself the right to hereafter alter, change or reduce, from time to time by special ordinance amendatory hereof, the maximum rates for telephone service, facilities and equipment hereinbefore prescribed, and any rates or charges for such service, facilities or equipment which are now, or under this ordinance hereafter may be, prescribed, imposed or collected by said grantee, as the City Council may deem expedient and reasonable, and to pass, by special amendatory ordinance from time to



time, all reasonable rules and regulations relative to the rates or charges for telephone service, facilities or equipment of said grantee.

The Chicago Telephone Company, by the filing of the acceptance of the terms and conditions of this ordinance hereinafter provided for, shall be understood as expressly consenting and agreeing to promptly accept, adopt, put into effect and operate its telephone system then in the City of Chicago, under any reasonable schedule or schedules of rates or charges for telephone service, instruments, facilities or equipment, or for all or any of them, or any reasonable schedule or schedules of limitations upon such rates or charges or any reasonable rules and regulations relating thereto which the City of Chicago may by such special ordinance prescribe from time to time after the expiration of two years from the time this ordinance goes into force and effect. Provided, that any schedule or schedules of rates or charges or of limitations thereupon which are prescribed as aforesaid shall not be fixed by the City of Chicago for a period of more than or of less than five years, unless at the time of the passage of the ordinance prescribing any such schedule or schedules the unexpired term of this grant is less than five years. Provided, also, that any ordinance passed under the foregoing provisions of this section shall not operate or be construed as changing any of the rights or duties of the City of Chicago or the Chicago Telephone Company under this ordinance except those covered by the parts of Section — hereof relating to the rates or charges of said Chicago Telephone Company for telephones, telephone service and equipment and those rights or duties shall be changed only so far as they are inconsistent with the terms of any special ordinance so passed.

Nothing in this ordinance contained shall be construed or taken as preventing the City of Chicago, whenever it shall be empowered by the General Assembly so to do, from passing, from time to time, any general ordinances regulating the rates, rentals or charges of telephone companies for telephone service, instruments, facilities, equipment or licensing, regulating or taxing telephone companies; it being the intention of this ordinance that the City of Chicago shall in no way surrender any right it may now have or may hereafter acquire to tax, license or regulate telephone companies, or to regulate the price, rates, rentals, charges or compensation to be charged for telephones, telephone service, facilities or equipment. Provided, also, that nothing in this ordinance contained shall be construed as preventing the City of Chicago from granting an ordinance to any other telephone company. The Chicago Telephone Company hereby agrees to comply with the terms of any reasonable ordinance or ordinances passed as aforesaid. The Chicago Telephone Company by the acceptance of this ordinance shall be understood as agreeing to comply with the terms and conditions of any reasonable general ordinance or ordinances passed as aforesaid.

The following is an outline of an ordinance section to meet the requirements of the second method:

Section — It is further understood and agreed that the company shall pay to the city each year all net earnings over and above ten per cent on the average investment for that year. In determining the net earnings for the year, there shall first be paid out of the gross receipts of the company the sums necessary to pay the city its compensation of three per cent upon the gross receipts and to pay for taxes, and such sums as are necessary to cover all reasonable expenses of operation, including general expenses, maintenance and repairs; and the company may, in addition thereto, set aside a reserve fund amounting to not more than eight per cent. of the average investment for the year, excepting land, stock of materials, and cash on hand, as a depreciation and insurance fund. The balance remaining of the gross receipts shall be accounted net earnings.

For the purpose of determining the average investment, as set forth above, the investment at or near the date of the acceptance of the terms of this ordinance by the company shall be ascertained by appraisal of the tangible property of the company within the city of Chicago, consisting of operating plant, real estate and buildings, \*stock of materials on hand, teams, tools and other tangible property and working capital which shall not exceed at any time during the term of this ordinance ten per cent. of the tangible property exclusive of said working capital, this appraisal to be made in the manner hereinafter set forth. The average investment for the remainder of the then calendar year shall be computed by adding to the said appraised value of the tangible property of the company one-half the sum of additional money spent for additions to the company's tangible property within the said remainder of the calendar year, but no money taken from the depreciation and insurance fund hereinbefore provided for shall be included in the said sum so spent for such additions for the purposes of said computations.

The value of the plant at the opening of the ensuing calendar year shall be taken to be equal to the said appraised valuation, plus the whole of the said additional money so spent for additions to the company's tangible property. The average value of the

\*There should be some reasonable limitation upon the amount which may be invested in stock of materials as in the case of working capital.

investment for the said ensuing calendar year shall be obtained by taking this value found for the tangible property at the opening of the year and adding thereto one-half of the sum of additional money so spent for additions to the company's tangible property during this calendar year; and throughout the period of this grant the value of the plant at the opening of each calendar year and the average investment during such year shall be computed in the manner described.

The aforesaid depreciation and insurance fund shall be held in a bank or banks designated by the city as a depository or depositories, drawing suitable interest not less than three per cent. per annum, and shall be used only for renewals of plant and in other respects to meet the requirements of the depreciation and insurance account, except that the company may borrow temporarily from the fund as described hereinafter.

The appraisal of the company's tangible property to be made in pursuance of this section shall be carried out by a Board of Appraisal, composed of three competent engineers, to be appointed, one by the city, one by the company, and the said two appointees to appoint the third, and if the city or the company does not make such appointment within thirty days after the filing of the acceptance of this grant by the company, the Board of Appraisal shall thereupon, upon the request of either party, be filled by the then judges of the First District Appellate Court of the State of Illinois, or a majority of them, and the said board so appointed shall have the same powers and rights as though appointed by mutual consent of the city and company.

It is further agreed that the foregoing percentage allotted for a depreciation and insurance fund may be reviewed, after a period of five years, by a suitable commission of three engineers, appointed by the mutual agreement of the city and company, and in case a commission so appointed shall find that a different percentage under the then existing conditions should be set aside for depreciation and insurance, their finding shall be binding thereafter, except that a new review of the said percentage for depreciation may be made in like manner at the end of each five years.

Money from the said depreciation and insurance fund shall be used only for the purpose of renewing portions of the plant which require renewing on account of having reached the limit of their useful life, or of renewing property damaged by the act of God, and for the net cost of reconstruction made necessary by city improvements ordered by the City Council. These expenditures shall be made with the concurrence and approval of the City Comptroller, and any unexpended balance remaining in the fund at the expiration of this grant shall be paid to the city.

The company shall have the privilege of borrowing from this fund for the actual net costs of making additions to its plant, but all such borrowed sums shall be returned to the fund by the company, with interest at the rate of five per cent. per annum, as often as may be required by the City Comptroller.

Computations of the percentage to be set aside for the fund to cover depreciation, reconstruction and insurance, which we have designated the Depreciation and Insurance Fund, are indicated in Tables Nos. 6, 7 and 8, which respectively show the figures of the engineer of the Manufacturers' Telephone Company, the engineers of the Chicago Telephone Company, and the figures of the commission.

The figures that Mr. Johnston presented to the commission on behalf of the Manufacturers' Telephone Company are computed for a plant corresponding with his revised construction estimate. He only makes an allowance for depreciation in the table, but in his revised expense estimate makes an additional annual allowance of \$390,000 as a "reserve for repairs" (see our Table No. 2), which can be used for defraying the cost of reconstruction required by city improvements, etc.

Mr. Johnston does not take into account any accretions to the depreciation account by interest and he does not take account of salvage. We have therefore added the last three columns to Table No. 6 which take these two elements into account, assuming interest at the rate of 3 per cent. As Mr. Johnston's figures are given by him, the annual depreciation allowance is just under 6 per cent of the original cost. This is shown by column 5 of the table, the first five columns of this table being given by Mr. Johnston. But when compound interest at 3 per cent and salvage are taken into account, the annual contribution for depreciation becomes only 4.11 per cent, according to the lengths of life for the plant which Mr. Johnston assumes. On the latter basis, the depreciation added to Mr. Johnston's annual allowance to "reserve for repairs," brings his

total annual charge for this fund to 7.2 per cent of the first cost of the property upon which depreciation is figured.

1	2	3	4	5	6	7	8
PROPERTY.	Original Cost.	Life in Years.	% Depreciation. (No interest.)	Amount Depreciation.	Per Cent to Depreciation Account Allowing 3% Interest.	Per Cent Salvage.	Annual Contribution to Depreciation Fund
Conduits	\$3,425,000	50	2	\$ 68,500	3.72	0	\$ 30,500
Cables	3,274,000	20	2	163,700	3.72	40	73,100
Poles	1,300,000	20	2	65,000	3.72	0	45,400
Wires (Iron)	615,000	6 1/2	15	92,250	13.76	0	84,600
Instruments	1,450,000	10	10	145,000	6.73	0	120,300
Switchboards	1,580,000	12 1/2	8	126,400	6.71	20	54,800
Buildings	907,000	20	5	45,350	3.72	0	33,700
Tools, furniture, etc.	100,000	2	50	50,000	49.26	10	44,300
<b>Total</b>	<b>\$12,651,000</b>			<b>\$756,200</b>			<b>\$519,700</b>
Per cent of original cost				5.98			4.11

TABLE NO. 6.

Depreciation estimate of engineer of Manufacturers' Telephone Co.

NOTE.—Columns 6, 7 and 8 added by Telephone Commission.

NOTE.—Engineer of Manufacturers' Company also provides a reconstruction fund through an annual charge of \$390,000 for an emergency reserve, in addition to the depreciation fund.

Table No. 7 exhibits the figures presented to us by the engineers of the Chicago Telephone Company. The second column of this table gives estimated values of the different parts of the plant, based on the original cost of the company's property in use in Chicago at the end of 1905, omitting land. The aggregate percentage computed from this table, in our opinion, is too high, as we have already pointed out. It is also to be said that the proportions allowed in the reconstruction items in this table are not confined, as they should be, to special insurance and the estimated annual expense of the reconstruction caused by city improvements ordered by the city council.

1	2	3	4	5	6
PROPERTY.	Original Cost.	Life in Years.	Per Cent Salvage.	Per Cent to Reconstruction.	Total Annual Contribution to Fund.
Underground conduit, main, including all types of construction	\$ 1,501,629.11	33	0	1	\$ 42,045.61
Underground conduit, subsidiary	448,538.57	14	0	2	35,210.27
Underground cable, main	1,981,784.12	10 1/2	42	2	94,528.71
Underground cable, subsidiary	495,433.53	12	42	2	30,122.35
Aerial cable	743,052.09	11	34	3	60,558.74
Poles, including cross-arms	1,299,407.67	8 1/2	0	6	214,922.02
Aerial strand	18,669.65	12 1/2	0	4	2,001.39
Aerial terminals	93,348.25	12 1/2	0	8	13,740.86
Aerial wire, copper	929,748.59	15	70	5	61,363.41
Aerial drop wires	649,703.84	7 1/2	12 1/2	10	133,838.99
Subscribers' instruments	2,428,790.72	10	0	5	333,230.08
Private Branch Exchange switchboards	720,802.40	10	0	5	98,894.08
Central Office switchboards	2,073,612.72	7	2	6	387,765.58
Buildings, fireproof	932,994.59	33	0	1 1/2	30,788.82
Furniture, fixtures, etc., including tools and teams	214,015.55	4	0	0	51,149.58
<b>Total</b>	<b>\$14,531,481.40</b>				<b>\$1,590,160.49</b>
Per cent. of original cost					10.9

TABLE NO. 7.

Estimate of depreciation and reconstruction made by engineers of Chicago Telephone Co., allowing compound interest at 3 per cent. per annum.

It is well understood that operating plant is limited in life, and (however well ordinary repairs have been kept up) after a period of years the generally worn out condition of the equipment or the advance of the art makes a substitution of new equipment desirable and economical. The expense of this substitution which does not increase the gross earning capacity cannot be fairly charged to capital account, but should be defrayed out of a suitably supported depreciation fund which has been gradually accumulated out of the earnings during the life of the equipment, and which at the end of the life period, has become equal to the first

cost of the original equipment diminished by the amount of any "scrap" value or salvage which may be obtained from the discarded equipment. Interest accretions will add to the amount as the fund grows, and the annual sum set aside out of the earnings should be adjusted with this in view. Three per cent is a conservative rate of interest to set as the minimum which ought to be accepted on the moneys of a trust fund, within which category this depreciation fund belongs, and our table is computed on the basis of that percentage. A higher rate of interest would obviously decrease the size of the annual contributions to the fund which must be made from earnings, but it is not safe to count upon a higher rate of interest being procurable for a trust fund.

The rate at which the telephone art is advancing, and the delicacy of the apparatus used, makes it a matter of particular importance for a telephone company to establish a proper depreciation fund. Depreciation is distinct from maintenance, which latter includes current repairs that are required to keep the plant in first-rate working order as long as it is economically workable at all.

When dealing with reconstruction we have tried to arrive at the best judgment of the effect of future street and park improvements on the existing plant of the Chicago Telephone Company; and we have given due consideration to the fact that the telephone conduit and cable equipment in the heart of the city is likely to be soon disturbed by the construction of street railway subways.

The computations of the commission are made on the basis of the original cost of the tangible property, excluding land, stock of materials and cash on hand, owned by the Chicago Telephone Company within the city of Chicago at the end of 1905. This differs from the "book value" of the same part of the property by an amount equal to the sums heretofore written off for depreciation. We consider it proper to make our estimate of the depreciation rate on the basis of the first cost. The percentage values attributed to the depreciation fund will be approximately the same for other years, and are applicable to present conditions within the city of Chicago. We have taken the estimate of the relative values of the different subdivisions of the plant as set forth by the engineers of the Chicago Telephone Company. An independent verification of the accuracy of these subdivisions of the total cost was impossible on account of the limited time at our disposal, but they appear to us to be reasonably accurate.

Table No. 8 gives our estimate of the Depreciation and Insurance Fund. The percentage of the plant cost to be set aside each year for a reserve for depreciation, reconstruction and special insurance aggregates 8 per cent. Of this, the depreciation reserve is 5 3/4 per cent of the cost of the plant, and the reserve for reconstruction and insurance is 2 1/4 per cent.

The first column of Table No. 8 names the subdivisions of the plant; the second column gives the value of plant in each subdivision; and the following columns contain our estimates. As shown in the table, the life of underground conduit is long, but it affords no salvage. The reconstruction expense which we estimate for conduit includes the effect of sewer construction, park improvements, etc., and the probable effect of the future construction of street railway subways in the heart of the city. The salvage of cables is high on account of the relative ease of removing cables and the large percentages of recoverable copper and lead which they contain. The reconstruction estimate for cables is made to cover the effect of sewer construction, park improvements, etc., and street railway subways. Pole lines and their appurtenances are relatively short lived. There is very little salvage except from the aerial copper wires and cables. The reconstruction estimate is made with a consideration of street and park improvements, future extension of the underground boundaries, track elevation, etc.

Private branch exchange and central office switchboards are of notably short average life on account of the rapid rate at which the art is advancing, but the salvage is considerable because parts of the old equipment can be modified for use in the construction of the new, or the discarded equipment sometimes has a value for use in less important centers. The estimates set down in columns 7 and 8 in connection with the switchboards and subscribers' instruments, are made to cover fire insurance in excess of that which can be carried at reasonable rates with the underwriters.

The total of our estimates for reconstruction and insurance is somewhat over half as large as the corresponding total of the estimates presented by the Chicago Telephone Company, but the engineers of that company have included in their estimates some expense caused by the moving of customers and the like, which belongs in ordinary maintenance and is not a proper charge against this fund.

This Table No. 8 is made out on the plant values of the Chicago Telephone Company, but we believe that the final figures obtained from the computations are reasonably applicable to any similar telephone plant located in Chicago.

## IV.

### THE DESIRABILITY AND PRACTICABILITY OF UNIVERSAL TOLL CONNECTIONS WITH THE CITY OF CHICAGO.

In order to determine whether it is desirable or practicable to require, by ordinance, any telephone company operating in the city of Chicago to connect with any or all companies operating outside of Chicago, for the purpose of transmitting toll or long distance messages, it is necessary to consider the two principal ways by which telephone service is furnished, namely: by "Bell companies" and "Independent companies."

The term Bell is applied to all companies operating under licenses and sub-licenses from the American Bell Telephone Company, and the term Independent is applied to all companies which have no direct relations with the Bell companies, and which are usually operated in competition with them. The so-called sub-license companies are, in most instances, companies which were originally Independent in their organization, but which have entered into contract relations with Bell companies for the purpose of interchanging service. Most of these sub-license companies are

TABLE NO. 8.  
Estimate of Depreciation and Insurance Fund made by Commission.

1 PROPERTY.	2 Original Cost.	3 Life in Years.	4 Per Cent to Depreciation Account.	5 Per Cent Salvage	6 Annual Contribution for Depreciation.	7 Per Cent to Reconstruction and Insurance Account.	8 Annual Contribution for Reconstruction and Insurance	9 Total Annual Contribution to Fund.
Underground conduit, main, clay in concrete	\$1,126,200	50	.89	0	\$ 10,000	1½	\$ 22,500	\$ 46,500
Underground conduit, main, fibre, etc.	375,400	20	3.72	0	14,000	2	9,000	25,700
Underground conduit, subsidiary	448,500	20	3.72	0	16,700		39,600	83,800
Underground cable, main	1,681,700	20	3.72	0	44,200	2	9,900	25,900
Underground cable, subsidiary	495,400	15	5.38	40	16,000		22,300	46,300
Aerial cable	743,100	15	5.38	0	24,000	4½	58,500	171,900
Poles, including cross-arms, etc.	1,299,400	10	8.73	0	113,400		700	2,000
Aerial strand	18,700	12	7.05	0	1,300	3½	2,800	9,400
Aerial cable terminals	93,400	12	7.05	0	6,800		27,900	42,900
Aerial wire, copper	929,700	15	5.38	70	15,000	4	26,030	88,103
Drop wires, copper	649,700	8	11.25	15	62,100		48,600	250,000
Subscribers' station instruments	2,428,800	10	8.73	5	201,400	2	14,400	79,300
Private Branch Exchange switchboards	720,800	8	11.25	20	64,900		41,500	228,100
Central Office switchboards	2,073,600	8	11.25	20	186,600	1	12,400	21,700
Buildings, fireproof	933,000	40	1.33	0	12,400		46,100	46,100
Teams, tools, furniture, etc.	214,000	4	23.92	10	46,100			
<b>Total</b>	<b>\$14,531,400</b>				<b>\$834,700</b>		<b>\$333,000</b>	<b>\$1,167,700</b>
Per cent of original cost					5.74		2.29	8.03

The underground district to be required of any company receiving a franchise has been defined to conform with the lines agreed to by the Chicago Telephone Company in conference with your committee. The boundary of this district is shown by the full line in Map No. 2. The underground district fixed by the terms of the Chicago Telephone Company's ordinance of 1889 is shown by the dot and dash line of the same map; and the boundary of the underground district defined by the proposed ordinance printed by the Manufacturers' company is shown by the dotted line. It is our understanding that the Manufacturers' company have undertaken to extend the boundary of their proposed underground district to bring it to coincide with that of the Chicago Telephone Company's proposed boundary.

The proposed ordinance section is as follows:

Section — The Chicago Telephone Company shall place and keep in underground conduits all the wires, cables and electrical conductors which it may now or hereafter have in or on the streets, within the following boundaries, namely: Commencing at the intersection of Lake Michigan and Howard Avenue, thence west on Howard Avenue to East Ravenswood Park Avenue, south to Irving Park Boulevard, west to Western Avenue, south to Diversey Boulevard, west to Kedzie Avenue, south to Chicago Avenue, west to Fortieth Avenue, south to Twenty-sixth Street, east of Center Avenue, south to Seventy-ninth Street, east to Vincennes Road, north to Sixty-ninth Street and east to Lake Michigan.

situated in localities where the Bell companies have never established plants, or where Bell plants have been established and later consolidated with the Independent plant and operated under a sub-license arrangement, so that, so far as we are concerned in the consideration of this question, the sub-license companies are classified with the Bell companies.

As is well known, the service of the Bell companies extends throughout practically all the principal cities and towns of the country, and these cities and towns are connected by an extensive system of long-distance and toll lines. The Independent companies, during the past few years, have developed extensively, having well established exchanges in a majority of the large cities and towns, and are rapidly developing their toll and long-distance lines connecting these exchanges, which, in many localities, are as extensive and, in some, more extensive, than those of the Bell. Their inter-urban telephone lines and county systems, furnishing telephone service in the rural communities, were first established, and their growth has been so great as to form a very important factor in the commercial development of many localities.

Investigation shows that approximately ninety per cent of all toll and long-distance messages in and out of Chicago are transmitted in an area contained within a radius of 100 miles from the central part of the city.

In order to determine whether it is necessary, from a

business standpoint, to require the Chicago Telephone Company, should it be granted a franchise, to provide telephone connections and facilities with any and all telephone companies doing business outside the city, we have tried to ascertain the number of incorporated cities, towns and villages, having a population of 500 inhabitants or more and located within a radius of 100 miles of the central part of Chicago, which at present have no telephone connection with the city. We have studied this territory carefully, spending a large amount of time gathering data from every available source, but, as far as we could learn, there are no such incorporated cities, towns or villages which at present do not have telephone connections with Chicago.

We have endeavored to obtain similar information regarding the exchange and toll line connections of the Independent companies within the same area, but could not find such reliable information available. We did secure, however, enough information to convince us that, should a franchise be granted to an Independent company in the city, and the Chicago Telephone Company be denied a franchise and its plant cease to be operated, there would then be many towns within the above area cut off from telephone communication with the city, unless the present Bell companies operating therein and the Independent company in the city would voluntarily, or by requirement, connect their lines and interchange service.

From the above it will be seen that, under present conditions, there is ample opportunity for all people within this area to provide themselves with telephone connection to the city, but that, should the Chicago Telephone Company's plant be displaced by an Independent plant, then with the area as it is now developed by the Independents, it would be desirable to provide some means for connecting the outside Bell lines with the lines of the Independent company in Chicago.

In regard to the demands of the Independent telephone companies for obtaining toll connection with the city, it is our understanding that all of the demands that have been made have originated with a view to obtaining such toll connections, not with a Bell company, but with an Independent company, to be established within the city. In view of recent events connected with the history of the Illinois Tunnel Company, there is reason to believe that the telephone business of that company will be developed, and that arrangements will be made for carrying on a toll and long-distance business with the outside Independent telephone companies.

We have found, by careful inquiry, that the responsible Independent companies outside of Chicago having no toll connection with the city, do not desire such connection with a Bell company, but that they do desire such connection provided it can be made with an Independent company doing business within the city.

One of the principal advantages to be derived by the Independent telephone companies outside of the city and by the subscribers to their systems would be that, having an Independent telephone connection with the city, many of the subscribers would be relieved of the necessity of maintaining two telephones, as they are now doing, the Bell telephone being maintained for the principal purpose of furnishing facilities for long-distance business.

The practicability of enforcing Independent telephone companies to connect with Bell companies, or vice versa, by ordinance, has several serious objections, when viewed from the technical and operating standpoints. In order that a satisfactory interchange of telephone service may be effected, business harmony must exist between the connecting companies, and suitable arrangements must be made which will insure good service. Arrangements for good toll service require that all operating rules should be similar and that they should be vigorously enforced by all companies interchanging business, and this requires unity of

purpose, and that some central management or organization shall be ultimately responsible for the methods of handling the service. A high standard of transmission is required for toll and long-distance business, and it is impracticable to maintain such a standard unless the necessary telephone equipment is designed, manufactured, installed and operated with that point in view. The ease with which the service can be interfered with by either party to an arrangement of this kind, and the practical impossibility of fixing the responsibility for such interference, would make it impossible to furnish good service, unless it was the desire of the two companies that such good service should be furnished. It is our opinion that these conditions could not be brought about by an ordinance requiring any telephone company within the city of Chicago to connect its lines and interchange service with any telephone company outside the city.

In case a franchise is granted to the Chicago Telephone Company, all important towns outside of Chicago will be connected, as they now are. In case a franchise is granted to an Independent company, and the Chicago Telephone Company's plant ceases to be operated, it would then be desirable to have the Independent company in Chicago furnish connection to the Bell companies outside; but, even though such a connection is desirable, it would hardly prove practicable unless it was voluntary on the part of both companies.

Our consideration of the question leads us to the conclusion that enforced connection between these two interests, against the wishes of either, or both, would be conducive to poor service, and in the end would prove very unsatisfactory to both the telephone companies and the public.

## V.

### CONCLUSIONS.

1. The project of the Manufacturers' Telephone Company is not feasible, because

(a) A plant to replace the service of the Chicago Telephone Company could not be constructed in less than double the time available, and even that minimum of time would be so short as to result in confusion and inconvenience during the early months of operation of the new plant.

(b) The semi-automatic mode of operation proposed by the Manufacturers' Telephone Company is substantially untried as a commercial arrangement for use on a large scale. It bears indications of being a desirable method of telephone operation, but it has not yet been fully developed and it is unwise to make an experimental trial in so large a plant as that required to give service to the entire city of Chicago. Even if the apparatus adopted ultimately proved successful, the confusion resulting from defects which always appear in new and untried apparatus would probably produce confusion for many months after the plant was put in operation.

(c) The methods of charging and rates proposed by the Manufacturers' company are not adapted to enable the company to give first-class service throughout the city and pay ordinary interest on the investment, after setting aside reasonable reserves for depreciation and contingencies, and the company's operations, if extended throughout the city, would ultimately result in financial difficulties or an application to the council for the privilege of changing their schedule of rates.

2. Measured rates should be adopted for general service, because

(a) They require each user to pay for his service in proportion to what he uses. This makes it possible for the telephone operating company to base its rates for each class of service on the actual cost of the service, thereby bringing the service within the means of the largest number of people and expanding it so as to be of the maximum usefulness in the city.



(b) Measured rates largely cut off frivolous and otherwise useless messages, thereby leaving the subscribers' lines open for all important messages.

(c) The reduction of calls per telephone following the general use of measured rates results in a great reduction of the unavailing calls, which are now approximately one-third of the total calls in Chicago, and it thereby reduces the expenses of operating, and this makes a general reduction in the rates practicable.

(d) The introduction of measured rates tends to level off the load curve, reducing the relative height of the peaks, so that the actual cost of operating for each message passed through the hands of the telephone company becomes less, and this also tends toward making a reduction in the price of telephone service practicable.

3. A partial use of flat rates may be applied in connection with residence and neighborhood exchange telephones, because

(a) These telephones are subject to a smaller average use than city rate business telephones and the flat rates applied to them do not so seriously increase the unavailing calls; also the use of the individual telephones in these classes does not differ so greatly from the average use.

4. Three-party line residence telephones at fifty-one dollars per year for each telephone are recommended for trial, as an addition to the schedule of rates proposed by the Chicago Telephone Company, in case that company is granted a franchise.

(a) The management of the Chicago Telephone Company argues cogently that experience demonstrates that four-party line flat rate residence telephones cause bad service on account of the overloading of the lines unduly increasing unavailing calls, and on account of the mutual interference with each other which occurs between subscribers.

(b) They admit that two-party line flat rate residence service is satisfactory.

(c) We believe that three-party line flat rate residence service will give reasonably satisfactory service and will be popular, and recommend its trial on that ground.

5. We condemn the service of more than four parties on any line, because

(a) It produces bad results from overloading the lines and from mutual interference between subscribers.

6. The Chicago Telephone Company has a desirable plant in use and can give good service. We have consulted with Mr. Maclay Hoyne, who has outlined an ordinance which we believe will result in obtaining for the people of the city good service at a minimum cost in case the Chicago Telephone Company is granted a franchise.

We direct your attention particularly to the schedule of rates and to two alternative means which we believe will afford satisfactory control of rates.

(a) The first reserves by contract the right to the city to reasonably regulate rates at certain intervals.

(b) The second limits the net earnings of the company and requires any excess of net earnings over the limit to be paid to the city.

7. We recommend that in case the Chicago Telephone Company is given a franchise, the company be required to start a separate set of records and books of account relating to its business within the city of Chicago, and that these shall be arranged so as to afford data for determining the average costs of the several classes of service.

(a) For this purpose we have proposed that the accounts and records shall be kept in a manner satisfactory to the city comptroller.

(b) And we further recommend the employment by the city of a consulting engineer to advise with the comptroller and the company upon the best form of records to be kept, in order that the costs of the different classes of service may be reasonably well known after the end of two years.

8. We recommend that the city comptroller, after two years, place before the city council a statement of the cost of service in the different classes as nearly as may be practicable, for the information of the council in further regulation of rates, in case the Chicago Telephone Company is given a franchise with the right of regulation reserved to the city according to our first alternative.

9. To require an operating company to make toll connections with every applicant company, does not seem to us practicable or desirable for several reasons, of which the following are sufficiently conclusive:

(a) Business harmony must exist between companies doing a joint toll business and the plant of each must be maintained to the satisfaction of the other, or the toll service will be seriously impaired or rendered valueless. The necessary harmony and unity of purpose cannot be obtained by ordinance.

(b) We have studied the toll situation within a radius of 100 miles from Chicago and find that this area, under present conditions, is well provided with telephone connections entering Chicago.

(c) Our inquiries show that "telephone free trade" is plainly not desired by the people of responsibility related to either the Bell or the Independent companies.

Respectfully submitted,

(Signed) DUGALD C. JACKSON,  
WILLIAM H. CRUMB,  
GEORGE W. WILDER.

#### AS TOLD OVER THE TELEPHONE.

The story is told of a balking mule named "Shoe" driven by an old negro named "Abe," and owned by a wholesale feed store. One day Shoe balked on Broad street and refused absolutely to be driven again. After old Abe had spent his energies on Shoe for an hour in the vain endeavor to get him to start, he went into a store to telephone to his employers. The following is what a party of gentlemen near the telephone heard, says Lippincott's:

"Please, marm, gimme number two hund'ed an' 'leven. Is dat you, Marse Henry? . . . Yes, sir, dis is Abe. I dun ring yer up, sir, ter tell you about Shoe. Shoe he done balk down yer on Broad strete, sir."

"\_\_\_\_\_"

"'Bout a hour, sir."

"\_\_\_\_\_"

"Yessir, I bus' him in de head."

"\_\_\_\_\_"

"I dun wear de whip handle out on him, sir."

"\_\_\_\_\_"

"Yessir, I kick him in 'de belly 'bout eight times, sir."

"\_\_\_\_\_"

"Marse Henry, I would ha' kicked um some mo' but I hu't me big toe on um de las' time I kick um."

"\_\_\_\_\_"

"'Twis' he tail? No, sir, not dis nigger. A gemman from New York, he twis' he tail."

"\_\_\_\_\_"

"No, sir, I don't think he dead. De doctor take him 'way in de ambulance."

"\_\_\_\_\_"

"Yessir, it was sure foolish."

"\_\_\_\_\_"

"Marse Henry, I done set fire under Shoe."

"\_\_\_\_\_"

"De harness? Dun bu'n the harness clean off um."

"\_\_\_\_\_"

"De cart? Yessir, dun bu'n de cart, too, sir; all 'cept one wheel, sir."

"Yessir, I get de feed out fust, sir."

"\_\_\_\_\_"

"Marse Henry, is you want me to come back to de store and go to work, or mus' I wait for Shoe to move?"

# DECISIONS AFFECTING TELEPHONY

By Gilbert W. Hand

NEW TREATISE ON TELEGRAPH AND TELEPHONE LAW.

**T**HROUGH the courtesy of the Vernon Law Book Company of Kansas City, Missouri, we are in receipt of a copy of Mr. S. Walter Jones' new work on the above subject, entitled, "Telegraph and Telephone Companies." This volume has recently been published by the company and, in the writer's opinion, is the first work that pretends to be an exhaustive treatise on the law throughout the United States relating to this class of corporations. Mr. Jones has devoted the major part of his energies to a discussion of the law relating to telegraph companies but, owing to the very close relation to telephone companies, the discussions may be applied to the latter as well. A particularly important division of the work consists of a collation of some two thousand cases taken from the different jurisdictions. These have been cited in the volume under their appropriate classifications. This directory of cases is of exceeding value as a reference digest to the profession generally as well to the companies for whose benefit the volume has apparently been primarily prepared. On the whole the volume fills a very important place at a time when the law of telephone and telegraphs is being so frequently discussed, and new rules are declared. While the attorneys representing telephone and telegraph companies will find this work of inestimable value from its original statement of principles and as a reference to reported cases, it will also find a ready approval from the business men themselves who have to decide so many matters of a legal nature in their everyday conduct of these businesses. The editor of this department is pleased to have the volume in his library and to recommend it to those interested in the matters so ably discussed in its eight hundred pages.

CONTRACTS BETWEEN COMPANIES FOR CONNECTION—CAN THERE BE A BREACH OF SUCH CONTRACTS?

The question of the right of two telephone companies to contract with each other to give service interchangeably has never been questioned and many such arrangements are now in force throughout the country. The right, however, of a company to withdraw from such an arrangement after the other party to the contract has gone ahead in reliance on the right of connection and has built lines and given contracts offering service in the territory covered by both companies and after having held itself out as being able to give a service over the entire territory represented by the two parties to the contract, is a very much more difficult proposition. The law on the subject has not received much consideration, owing to the fact that cases involving the question have not been brought into the highest courts for determination. However, a case now under consideration by the supreme court of Nebraska bids fair to be a leading case on the question, and the decision will be a law maker on the subject. The litigants are the Platte County Independent Telephone Company and the Leigh Independent Telephone Company, operating in Colfax and Platte counties of that state. The former claims that in 1904 it entered into an agreement whereby it sold to the latter company the Creston exchange in Platte county, the parties further agreeing that they should connect up their respective systems at the town of Creston, giving subscribers connection from the town of Leigh, the principal place of business of the Leigh company, in Colfax county, through to the town of Columbus, Platte county, the principal place of business of the Platte county company. There was evidence that the

parties to the controversy had such telephone connection, but the Leigh company claims that there was no agreement that it should continue or be permanent and no understanding relating to the right of either to withdraw from the arrangement whenever either chose to do so. The arrangement for mutual connection between the exchanges of the two companies continued until May, 1905. At this last date the Leigh company threatened or did actually disconnect from the Platte county company and, an injunction being asked for to restrain this action, the matter reached the district court of Colfax county. A temporary injunction was issued and when the matter came on for hearing the injunction was dismissed and an appeal taken to the supreme court of the state. The writer has been favored with copies of the brief of the appellant (the Platte county company) by Mr. C. J. Garlow of Columbus, Nebraska, attorney for the Platte County Independent Company, from which the above facts have been gathered. The question before the supreme court is whether the two companies had a right to sever this agreement or arrangement without the mutual consent thereto of all parties interested, including the patrons of the service offered by the combination. There is only one other case, to the writer's knowledge, wherein this question has been discussed and that is the Kentucky case of *Cambellsville Telephone Company v. Lebanon, Louisville and Lexington Telephone Company*, 80 S. W. R. 1114, reported in the November, 1904, TELEPHONY. In this case it was held that the necessary connections having been made the arrangement became more than a mere contractual obligation between the parties; that public rights were affected and that in a sense the public obligation not to cripple the telephone facilities which the combination furnished was paramount to any private right of either to release itself from the arrangement. The decision of the Nebraska court, it is hoped, will fully discuss this phase of the question and will be awaited with interest by telephone interests generally. The writer not having before him the position of the opposing company is not informed of the merits of the defense; however, it is not intended at this time to give either party's side undue prominence, since we are primarily interested in the general proposition of law which the case when decided will help to establish.

PERSON TELEPHONING INJURED BY ELECTRIC SHOCK—INSTRUMENT IN GOOD ORDER—NO LIABILITY.

A Kentucky case recently decided by the court of appeals contains a very good discussion of the question of liability of a telephone company for damages brought about in the above manner. Owing to the importance of the several points of law considered in the opinion, we quote the same in full: "The Gainsboro Telephone Company operates a telephone system in Somerset, Kentucky, and maintains a pay station at the Newtonian Hotel. Frank J. Brucker, while a guest at the hotel, was using the pay station to talk to his wife in Louisville. The telephone did not seem to work well, and he took hold of the metal arm with his hand to raise the mouthpiece. When he did this, he received a severe shock of electricity which knocked him to the floor, rendering him unconscious and injuring his nerves. He suffered from the shock for about a month, and brought this action to recover against the telephone company for his injury. The proof for him on the trial was only of the facts above stated. That for the telephone company was to the effect that the instrument was examined by one of its

men ten minutes after the accident and was found to be all right. It had not been out of order before, and the cause of the accident is entirely unexplained. There was no storm at the time, although a high wind was blowing. An electric light was burning in the booth, and the electric light company had its wires in the hotel and throughout the town. These carried 2,200 volts of electricity. The voltage of the telephone system was 75 and was not sufficient to hurt anyone. No one was in the booth at the time the accident occurred but Brucker, or knew anything of the trouble until he fell to the floor. The plaintiff asked the court to instruct the jury that it was the defendant's duty so to maintain its wires and appliances at its pay station as to protect from danger those who used them, and that, if it failed to do this and Brucker was injured by reason of the appliances not being free from danger, they should find for him. The court refused so to instruct the jury, and instructed them that they should find for the plaintiff if they believed from the evidence that the defendant carelessly or negligently failed so to protect its wires and appliances, etc. The jury found for the defendant, and the plaintiff appeals. Those handling electricity where the voltage is such as to endanger human life must exercise a very high degree of care for the safety of others, but where a less voltage is used which is not of itself dangerous those who use it are only liable for ordinary care. *A telephone company is a common carrier of messages, and not of persons.* The duty it owes to a customer using one of its instruments is not different from that due to their customers by other persons inviting the public upon the premises for the transaction of business. In all such cases the person so inviting the public is not an insurer, but must use such care as may be reasonably expected of a person of ordinary prudence under the circumstances. In Vol. I, Thompson on Negligence, 970, the rule is thus stated: 'In these cases if we except the case of passenger elevators in buildings, separately considered, the law is reasonable, and does not demand of an owner of property more than the exercise of ordinary care with respect to the rights of third persons; but on the other hand, it does demand the exercise of due, reasonable or ordinary care.' The plaintiff offered to show by a witness that a short time prior to his injury, the witness, in using another telephone in the city received a severe shock of electricity. The evidence was properly rejected. The condition of another telephone at another time was purely a collateral matter. The question the jury were to try was whether the defendant had exercised ordinary care with the telephone at which he was injured. It is a matter of common knowledge that wires sometimes get crossed, and the fact that another telephone was on another occasion out of order would have thrown no light on the case at bar."

*Brucker v. Gainsboro Telephone Company, 100 S. W. 240.*

INJURY TO LINEMAN FROM ELECTRICITY FROM ELECTRIC LIGHT COMPANY'S FEED WIRES.

An accident to one William E. Likes on November 4, 1904, at Sheridan, Illinois, occurred in the following manner: He and three other workmen and a foreman named McLaughlin were ordered out from Chicago, to string two telegraph wires on a certain pole, which carried wires of the Chicago Telephone Company, the Postal Telegraph Cable Company and the Chicago & Milwaukee Electric Railway Company. The wires of the latter were heavily charged feed wires and were strung below those of the others. Likes had never worked in this vicinity before. The foreman knew of the fact that the electric company's feed wires were strung below those of the other company's and of the fact that a year previous to the time of the accident another person had been injured from electricity from these feed wires. Likes was ordered to climb the pole and attach the wires.

In the ascent, the wires having to be passed near to the feed wires, he accidentally came in contact with the feed wires and received very serious injuries. The custom was to place all highly charged wires above those of telephone and telegraph companies. Likes testified that he did not know that the wires on which he was injured were feed wires. McLaughlin said that he paid no attention to what was on the pole before the accident, and that he did not tell Likes anything about feed wires being upon the pole or in the highway. There was no sign or other evidence to warn Likes of the actual condition. On these facts the Supreme Court of Illinois has affirmed a judgment for \$25,000 in Likes' favor recovered from the Postal Telegraph Company. The court said, "A servant only assumes the ordinary risks incident to his employment and such dangers as are obvious and apparent. Danger from feed wires attached to a pole at a point below telegraph or telephone wires was shown not to be one of the ordinary risks incident to plaintiff's employment. In their position below the telephone wires they constituted an unusual risk, which was not incident to the employment of a lineman engaged in stringing telegraph wires. Neither was the danger obvious or apparent. The wires appeared to be ordinary telephone or telegraph wires and harmless, and their dangerous character could not be discovered by ordinary inspection."

*Postal Telegraph Cable Company v. Likes, 80 N. E. 140.*

INJURY FROM ELECTRICITY CARRIED OVER BROKEN TELEPHONE WIRE CROSSED WITH HIGHLY CHARGED ELECTRIC WIRE.

The following facts were shown in a recent Texas case brought by one Eliza Thomas for damages for the death of her husband caused by electricity carried over a broken wire of the Citizens' Telephone Company. The wires of the telephone company were strung on poles above and over the wires of the lighting and power company. No means were used to prevent the wire from falling upon the wires of the lighting company in case of a break. The telephone wire carried the usual light current of electricity but the wires of the lighting company carried a very heavy current, sufficient to cause death to any person coming in contact therewith. At eight o'clock in the evening of a certain day the wire of the telephone company was broken and lay upon the street. At six o'clock in the morning of the following day a mule driven along the street came in contact with the fallen wire and was knocked down and slightly injured. A man extricated the mule and wrapped the wire around a post near by. About two hours later Thomas in hitching his horse to the post, came in contact with the wire and was killed. The wire in falling had come in contact with the wires of the lighting and power company and was thereby charged sufficiently to cause the death. The court of civil appeals said: "These facts made a prima facie case of actionable negligence against the telephone company. *Kasby on Electric Wires, Section 241; Haynes v. Raleigh Gas Company (N. E.), 19 S. E. 344; Bond v. Portland Electric Company (Oregon), 66 Pacific, 576.* It was its duty to maintain its system of electric wires so that they should not endanger the lives of others or interfere with their lawful use of the public highway. It was its duty primarily to keep its wires off the street where persons would likely come in contact with them; and if by any chance any of its wires should happen to be broken, and in such condition become liable to cause injury to others, it was its duty to exercise ordinary care and diligence to ascertain such fact and to remedy the defect. These duties come under the head of *non-assignable duties*, the negligence in the performance of which was the negligence of the company; and if death resulted by reason thereof, the company cannot escape the consequences." The court also took into consideration the fact that no "trouble men" were on

duty between 5:30 p. m. and 7:30 a. m. to whom breaks could be reported or whose duty it was to make repairs between these hours. Owing to the position of the wire so near the highly charged wires the court said that the company should be held to the same degree of care as though its own wire had been charged originally with a dangerous current.

*Citizens' Telephone Company v. Thomas, 99 S. W. 882.*

DEPOSIT OF COIN SO THAT OPERATOR CAN HEAR THE RING A REASONABLE RULE.

A case recently decided by the supreme court at Johnstown, New York, is authority for the statement that such a rule can be enforced by a telephone company, and that if a party who has asked for telephone connection has deposited the money at a pay station in such a manner that the operator cannot be sure that he has done so, she may require the person to pay again so that she may have evidence by the ring of the coin that the sum has been paid. In this case the party had paid without instruction from the operator and, the receiver being on the hook, she could not hear the ring. She demanded payment again and the party refused, whereupon she refused to connect him up. Action was brought for damages, claiming discrimination and failure to transmit messages impartially. The facts are stated in the opinion of Judge McLaughlin, which we here quote in full. While not an opinion from the highest court of New York, in the judgment of the writer, the statement of the law is correct and would be followed in all jurisdictions under like facts. The court said: "This action is brought to recover a penalty of \$100 under section 103 of the transportation corporation laws (Laws of 1890, Chap. 566), which provide, concerning telephone and telegraph companies, that every such corporation shall receive dispatches from and for other telegraph and telephone lines or corporations, from and for any other individual, and on payment of the usual charges by individuals for transmitting dispatches as established by the rules and regulations of such corporation, transmit the same with impartiality and good faith and in the order in which they were received, and if it neglects or refuses to do so it shall pay \$100 for every refusal or neglect, to the person or persons sending or desiring to send any such dispatch and entitled to have the same so transmitted, but arrangements may be made with the proprietors or publishers of newspapers for the transmission for publication of intelligence of general, public interest out of its regular order. There is little or no dispute as to what I consider the material facts involved. The plaintiff attempted to telephone over defendant's lines from a pay station, where the charge or toll was to be deposited in a box beside the instrument. A person wishing to telephone called the central office and gave the name of the party with whom he wished to communicate. When the desired party was obtained the operator at the central office notified the person and directed him to deposit the proper charge in the box beside the instrument. The plaintiff, at the time in question, for the purpose of talking with some one at Gloverville, went to the store of Orlando Gifford, at Cranberry Creek, in the county of Fulton, where the defendant had installed one of its pay stations in connection with its telephone system; he took the receiver off the hook and called the defendant's central office, and communicated to the operator there in charge the name of the party with whom he desired to talk; he then hung up the receiver and deposited fifteen cents, the proper charges, in the box intended for its reception and the operator, not being able to hear the coins register, refused to connect him with the party with whom he desired to speak until he had paid the charge with the receiver off the hook, which was the established rule and was the only way in which the operator

could know that the charge had been paid; the plaintiff refused to make a further deposit, insisting that he had a right to talk, having once deposited his money in the box, and the operator refusing to permit him to do so, he brought this action to recover the penalty specified in the statute. I am of the opinion that if every fact as claimed by the plaintiff be found in his favor, nevertheless he would not be entitled to recover. The statute imposed a penalty not for an error of judgment of one of defendant's operators, a defective instrument, or a misunderstanding as to whether a required charge for a message has been paid, but solely for the refusal to transmit dispatches with impartiality, good faith, and in the order of their reception, after payment of the usual charges as established by rules and regulations of such corporation. Under the defendant's system if the charge or toll were paid while the receiver of the instrument was hung up, the operator would be totally ignorant as to whether the proper amount, or indeed any amount at all, had been paid, and the propriety and necessity for the rule that the charge must be paid with the receiver down are too apparent to need comment, and this rule was sufficiently established at the trial. The instruction upon the telephone instrument was sufficient to apprise the defendant, even though he had never used the instrument before, of what was necessary to do. There is absolutely no evidence to indicate that the refusal to permit the plaintiff to talk was by reason of any of the acts by which the statute imposes a penalty; on the contrary, the fact is uncontradicted that the operator offered to allow the plaintiff to talk provided he would deposit the fifteen cents in the box while the receiver was off the hook, and if he had previously deposited that amount he could take that matter up with the company at a subsequent time. In this connection it is worthy of note that a similar mistake had previously been made by him at the same station and the additional payment then made refunded by the telephone company. The statute is a penal one and is to be strictly construed. (Thompson vs. Western Union Telegraph Co., 40 Misc. 443; Wichelman vs. Western Union Telegraph Company, 30 Misc. 450.) Whatever may be the plaintiff's rights, he cannot recover under the statute in question, for his case does not come within its provisions. It is true the plaintiff testified that on a former occasion, when using the same instrument, he had been told to pay while the receiver was hung up, but his evidence is strongly controverted by defendant's witnesses. There is much conflicting evidence as to the instructions which plaintiff had formerly received and in view of which, under his own admission that he had used the same instrument on at least one former occasion without difficulty, I do not think I would be justified in finding that he did not know the proper way to use it. However, I do not deem it necessary to pass on that question, for, assuming that the plaintiff was ignorant of the method of payment required, or through the ignorance or negligence of some of defendant's servants had been misinformed on that subject, he might be entitled to maintain an action to recover the damages sustained, but not for the penalty imposed by the statute. The purpose of the statute is apparent; it is to secure impartial service to the public without discrimination, and the penalty is only incurred by acts of impartiality, bad faith or discrimination. (Wichelman vs. Western Union Telegraph Company, supra.) If this be the correct construction to be put upon the statute, then if the plaintiff had deposited his money in the proper way and the operator through some defect in the apparatus had failed to hear it when it dropped in the box and refused to allow him to talk, he could maintain an action to recover his damage, but not for the penalty, since, as we have already seen, the imposition of the penalty is limited to acts of partiality, bad faith or a preference. The complaint, therefore, must be dismissed."



# INDIANA INDEPENDENTS MEET

*State Convention at Indianapolis May 15-16 An Epoch-Making Event*

By R. D. Fisher

THE annual convention of the Indiana Independent Telephone Association, held in the Claypool Hotel, Indianapolis, May 15-16, was by far the largest and most enthusiastic state telephone convention ever held in the middle West. Much of the business of the association was transacted by the executive committee and the several sessions of the convention were given up largely to informal talks and speech-making. The convention was called to order by the president, A. C. Lindemuth, who introduced Mayor Charles A. Bookwalter, who, in an address of welcome, said it afforded him great pleasure to greet a class of enterprising men who had done so much to make the city famous. He said the capital city owes a great deal to the other ninety-one counties of the state for bringing the whole state into speaking distance of the capital. "You represent one of the greatest developments of the age," said he. "During the past few years the telephone has burst upon the people with such rapidity as to astonish the world. And now telephone men find themselves in competitive strife to develop the most modern equipment for this great and necessary utility. The telephone is no longer a luxury, but a genuine, everyday necessity. The telephone is a natural monopoly. Two telephones in a house is a nuisance, but they are there because of conditions familiar to all. I would not advocate the removal of the Independent telephone for fear the Bell company would run off with the bit in its mouth again. Again, I heartily welcome you to this city and pledge you protection."

President Lindemuth responded to the mayor's address in a pleasing manner, and then read his annual address, in which he congratulated the association on the large and enthusiastic representation present. "There are evidently a few of us who have not yet been devoured by the octopus," said President Lindemuth. "These meetings are not only instructive and beneficial from a financial standpoint, but they make us broader and better business men. They extend our acquaintance, enlarge our experience, and develop our social qualities among those engaged in the same line of work." He said the telephone business is certainly a strenuous calling, but the operators owed it to the public and to themselves to make the work pleasant as well as profitable. "The business," he said, "has many daily worries and difficulties and calls for all the beatitudes and Christian graces combined. Nothing short of an angel's temperament, the patience of a Job and the genius of an Edison would be adequate to carry one through a day's telephone experience with entire satisfaction to himself and the general public. As a feature of these state conventions the exhibits are not only enterprising and commendable but worthy of comment. They are a liberal education in themselves. Their importance is fully appreciated because they afford us an opportunity to see the various kinds of telephone apparatus, the latest and most improved features, and observe their advantages without trouble and expense. No telephone man should fail to study these exhibits and listen to the experts who are willing to impart information of value. The manufacturers and supply houses go to great trouble and expense to make these displays and they certainly are interesting and beneficial features of our convention."

In speaking of the record of the year President Lindemuth said, while it had not been brilliant or startling, the progress of the Independent telephone interests in Indiana

had been both steady and important. He said there had been an onward march in solid phalanx toward the firmer and more complete occupation of the telephone field of the state. Many new plants have been established, many of the older companies have erected substantial and well-equipped buildings, installed many miles of underground cables, and re-equipped their systems with the latest and most improved apparatus. Other companies are preparing to make like improvements, while almost every Independent company in the state had extended its territory, rebuilt, strengthened and improved lines and bettered the service. A number of companies have reorganized and placed themselves upon a firmer financial footing, and rates are beginning to be adjusted so as to insure to the public a superior service and a fair return to the investor. "The progress of the Independent telephone movement in the state for the past year has been pre-eminently satisfactory," said the speaker. "We are greater and stronger than ever before. No deflection into the ranks of the Bell worth mentioning has occurred. On the contrary numerous companies that had a taste of the beauties (?) of the Bell sub-licensee system have cut loose and returned to the strictly Independent relations. This fact is remarkable considering the persistent and expensive efforts put forth by the many Bell representatives sent out during the past year. It is safe to say that every Independent company in Indiana has been approached by Bell representatives during the past year, some once and more many times, and tempted to walk into the Bell trap. Considering the herculean efforts and the ample means at the monopoly's command, its meager success speaks volumes for the wisdom and loyalty of the Independents. During the past year 27 additional companies have joined the state association, making 147 companies that belong to the association, and this number embraces all the larger and more important exchanges of the state. This increase is certainly very encouraging. At this rate in a few years every Independent company in the state will be joined in a compact organization easily able to protect itself and shield the public from the encroachments of an unscrupulous competitor. The number of Independent telephones in use in the state is 182,000, while the total Bell and sub-licensee telephones in the state number only 45,000. The value of the Independent plants in the state as shown by the tax returns, is \$20,000,000, which, of course, is far below the actual value of the property. The gross income of the combined Independent exchanges is very reliably estimated at \$3,280,164."

Mr. Lindemuth spoke of the development of the Independent movement throughout the country during the past year, and said it had been very conspicuous. He said that franchises have been granted in the cities of Omaha, Denver, Boston, San Francisco, Milwaukee, and tunnel rights in Chicago have been acquired. He said a favorable report has been secured in New York, and that it is only a question of a short time when modern plants will be installed in all of these cities. "Throughout the South long-distance lines are being constructed connecting the Independent exchanges into an effective system," Mr. Lindemuth said, "quoting figures from a recent address of President J. B. Hoge of the International Association. "There is now over \$300,000,000 invested in Independent telephone properties in the United States, with more than 3,500,000 telephones installed and several hundred thousand miles of

long-distance lines connecting the different exchanges." Adding to this statement, President Lindemuth said that after ten years of existence the Independent companies have installed in the homes and the business places of the people at least 1,000,000 telephones in excess of the Bell after thirty years of the latter's existence; and in further comparison, in territory occupied jointly by the two systems in competition with each other the Independent telephones outnumber the Bell almost three to one. More than ten per cent of this enormous growth of the Independents has been acquired during the past year.

"Every well informed Independent telephone man knows these facts to be true," said President Lindemuth. "When, therefore, President Fish of the American Bell Telephone & Telegraph Company informed his stockholders in his recent annual address that 'the so-called Independent telephone companies which are in competition with the Bell telephone companies throughout the United States, have, as far as can be learned, except in a few localities, made no relative gain,' he either uttered a wilful falsehood or displayed a degree of ignorance that renders him unfit to be at the head of so great a corporation. That this statement should go unchallenged by his stockholders also bespeaks the provincial blunders of the eastern capitalist. The employes and stockholders of the Bell in the middle western states know far better, and we all know that the acts of desperation in the useless expenditure of enormous sums of money and the dissemination of tons of false literature to check the growth of the Independents, and the final offer to surrender the exchange field in Indiana, Ohio and Michigan, belie the words of President Fish."

In speaking of the future of the Independents Mr. Lindemuth said: "The future policy of the Independents is plain and their ultimate success absolutely assured. For twenty years the policy of the Bell company was high rates and limited service, under foreign management and with foreign capital; discourteous treatment, with all the other attributes that go with monopolistic ideas. They existed only because of their protection under the law. The prejudice which has grown up against them was wholly justified. The Independents have succeeded and have deserved to succeed because of the absolute reversal of this monopolistic policy. By the inauguration of reasonable rates, under local management, with local capital, characterized by courteous treatment and the extension of service to the rural communities under a liberal policy, the Independents have appealed to the sympathy and sense of justice of all the people and have had their loyal co-operation and support. The Independents have thus deserved success and have succeeded. To make that success permanent and complete two things must be regarded. One is that the people may not forget their benefactors by restrictive and unwise legislation and the failure to grant reasonable and remunerative rates commensurate with the greatly increased service and the high price of labor and material. The other is that the Independent companies, grown large and strong, shall not become unmindful of the rights of the public. A telephone company is a public service corporation, and as such three interests are to be regarded, viz., that of the management, that of the investor, and that of the public. Here exists mutual or reciprocal duties and obligations, and any law or policy, whether on the part of the public or the telephone people, which does not give due regard to all the interests is short-sighted and will work detriment to all." Mr. Lindemuth commended the work of C. S. Norton, the secretary, very highly, and said the results of the convention were being watched from all parts of the country, and hoped that they would be such as to form a greater and stronger Independent system in Indiana, thereby being an inspiration to every other state endeavoring to free itself from the burdens of an offensive and unscrupulous monopoly.

C. S. Norton, the secretary-treasurer, presented his report. This report was very gratifying to the members from every point, showing that effective work was done during the year. The eleven district associations embrace every county in the state. The association is in a healthy financial condition, as the report showed that every obligation has been promptly met and that still a balance exists. The treasurer collected during the year \$2,293.15. The income is derived from an assessment of one cent per unit, and from the publication of the Bulletin, the official organ of the association. The secretary's report also showed that the association is in a most prosperous condition. There have been no withdrawals, but on the other hand an increase of 25 per cent in the membership. According to Secretary Norton the Independent sentiment is stronger in the state than it has ever been before. The secretary stated that certain propositions had been made by the field agents of the Bell looking toward unification of the telephone interests in Indiana, but as these propositions were not made by the officials of that corporation, the association officials had given them but little attention, and at no time has the executive committee considered them of sufficient importance to demand action on the part of this association.

Upon roll call every district was found represented, and 286 of the 300 delegates were present at the opening session.

The applications of twenty-five companies for membership in the association were referred to a committee with instructions to investigate their eligibility under the by-laws and constitution. The committee reported favorably and the companies were admitted to membership. President Lindemuth then introduced J. B. Hoge, president of the International Association, to the convention.

Mr. Hoge said it was a pleasure as well as privilege to be present and that from what he learned the Indiana Independents were to be congratulated on present admirable conditions. "Independent telephony has become a national issue and the increase of companies and telephones has become marvelous," said Mr. Hoge. "There are many million people using Independent telephones. The telephone is one of the most important utilities in the country possibly next to that of the water supply. The time has now come when we should push the telephone business. There is plenty of room for still greater development. It requires an enormous amount of money to develop but no other business offers safer returns." Mr. Hoge also said it was his good fortune to attend several recent state conventions and comparing the attendance and interest with those of conventions held a year ago the increase was marked and most gratifying. The Independents have been placed on a substantial basis and are giving satisfactory service. In referring to legislation, friendly and otherwise, he was inclined to commend one of the western states for introducing a bill making it a penitentiary offense to borrow the use of a neighbor's telephone. He said the Independents are working shoulder to shoulder all over the country and that conditions are very gratifying. He spoke of the great development of the Independent business in Canada, and how it was proving beneficial to the American manufacturer. The attendance upon the state meetings are unusually good and the International convention promises to be a record breaker, he said. He called attention to the fact that numerous franchises were being granted in formerly forbidden territory. The Independents are getting into Milwaukee, Detroit, Omaha and Denver, and even old rock-ribbed Boston had granted an Independent franchise over the mayor's veto. "We have no apologies to offer," said he. "The situation is good. However, we must go after business only that pays. The public is willing to pay a living price to all who are interested in the business. Companies should encourage their neighbors and all give good service." Mr. Hoge concluded by saying that the strength of the

Independents was due to their standing together, and urged that this course be continued.

Indiana is divided into eleven districts, and a branch association is maintained in each presided over by a vice-president. The reports from these districts were very encouraging. They showed in detail the progress made, the improvements, extensions, new plants built, increase in number of telephones, increase in gross receipts and a comparative statement relative to the number of Independent and Bell telephones in use. These reports were not only encouraging but greatly interested and surprised the members and visitors present from adjoining states.

Frank L. Beam, president of the Ohio association, was introduced by President Lindemuth, and addressed the convention briefly. He said in part: "I was greatly pleased to hear such good reports from Indiana. Ohio is looking forward to the results of this convention—especially relating to reports of propositions now offered by the Bell. The reports sent out from Ohio to the effect that there had been great deflection of Independents to the Bell are not true. Each state owes an obligation to the adjacent states as well as each company to a neighboring company. Ohio and Indiana are mutually related in the telephone business and should stand together. When the Bell makes a proposition to the Indiana Independents it should include all the other states. Why should one state give up to the detriment of another state? We have come to stay. We have 240,000 Independent telephones in Ohio, and this is within 4,000 of what the Bell people have in the whole middle West. They are completely whipped in Ohio and Indiana. We do not need them and why should we let them have the grip hand again." Mr. Beam concluded by saying he felt sure the Indiana Independents are not going to do anything to jeopardize the interests of other states.

A banquet was given at the Claypool Wednesday night by the Indianapolis Telephone Company and the New Long-Distance Telephone Company to 308 members and guests. The banquet was a very enjoyable occasion. Thomas E. Davidson of Greensburg acted as toastmaster. Notwithstanding the toasts embraced a wider field of subjects, the speakers universally made the Bell proposition the topic of their remarks.

#### THURSDAY MORNING SESSION.

Regrets were received from B. G. Hubbel of Buffalo, N. Y. Sickness prevented his attendance. "The Magnitude of the Independent Telephone Business" was the subject assigned to Mr. Theodore Gary, president of the Home Telephone Company of Macon, Mo. Mr. Gary is a fluent speaker, and in part said: "I am glad to be here and congratulate the Indiana association on this magnificent meeting and the great interest manifest. The more I think about the figures of the Independent telephone business the more I became bewildered. The Independent telephone business is the best of its kind in the world. I say this advisedly after ten years experience." Mr. Gary said his experience made him believe that he could do better business and give better satisfaction in towns and cities where he had competition. "There is less complaint from patrons, because they have their choice." Said he, "The greatest thing we can have in the telephone business is confidence in one another, and the greatest thing in our business is service—good service to the public. Those operating public service utilities should keep in mind the public which has an interest in all such business. If the telephone men will take the public into consideration there will be less trouble. In no other field has the telephone business grown so rapidly as has the Independents, simply because there was a demand for it. Very few people, not even ourselves, appreciate the magnitude of our business." Mr. Gary said he was gathering data and statistics and would soon issue a prospectus relating to the magnitude of the business. He

said the layman rarely ever thinks of the wonderful dimensions of the business. "The magnitude of our business and the volume of manufacturing conducted by it is almost unbelievable," he said. "In conclusion, I want to impress upon this convention that we have the best business in the land and we ought to see to it that we preserve and develop it."

Mr. Gary's talk was well received and heartily applauded.

President Lindemuth espied Mr. E. B. Fisher of Grand Rapids, president of the Michigan association, in the audience, and introduced him to the convention. Mr. Fisher is an earnest pioneer Independent and gave a good account of the progress of the business in Michigan. "I am glad to be present, and always feel at home in Indiana," said he. "Michigan regards Indiana as her closest and most intimate neighbor, and in telephone matters the relations of the two states are very close. Indiana telephone enterprise has excited the Michigan ambition, and we are making good progress." Mr. Fisher described the struggles the Independents had in getting into Detroit, and the effort to overcome the opposition of men prominent in financial and political circles. Mr. Fisher said the local exchange battle was won but insisted that the need of immediate construction of Independent long-distance toll lines is the key to the situation.

During the closing hours of the convention the members entered into a free discussion of the tentative proposition alleged to have been made by the Bell company, looking to an arrangement for the exchange of local business for long-distance toll line business. The discussion arose on the adoption of the executive committee's report, to the effect that the proposition had not been made officially but by field agents of the Bell, who appeared before the committee and disclaimed any official authority to make the propositions which they had made. The result of the discussion and the vote on the adoption of the report showed very conclusively that the Indiana Independents are unanimously opposed to any plan of coalition.

The by-laws and constitution were so amended as to make any company connected with the Bell ineligible to membership in the association and any company found making such connection must forfeit its membership.

The association elected all of the old officers as follows:

President—A. C. Lindemuth of Richmond.

Secretary-Treasurer—Charles S. Norton of Indianapolis.

Executive Committee—A. C. Lindemuth of Richmond, Charles S. Norton of Indianapolis, Theodore Thorward of South Bend, Jesse W. Weik of Greencastle, Thomas E. Davidson of Greensburg, Charles D. Knoefel of New Albany and William L. Moellering of Ft. Wayne.

The following delegates were selected to attend the International Independent Telephone Association of America, which is to be held in Chicago June 4, 5 and 6; F. W. Shirmeyer of Decatur, Theodore Thorward of South Bend, Dr. J. E. Yarling of Peru, F. O. Cuppy of Lafayette, James E. Goodrich of Winchester, Jesse Weik of Greencastle, George C. Hitt of Indianapolis, C. S. Norton of Indianapolis, R. R. Faulkner of Newcasttle, A. J. Dayton of Lockport, F. S. Shoemaker of Bloomington, Thomas E. Davidson of Greensburg and W. J. Devol of Lebanon.

A St. Louis young lady some time ago met with a serious mishap through being over-trustful of telephonic breathings of affection. She supposed that she had been married by telephone to a wealthy cattleman in Nebraska, but when she went on to meet her alleged husband she discovered to her consternation that she was really married to another and poorer man, who had wickedly impersonated him at the Nebraska end of the line. In addition to her sore disappointment she found herself stranded in a distant state and obliged to sell her rings to get money to return to St. Louis.

# ILLINOIS TELEPHONE CONVENTION

*Independents Held an Important State Association Meeting at Springfield May 14-15*

By P. G. Franklin

THE second annual convention of the Illinois Independent Telephone Association was held at Springfield May 14-15, and proved to be an interesting and helpful meeting. Men prominent in the Independent field from all over the state were present, including 150 of the exchange managers and chief operators. The convention met at the St. Nicholas hotel Tuesday morning, May 14, and the forenoon was devoted to receiving and registering the delegates and members of the association, after which there were meetings of the various committees, enrolling of new members and other preliminary work. At eleven o'clock the meeting was called to order by Charles B. Cheadle, of Joliet, secretary of the Illinois Independent Telephone Association, and in the absence of the president, Edward R. Conklin, of Aurora, and the vice-president, Manford Savage, of Champaign, the secretary asked the pleasure of the convention relative to electing a chairman. It was moved and seconded that W. H. Bassett, traffic manager of the Kinlock Independent Telephone Company, of St. Louis, Mo., be elected chairman. The motion was put and carried, and after a brief address by Mr. Bassett the business proceeded. The chairman asked the secretary to read the minutes of the first annual convention, which was held at Peoria June 19 and 20, 1906. At the conclusion of the reading of the minutes a motion was made and duly carried that the minutes be adopted as read. The chairman then appointed an auditing committee to audit the reports of the various officers and a credential committee to ascertain who are delegates. These committees were: Auditing, W. W. Halliday, Jacksonville; J. H. Drawver, Bradford; J. W. Barrett, Pekin. Credentials, Charles B. Cheadle, Joliet; J. H. Hackett, Jacksonville; H. Wales, Polo.

The chairman then asked the pleasure of the convention and Mr. Cheadle presented a communication from the Chicago Commercial Association, extending to the Illinois Independent Telephone Association an invitation to hold its next convention in Chicago. A motion was made and carried that the communication be referred to the executive committee with power to act. Secretary Cheadle also read to the convention a telegram from Frank A. Parker, of Quincy, sending greetings to the convention, and regretting his inability to be present. J. S. Dailey, of Chillicothe, suggested that a committee be appointed to take charge of and handle a question box, but as a "Rapid Fire Discussion" had been prepared and topics assigned, the suggestion was withdrawn. The secretary called the attention of the convention to the shield emblem furnished by the association and urged that the same be used extensively as an emblem of the Illinois association. He also spoke of the toll sign and the advisability of getting it before the people. A motion was made and carried to adjourn till 1:30 p. m.

## TUESDAY AFTERNOON SESSION.

The afternoon session was called to order by the chairman, Mr. Bassett, who introduced Mayor David S. Griffiths, of Springfield, who welcomed the convention to the city. He spoke of the city from an historical standpoint, and also as a railroad center, and assured the delegates that every accommodation possible would be made for their comfort while they were in the city. On behalf of the association Vice-President Savage thanked the mayor for the address of welcome. He appreciated the hospitality shown the members and said that the members would not

soon forget the generosity of Springfield. He then spoke of the telephone business, saying that the telephone was no longer a luxury for the wealthy, but was a necessity for the common people as well. Competition has increased the number of telephones in the country wonderfully. Where there were thousands of telephones formerly there are now hundreds of thousands in use daily. The monopoly has been successfully opposed and the common people have a hand in the telephone business.

Mr. Savage had taken the chair at the beginning of the afternoon session and called for the reports of the committees on auditing and credentials. The secretary then presented the report of the credentials committee, and read the names of the delegates selected to attend the convention, at the conclusion of the reading of which a motion was made and carried that the persons whose names were read be the delegates to this convention. They are:

First District.—E. R. Conklin, Aurora; J. C. Joslyn, DeKalb; John Davis, Aurora; E. E. Wallace, Sandwich; F. M. Hargraves, Manhattan; Thomas Cliff, Sycamore; George B. Carey, Joliet; A. J. Vernier, Kankakee; C. B. Cheadle, Joliet; J. F. Parsons, Joliet; Mr. Olson, Capron; A. Jasinsky, Newark; R. B. Gallup, Aurora; Clarence Rogers, Sycamore; J. O. Barrett, Joliet; Joseph Balliot, Belvidere; C. W. Forbes, Chicago.

Second District.—L. A. Herrick, Freeport; H. Wales, Polo; W. H. Glasgow, Warren; Frank Zinnel, Savanna; Dr. C. Sagerland, Calidonia; A. C. Biesmeyer, Lena; Stephen Kennedy, Rochelle; Louie Pitcher, Dixon; Geo. N. Melendy, Thomson; Geo. E. Shoemaker, Freeport; G. W. Pitcher, Galena; L. S. Bowen, Savanna; P. A. Ainsworth, Sterling; B. F. Swaun, Harmon; F. M. Yocum, West Brooklyn; W. P. Landon, Rochelle; E. N. Howell, Dixon; A. G. Hawley, Clinton, Ia.; R. H. Gibboney, Rockford.

Third District.—H. W. Miller, Rock Island; O. L. Hatch, Kewanee; P. D. Ranson, Atkinson; A. E. Hoff, Wyoming; H. E. Pancose, Mendota; H. C. Barbour, Ottawa; W. H. Kugler, Harmon; F. Z. Ames, Rutland; Dr. J. D. Miller, Edginton; C. A. Camp, Henry; F. M. Ashe, Kewanee; R. P. Dexter, Galva; C. F. Price, Toulon; Andrew Patterson, Streator; Alex. Hiberg, Newark; C. O. White, Princeton; J. H. Drawyer, Bradford; S. S. Harris, Princeton; Dr. A. E. Owens, Princeton; H. H. Bratt, Rock Island.

Fourth District.—B. F. Wasson, Clinton; Elmer D. Childress, Farmer City; T. L. Parks, Le Roy; C. Batement, Bellflower; Manford Savage, Champaign; Mr. Kaufman, Clinton; Mr. E. C. Martens, Bloomington; Wm. Gaddis, Colfax; R. C. Means, Saybrook; C. Costly, Weldon; M. B. Farwell, Bloomington; L. F. Hynemen, Lexington; Lon Lee, Champaign; I. C. Sabin, Clinton; Mr. F. Y. Hamilton, Bloomington; Mr. C. Young, Downs; W. W. Lane, Arrowsmith; C. M. Cayle, Gridley; G. L. Gulliford, Bloomington.

Fifth District.—A. E. Fleming, El Paso; C. A. Camp, Henry; I. H. Drawer, Bradford; H. M. Plattenberg, Canton; Oscar Shepard, Washburn; Geo. H. Glass, Pekin; W. C. Olwin, Peoria; W. H. Ames, Tremont; H. H. Sullivan, Havana; W. P. Summers, Metamora; E. N. Wheelwright, Roanoke; E. S. Sterrit, Henry; J. S. Daily, Chillicothe; Geo. H. Myers, Washington; A. W. Miller, Varna; J. W. Barrett, Pekin; W. C. Conklin, Peoria; H. C. Griffield, Minier; T. Van Antwerp, Sparland; H. W. Bullock, Eureka.

Sixth District.—W. B. Burke, Burlington, Ia.; Walter Waugh, Roseville; J. W. Edwards, Aledo; John Riley, Seaton; F. C. Woods, Galesburg; R. C. Roadstrum, Galesburg; R. F. Butterfield, Industry; H. R. Grigsby, Blandinsville; C. C. McClung, Monmouth; A. P. Shaver, North Henderson; F. W. Krothers, Stronghurst; Tom Marshall, Keithsburg; Henry Kirkpatrick, Roseville; H. W. Stewart, Bigsville; Joe Cabeen, Seaton; Robert Swearer, Seaton; H. M. Chase, Galesburg; Eli McLean, Macomb; C. M. Erwin, Macomb; J. E. Lanphere, Monmouth; F. B. Hopkins, Bushnell; C. M. Todd, La Harpe; Harry Yates, Good Hope; J. A. Stineman, New Boston; Susan Adams, Monmouth.

Seventh District.—W. H. Ramsey, Auburn; F. W. Kelly, Springfield; P. M. Biber, Lincoln; L. C. Schwerdtfeger, Lincoln; A. Loehr, Carlinville; J. A. Cussins, Niantic; A. T. Vanniman, Girard; O. E. Dagget, Macon; Ed D. Glandon, Pittsfield; U. G. Tucker, Virden; W. C. Scott, Petersburg; E. A. Purcell, Taylorville; E. D.



Boynton, Pl. Plains; C. S. Hankins, Decatur; J. W. Collins, Lincoln; J. H. Hackett, Jacksonville; P. E. Gerber, Argenta; J. O. Shafer, Illiopolis; E. A. Bowdle, Chatham; W. W. Halliday, Jacksonville; I. F. Twist, Rochester; J. H. Donaldson, Mt. Auburn; J. W. Mount, Williamsville; Horace I. De Turk, Waverly.

Eighth District.—G. L. Chapman, Newman; C. E. Munday, Altamont; Albert Schuler, Paris.

Ninth District.—H. L. Reber, St. Louis; J. A. Hamilton, Marissa; H. V. Liebeg, Mascoutah; U. G. Tucker, Virden; H. J. Lager, Aviston; A. T. Vanniman, Girard; T. W. Atchison, Alton; Geo. Richter, Mascoutah; Jas. Cummings, St. Louis; H. Immetry, Aviston; B. F. Bradford, Greenville; R. P. Barnard, Hillsboro; Phil Baer, St. Jacobs; Dr. W. G. Bechtold, Breese; Chris. Busse, Troy; Jno. Cousins, Upper Alton; W. J. Bruns, Mt. Olive.

The association adopted the report of the auditing committee, submitted by W. W. Halliday. The convention then proceeded with the regular program and the chairman introduced J. H. Hackett, of Jacksonville, who spoke on the subject of "Past and Present Conditions of the Telephone Business." Discussions followed Mr. Hackett's talk by J. W. Barrett and George H. Glass, Pekin, and George F. Wombacher, Mascoutah. J. S. Dailey, of Chillicothe, then spoke on "Fallacy of Free Exchange and Cheap Switching," after which a general discussion followed. Next on the program was "Rapid Fire Discussions of Topics Assigned," by various members. The delegates to whom these topics had been assigned were introduced by the chairman and the subjects were handled in an able manner.

At 4 o'clock the operators were excused to attend a school of instruction conducted by Miss T. Barnes, chief operator at the Springfield exchange. Miss Barnes has the distinction of being one of the best posted chief operators in the state, and she was eagerly followed through her half-hour demonstration. Every phase of the switchboard was carefully explained and the instruction and information imparted were highly appreciated. More than fifty operators from all over the state were present. In the evening the delegates met at Arion Hall to listen to a lecture by J. H. Shoemaker, of Waterloo, Iowa, on "Fighting the Octopus," which was illustrated by stereopticon views. At eight o'clock the delegates were entertained at a theater party.

#### WEDNESDAY MORNING SESSION.

At nine o'clock the school of instruction for operators was conducted by Miss Barnes at the local exchange, with a great deal of interest and profit to all present. At ten o'clock the meeting was called to order by the chairman. Suggestions were made that the regular program be modified, inasmuch as many of the delegates were compelled to take early trains out of the city, and the business part of the program was taken up and several business matters disposed of. George H. Glass, Pekin, made a suggestion that the nomination of candidates for officers for the ensuing year be taken up in open convention instead of by a nominating committee. This was put aside for a time, to be taken up later. Miss Barnes read a very interesting paper on "Exchange Operating," which was thoroughly enjoyed by all. A vote of thanks was extended to her by the convention. George H. Glass spoke on "The Manager, His Duty to Patrons and Employees," which was followed by a discussion in which the entire body joined. A paper was read by A. J. Shands, of St. Louis, entitled "Observation Desk," a feature new to most exchanges.

The election of officers followed. This was to have taken place at the afternoon session, but as many of the delegates were compelled to leave it was voted to have it in the morning. Mr. Glass nominated Manford Savage, of Champaign, for president for the ensuing year. He was elected by acclamation. Mr. Savage thanked the convention for the honor conferred on him, and said that the delegates had a common interest, and asked their co-operation in the great work the association had undertaken. W. H. Bassett was nominated for vice-president, and was elected by acclamation. Mr. Schuler nominated Mr. Cheadle, the secretary, for another term, the nominations were closed and he was

elected by acclamation. C. S. Hankins, of Decatur, the treasurer, was also re-elected by acclamation. The present executive committee was then re-elected unanimously. A committee on resolutions was then named and requested to report at the afternoon session. The committee elected was: L. E. Schwerdtfeger, Lincoln; F. B. Woods, Galesburg, and Albert Schuler, Paris.

#### WEDNESDAY AFTERNOON SESSION.

The session convened at 1:15, and as Mr. Savage was compelled to leave, W. H. Bassett, the newly-elected vice-president, took the chair. A suggestion was made by Mr. Donaldson, of Mt. Auburn, that the "Scrap Book" prepared by B. F. Wasson, Clinton, be allowed to come next on the program. Mr. Wasson spoke of the advisability of keeping a scrap book by saving important items from newspapers and technical magazines. A discussion followed.

Mr. Glass in his discussion exhibited a book, the only one in existence, published in 1879, a telephone directory of Richmond, Va. He read selections from this directory describing the clumsy apparatus used at that time and directions for the use of the telephone at that time. These articles were interesting and amusing and showed the advancement made in the telephone world. Following these discussions, Mr. Cheadle made a motion that the convention extend a sincere vote of thanks for the courtesies shown them by the city of Springfield, the St. Nicholas hotel management, and the people of Springfield in general; also the manufacturers and supply houses who had contributed in making the convention a success, and the members of the different committees. The motion carried unanimously. Mr. Cheadle then presented the following resolution, which was read and adopted:

"Resolved, by the Illinois Independent Telephone Association in regular annual meeting duly convened, That Article LX of the constitution of said association be and the same is hereby amended to read as follows, to-wit: Each person, firm or corporation upon becoming a member of this association shall pay a membership fee as follows: If operating 100 units or less, \$1.00; more than 100 units, and not exceeding 250, \$2.00; more than 250 units and not exceeding 500, \$3.00; more than 500 units and not exceeding 1,000, \$5.00; more than 1,000 units, \$10.00. All members shall pay annually thereafter such sum, not exceeding two cents per unit, as may from time to time be levied by the executive committee, subject to the approval of a majority of the vice-presidents; such levies to be payable within thirty days after call of the treasurer; calls, when necessary to be made, if practicable, on the last day of May and November of each year."

J. H. Hackett then made a motion that Mr. Cheadle be thanked for the able way in which he presented the interests of the state association to the ways and means committee of the Chicago Commercial Association. The motion was carried unanimously. L. C. Schwerdtfeger, chairman of the committee on resolutions, then announced that the committee was ready to report and the following resolutions were presented:

"Resolved, That it is the sense of the convention that the growing tendency of Independent exchanges and companies of permitting the Bell Telephone Company to connect their toll wires with the Independent switchboards is a practice we believe detrimental to Independent telephony and should not be countenanced by this association.

"Resolved, That this association affiliate with the International Independent Telephone Association and elect delegates to attend the annual convention to be held in June next at Chicago, Ill.

"Resolved, That in all districts where no district meetings have been held during the past year, the office of vice-president in such districts be declared vacant and the con-

vention now assembled elect vice-presidents for such districts.

"Resolved, That the work of the retiring officers of this association during the past year has been productive of much good, and this association is to be congratulated that it has received the benefit of their services, and especially is this so of the work of Secretary Cheadle, and in recognition of such service a vote of thanks be extended to them."

At the conclusion of the reading a motion was duly made and seconded that the resolutions be adopted. Mr. Cheadle moved an amendment that the resolutions be adopted excepting the one relative to this association becoming affiliated with the International association, which amendment was duly carried and upon a vote had upon the original question the resolutions thus amended were unanimously adopted. Mr. Cheadle then presented a letter from James B. Hoge, president of the International Independent Telephone Association, which by direction of the chair was read. It was decided that the matter of the Illinois association becoming affiliated with the International and that of the selection of delegates to the International convention to be held in Chicago June 4, 5 and 6, be referred to the executive committee with power to take such action relative thereto as they shall think wise and to the best interests of the association. A discussion then followed relative to this association becoming affiliated with the International association.

Following the discussion regarding the affiliation of the state association with the International association, a talk was made by Edward D. Glandon regarding the clearing house question for the purpose of regulating toll rates. The discussion on this subject was informal. It was suggested that owing to the importance of the subject and the limited time to handle it properly, a committee of three be appointed by the chair to take up the matter of securing information regarding clearing houses, and the chair appointed the following committee: Edward D. Glandon, Pittsfield; J. W. Barrett, Pekin; L. A. Herrick, Freeport.

The next in order of business was the election of vice-presidents where there had been no meetings in the districts. Three districts were affected, the eighth, tenth and eleventh, and in the case of the last two named vice-presidents were re-elected, as it was shown that the conditions under which they were working justified their actions. In the eighth district, G. L. Chapman, of Newman, was elected to succeed C. W. Shimel, of Casey. In the tenth district, C. E. Hull, Salem, and in the eleventh district, H. R. Ais Thorpe, Cairo, were elected. The matter of selecting a city for the third annual convention was left in the hands of the executive committee, who will report later on the subject.

Lack of space prevents the publication of the papers read at the Illinois convention. They will appear in a future issue of TELEPHONY.

#### TELEPHONE CONNECTIONS WITH CANADA.

Plans are being made to establish connection between the Independent telephone lines of Canada and the United States. One of the first links to be forged will extend from Winnipeg, the Canadian line to be met at the border by the Tri-State Telephone Company of Minneapolis.

J. H. Howden, the new Canadian minister of railways, telegraph and telephone service for the province of Manitoba, has been in the United States recently in conference with the Tri-State officers. In discussing the project Mr. Howden said: "It is our purpose to push construction work to the points which the strong American Independent companies have reached. The plan under which we are working provides that each municipality shall own and operate its telephone company, that the long-distance lines and central exchanges shall be put in by the government. The standard of equipment is prescribed by the government and all equipment must conform to that standard. The

question of government ownership is determined by vote of the people of each municipality, and in December last 50 per cent of the municipalities of Manitoba voted in favor of the plan. As the provinces of Alberta and Saskatchewan to the west of us also adopted the idea, that will mean that virtually all of western Canada will have government telephone service.

"The investigation which I have been making in the United States has particular reference to ideas to be adopted in establishing the exchanges at Winnipeg and Brandon and the long-distance lines throughout the province of Manitoba, for this will be part of the work that will be undertaken first. Active operations will be commenced in a very short time, but I am unable to say how soon we will have any part of the work completed. There are a number of Independent municipal plants in operation in western Canada now, but nearly all of our system will be new. Our charges for service will be based on the actual cost of construction and maintenance and if there are any profits they will go to the people in reduction of the rates for service."

R. P. Roblin, premier of Manitoba, has announced that the government will begin the construction of 1,000 miles of telephone and telegraph lines by July 1. This is a part of the public ownership plan which contemplates the expenditure of \$10,000,000. The Canadian bill perceives the necessity of making improvements to keep pace with competition and will spend \$2,500,000 on extensions and improvements in the Dominion this year. Of this amount \$800,000 will be spent in Montreal.

#### THE TELEPHONE VOICE.

A new field of activity has been opened up in the feminine world. Just what it is and how it came about is best told in the following words from the Indianapolis Star:

"An Indiana telephone girl has won a husband because of her sweet voice. Doubtless the husband is to be congratulated, because, as high authority has it, a voice gentle, soft and low is an excellent thing in a woman and is, it may be added, especially desirable in the case of the woman who presides over the domestic hearth. With this example before them, and others of the kind now and then reported, it might be thought that the young women at the telephone exchanges would engage in systematic cultivation of sweet and musical intonation. There is, however, a much better opportunity before them for winning popularity than is to be gained by mere vocal sweetness, and that is promptness of speech and action. What does it matter to the average telephone patron whether the voice of the operator at the switchboard is melodious or not, if it is slow in coming over the wire, or if it is heard, after long delay, only to drawl 'number?' and again 'number?' after more delay, and then connects with a number quite different from the one the patron calls. What does it profit the telephone girl, matrimonially or otherwise, if she calmly, though in dulcet voice, declares to the anxious caller that the line is 'busy now,' and continues so to assert, while the impatient man at the other end of the wire with good reason to know it is not busy listens in a frenzied state of mind to her idle chat with her chums? Nay, verily, it is not sweetness for which the telephone subscriber yearns, but for a swift answer to his calls and prompt and accurate connection with the other telephone. The voice may be shrill and sharp, or hoarse and raucous, or it may be impeded with a wad of gum, but it will win favor if it only responds quickly. If the telephone girl can not be both mellifluous and prompt, let her be prompt, and she will be more likely to get a husband than through sweetness alone. Also she will do much to lessen the present sum total of unseemly wrath and profanity in the community. She may, in fact, if she will, become a great moral agent."

# QUESTIONS AND ANSWERS

By H. P. Clausen

**O**WING to a discussion with a neighboring manager I wish to ask you a question. The manager is operating a magneto call switchboard, and has trouble with the clearing-out drops failing to fall on connection between 80 ohm series telephones. The clearing-out drops are bridged across the cord circuit and measure 500 ohm resistance. They always work through between bridging lines. I have had the same trouble and one of us insists that winding the bells of the telephones to resistance of 80 ohms is not the best practice.—E. C. K., Nebraska.

The writer believes that this is a question which deserves a special article to clearly bring out the different effects, and shall at an early date give the matter more thorough attention. Briefly, however, series telephone bells are wound to a resistance of 80 ohms for reasons of economy, and while it may be said that the remedy is to use nothing but bridging telephones, the fact remains that there are many series telephones in existence and one cannot change the existing conditions. From an efficient service standpoint, the telephone ringer coils should be wound at least to 500 ohms resistance, for when so wound there is not enough current lost through the telephones connected to the cord circuit for preventing clearing-out drops from responding, but if we have, say, 500 telephones in an exchange and each one of the telephones contains a ringer wound to 500 ohms resistance and with each telephone equipped with generators arranged for bridging service, it means a difference of somewhere between \$300 and \$500 in the estimate cost of installation. Now, if each switchboard position gives service to 100 subscribers' lines and each position is equipped with 10-cord circuits, obviously it would be cheaper to equip the cord circuit with special means with which it would be possible to operate the 80-ohm series type telephone, for there are only 50 cord circuits to be taken care of and an additional expense of somewhere between \$2 and \$3 per cord circuit will give the service required for producing a satisfactory system of clearing out. The only thing necessary will be to install clearing-out drops provided with two separate windings connecting one set of windings to the answering cord and another to the calling cord and connecting the two tips of the cord circuits together by means of a condenser, say one-half microfarad capacity, and do the same thing with the two sleeve conductors. This gives excellent service from a clearing-out standpoint, good service from a transmission standpoint, and absolute immunity from interference, should you connect party lines together with lines equipped only with straight circuit instruments, for the condensers in the cord circuit, being of low capacity, will not transmit the signaling current from one telephone through the switchboard to the bells connected to another line. As stated, this matter will be more fully treated in an early issue of TELEPHONY and the different points clearly brought out.

## LIGHTNING ARRESTOR IN AIR-TIGHT CASE.

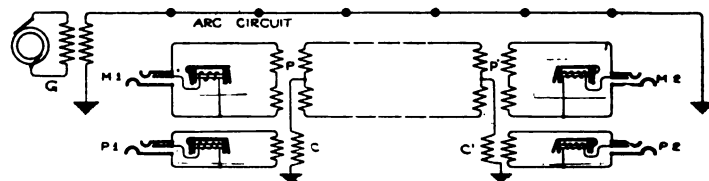
What would be the result if a carbon arrestor were enclosed in an air tight case made of heavy brass with the case connected to earth and an excessive charge of lightning should pass between the carbon blocks of the arrestor?—D. A. N., Michigan.

If an ordinary carbon lightning arrestor is enclosed in a metal cup the effect observed during lightning discharges will depend entirely on the construction you place on the expression "air tight". If you simply close the cup against the future entrance of outside air, and the cup contains nothing but a portion of air, then it merely is a question of the intensity of the discharge whether the metal cup will burst or stand the pressure of the gas generated on the in-

side of the cup. If a carbon arrestor is enclosed in a cup and air is forced into the cup, the lightning discharge would pass the space between the carbons more readily than would be the case if air at ordinary pressure surrounded the carbon. If you have in mind the production of a vacuum, i. e., if you wish to place the carbon into a cup completely or nearly exhausted of air, it merely depends on the degree of exhaustion in order to reach a point where the lightning discharges would not pass from one carbon to another. That is to say, with a complete vacuum (which, the editor believes, has not yet been produced) no discharge of any intensity will succeed in jumping across the space between the carbons. In other words, a complete vacuum is a complete insulator and no spark can pass between the two terminals unless something besides the vacuum (ether) is present.

## A GROUNDED PHANTOM TELEPHONE CIRCUIT—SERIES ALTERNATING ARC CIRCUIT—POSTAL TELEGRAPH CIRCUIT—ENOUGH SAID.

I have been very much puzzled over the performance of a grounded phantom line, diagram of which is shown below. It is, I believe, connected up according to one of the standard diagrams of a grounded, phantom circuit. *C* and *C'* are small repeating coils, *P* and *P'* are larger repeating coils, being similar to the coils described in an article appearing in January Telephony. The conditions of the lines are as follows: The phantom line works perfectly during the day but at night after the street lighting arc circuits are turned on there is a loud humming which makes talking over the phantom circuit difficult if not entirely impracticable. After studying the disturbances carefully I think that there is no question but that it is due to the series arc system which is an alternating current circuit. Another phantom line arrangement as shown in the diagram was paralleled by a postal telegraph lead and it was so noisy that talking over it was almost impossible. The noise resembled one which one hears on a metallic line when heavily grounded. It fried and buzzed so much that it was of no use whatever. The noise was on the line constantly, and when at night we added the alternating current noises, the combination of noises was as interesting as they were destructive. I shall be greatly obliged if you can suggest any way by which these troubles



can be lessened or eliminated altogether. I should also like to know where I can get some literature on this subject which would go into the theory of such troubles.—S. T. W., Kansas.

The trouble of which you complain is one which is encountered whenever an attempt is made to use the earth as a return circuit for a telephone lead when such leads are paralleled by electric light or any other kind of electric circuits. You will appreciate the fact that if your phantom line is paralleled by a telephone circuit which is also grounded that you have cross talk. This of itself is a serious difficulty and you can easily observe that if there is no way to get around preventing cross talk, then it must be equally difficult to get around or avoid the disturbances caused by other electric currents. Of course, one can talk over a telephone line with considerable disturbances present, provided these disturbances do not take the character of speech which one can understand, i. e., a noise may be quite loud and still not be sufficiently great for drowning out all conversation, but it does not take a very severe case of cross talk to practically require a suspension of the

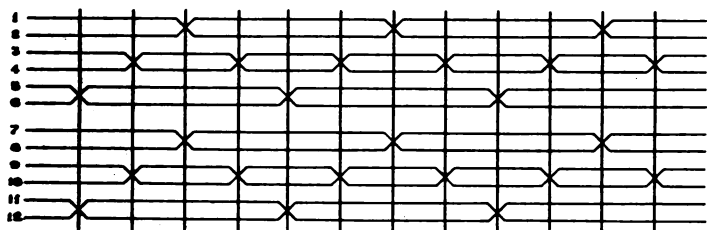
service. Now the only suggestion which can be offered in your case is that if you have two phantom circuits using the earth as a common return that you endeavor to cut clear from the earth and make one phantom out of the two. That plan, however, will rob you of one circuit.

The other suggestion is to add sufficient resistance in your phantom circuits—say where you ground them at each end of the line—so that you reduce the noise. Of course, you also reduce the speech, but as a rule, there is a point to which you can reduce noise and still carry on a conversation. A good suggestion would be to let the resistance take the form of condensers; either of low capacity condensers or several condensers connected in series. There is no literature available covering this subject, but a study of the local conditions would undoubtedly reveal some plan through which the severity of your noises can be reduced. One suggestion which might be well worth trying is to take a comparatively low capacity condenser and connect one to each line wire, grounding the lines through the condensers. Of course, it may be introducing another evil,—that is, noise on the metallic circuits, but this may be compensated for in several ways. Try the matter of inserting condensers or resistance, or both, in your leads to the earth and also try grounding the line wires through capacity and you will undoubtedly hit upon some plan which will give you some relief.

#### TRANSPOSITION OF TWELVE-PIN CROSS ARM.

Will you kindly give diagram for transposition of a twelve pin cross arm? We have six trunk lines, five miles in length and shall ask you for a simple transposition scheme.—F. C., Wisconsin.

You will find illustrated below a twelve pin transposition scheme. Notice that the different leads have been numbered from 1 to 12. Now if it will be understood that the distance between the vertical lines is 1,300 feet, then you will observe that the transposition of the wires 1 and 2



occurs every mile, and that the transposition of wires 3 and 4 occurs every half-mile. Further, that the transposition breaks across the transposition points of the 1 and 2 leads. Leads 5 and 6 are transposed every mile, but you will observe that they break across the transposition of leads 1 and 2. This same scheme of transposition is repeated on the remaining leads from 7 to 12. We believe that this transposition scheme will give you excellent results.

#### TRANSPOSING GROUNDED LINES, USING WATER PIPE GROUNDS, AND KILLING INDUCTION.

1. Where we have five or six grounded telephone wires running parallel on the same cross arm can cross talk be lessened by transposing in any manner?

2. Is it not a poor plan to ground the switchboard to the water pipes of a town having an alternating current arc light system? The lines are fairly quiet until the operator listens in, when the hum is more than doubled.

3. Will running weather-proof wire through the town lessen induction caused by arc light circuits? (Lines are grounded).—G. H. W., Pennsylvania.

1. There is no way of accomplishing much good in transposing grounded lines. The wires may be mixed up indiscriminately and there is less cross-talk between any two wires on the same lead, but you hear a little cross talk from every circuit, whereas, if you do not mix up, or perhaps we may say, transpose the relative positions of the wires,

then a given circuit may be parallel to another circuit for several thousand feet. In this case, the cross-talk effect between these two circuits would be very severe, and again cross-talk between one of the circuits and a circuit at the far end of the cross-arm would be very much lessened. Perhaps the best way to state the effects of transposing common return lines is that when they are not transposed you may at times have severe cross-talk between certain lines, and at other times very little cross-talk; whereas, when the wires are transposed, you always hear a little cross-talk, and when the lines are very busy the cross-talk takes the character of a noise, and everyone knows how much easier it is for two parties to understand each other when a noise is present than when a clearly understood foreign conversation is passing over the same circuit. It is rather difficult for this to be understood. Perhaps an illustration of a duplex telephone circuit which actually was tried out and worked very well, may serve to show what is meant. Four telephones were placed in separate rooms and connected to the same set of wires. Placing a party at each of the telephones, it was found that two separate conversations could be held over the four-party line, and, at the same time, without interference, and it was accomplished by placing English-speaking persons at two of the telephones and two German friends at the remaining two telephones, and when it is understood that the German parties could not understand a word of English and the English parties could not speak a word in German it is quite conceivable how this duplex circuit worked out, i. e.: the cross-talk took more the nature of a noise which is obtained when the many wires of a common return system are transposed.

2. If you must have a ground for your lines, it will depend on the nature of the soil whether a water-pipe ground is better than another form of ground. As a rule, the water-pipe ground is a satisfactory ground connection. Local conditions, however, may alter this assumption. If the soil is very dry, the water-pipe system may form practically a high resistance ground. This is not likely. The fact that when an operator listens in on the line an increased noise is produced, shows that you should have some arrangement in the operator's circuit for preventing her from grounding the connection while listening in. Insert condensers and notice the difference in the noise.

3. Weather-proof wire does not prevent induction, but it prevents leakage through accidental contacts of the line wires with trees, and with electric light induction present; you will find the lines more noisy with light tree grounds present, although this sometimes operates just the reverse. The tree grounds may clear the noise.

#### AN IMPRACTICABLE SPECIAL CIRCUIT REQUIREMENT.

A merchant in our city is building a branch store about four miles away from the main office and it is required to give a strictly private service between the main store and the branch so that the merchant can call the central whenever required from either the main or branch store without ringing the bell at the main headquarters, but he does not object to our central office knowing it or being in on the circuit. He is willing for a connection to be made at the switchboard between the regular subscribers' line from his main store or the telephone at his branch store. We now have one line running from our exchange to the main store and another line connected to a different circuit altogether running alongside of the store line. Now is there any way through which we can utilize these two lines so that the store bell can be made to ring and throw a drop in the switchboard and not ring the branch bell and still prevent an interference between the different lines? In other words can we use the lines from our exchange to the store and the line which parallels this exchange line as grounded and independent lines and still get a metallic selective service over them from the main store and branch store telephone?—C. M. G., New Mexico.

We have endeavored to interpret your inquiry, but do not quite understand the exact arrangement that you wish to obtain. It appears as though you do not wish to have

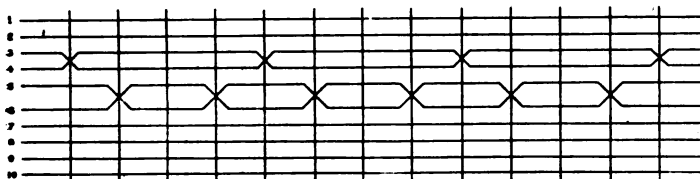


any interference between the signals of the branch and main store telephone. Furthermore, that you wish to speak to the central office from the branch store independent of the main store line and independent of the telephones connected to the lines which parallel the exchange circuit and which connect the store to the central office. We believe you are endeavoring to secure an impossible service. If the requirements were to the effect of your wishing to signal the office or either of the store telephones without interference, this service could be produced. Further, you can produce a service through which the store telephone can call between without the central office receiving a signal. If you will kindly state your problem a little more clearly and submit diagrams showing the locations of the different lines and stations, it may then be possible to give you a more satisfactory answer, but as at present informed, it would be cheaper to connect the branch store to the exchange by a separate line.

#### TRANSPOSING TWO METALLIC CIRCUITS AGAINST SIX GROUNDED CIRCUITS.

I send you herewith diagrams showing some lines which we wish to transpose. Kindly give your suggestions in this matter.—L. E. S., Iowa.

The diagram presented below shows the transposition of two metallic circuits against each other. This plan of transposing will undoubtedly take care of your problem. You will notice that the only thing which has been done is to



transpose the two metallic circuits toward each other, and while it may be better for you to transpose leads 4 and 5 towards 6 and 7, your circuit conditions may not permit of this and therefore you transpose leads 3 and 4 against leads 5 and 6, as shown in drawing.

#### INDEPENDENT TELEPHONE REFUSES TO RESPOND TO "SIGNALS" FROM KELLOGG INSTRUMENT.

My exchange is equipped with Kellogg telephones and I am now purchasing from the Independent telephone manufacturers. In the last shipment of telephones received I find that the Independent telephones cannot be signaled from the Kellogg. *Viz.*, while I turn the crank of the Kellogg generator it turns very hard, as though the line were grounded. What do you think is the trouble?—L. Q. A., Iowa.

While you do not state the kind of telephone you have purchased from the Independent company, we presume you have reference to a regular bridging instrument. If this is the case, it is possible that the lightning arrestor carbon of either of the telephones is too closely adjusted. Remove the carbons, thoroughly clean the space between them, and try again. Further, it is possible that the Independent telephones contain a ringer not wound to the proper resistance. Another difficulty which might be present is that the shunt spring of the Kellogg generator does not cut out while you are driving the machine in signaling. This would produce the short circuiting effect, *i. e.*, the machine would turn hard. In order to detect where the trouble is in the Kellogg instrument, remove both line wires from the telephone binding posts, and observe whether the same effect is present as before. If so, you have located the trouble in the Kellogg instrument. If clear, your trouble must be on the line or in one of the telephones connected to the line. It is suggested that you be sure to state whether the telephones are provided with push buttons or other arrangements for party line purposes. Also give information as to how many telephones are connected to line and whether the

line connects to a switchboard, and if so, whether the switchboard drops are wound to a resistance higher than the ordinary series drop.

#### CHANGING SERIES TELEPHONE TO BRIDGING.

I have several Stromberg-Carlson series telephones which are not in use at the present time. Is there any way through which I can change them to bridging 1600 ohms resistance and about how much will it cost?—C. M. G., New Mexico.

In order to change a series telephone to bridging it is first necessary to arrange the generator so that it is normally cut out of circuit, and you will find that the series generator has not been provided with a normally open cut in spring arrangement. You might install a push button and use the series generator and so arrange the circuits that while pressing the button the generator is connected across the line, but you will find that the series generator is not wound with a suitable size of wire for making it an efficient piece of bridging apparatus. As a first consideration in the matter of cost, you will require a new generator. Next, you will require new ringer coils. You may have the old ones rewound; each coil being wound to 800 ohms resistance, and when connected in series, making 1,600 ohm ringers. It is thought the change in the generator would call for a new machine and together with rewinding the ringer coils, it would mean an expense of something like \$5 for new apparatus.

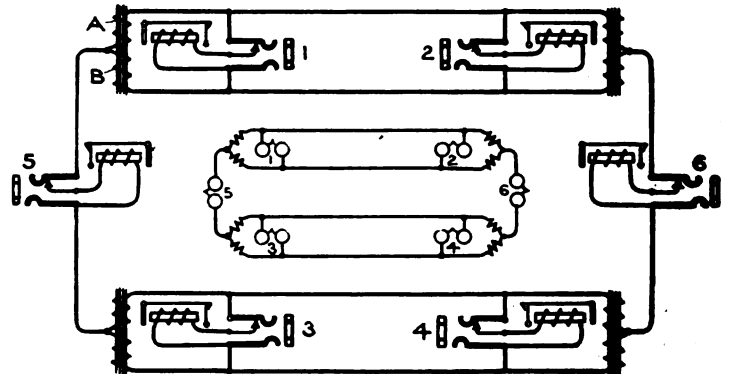
#### INFORMATION ON SOLDERING WIRE.

Please tell me the name of some good telephone books for a beginner to read, and where I can get them. Also, what is the best method of soldering drop leads to the line wire on junction poles, etc. Is it wrong to solder or heat the connection with a blow torch and apply the solder?—R. E. S., Colorado.

You do not state what subject you wish to read up on particularly. There are something over 150 books on telephone subjects, and in these days of specialists it is always well to select a book which meets one's specific inclinations or requirements for study. If you will communicate with us, stating the branch of the art you are especially interested in, we shall be pleased to quote you prices and also supply the books to you. The most approved method for connecting drop leads to the line wires is to use some form of a clamp. At its best, it is bad practice to solder a bridged lead to a through line on account of the weakening effect which takes place when a wire is heated. It is the joint which has thus been annealed which generally gives away first when any unusual strain is put on the line wire. Our advertising columns contain the names of a number of manufacturers and dealers in appliances suitable for your work.

#### A PHANTOM TELEPHONE CIRCUIT.

Will you please tell us if it is practicable to form a third metallic circuit by using one leg from each of two other metallic circuits?



We have two metallic lines running out seven miles to subscribers and if practicable would form a third line by the method suggested.—M. M., Tennessee.

With two metallic circuits extending between points seven miles distant from each other, it is entirely practicable to

obtain a third metallic circuit by phantomizing the two metallic lines. As shown by the illustrations, 1 and 2 represents the end terminals of one of the metallic circuits. The end terminals may either connect to a switchboard or they may connect to telephones, for to whichever equipment they are connected it will not affect the general arrangement. 3 and 4 represent the second metallic circuit terminals, while 5 and 6 show how the phantom circuit may be connected to the two metallic lines.

*A* and *B* represent the two halves of a double wound retardation or impedance coil and a coil of this kind is installed at each terminal of the metallic circuit line. The arrangement of the coil is such that when a current passes from one of the metallic line wires across to the mate of the metallic circuit, that current which passes through the *A* and *B* windings of the impedance coil results in magnetizing the iron core of the coil, and as it is well understood that an alternating current will not readily pass through a coil of wire which surrounds an iron core, it is quite obvious that while holding a telephone conversation between points 1 and 2 very little current is lost through the impedance coil owing to the reason already stated.

Now if a conversation is also had between stations 3 and 4, it follows that no portion of the telephone current circulating between stations 3 and 4 can reach the circuit of stations 1 and 2, even though a connection has been established between the centers of the windings of the impedance through the line terminals 5 and 6. To produce a third metallic speaking circuit, the terminals 5 and 6 are each connected to the junction point between the windings *A* and *B* of the impedance coil.

It is well understood that when a current enters the windings of a magnet and passes through the windings in such a direction as to cause a neutralization of the magnetism produced by each winding, no effect of magnetization is had. And when a current passes through a coil of wire which produces no magnetic flux, then that coil of wire offers merely its ohmic resistance to the current passing through it. That is, when we connect the phantom circuit to the centers of the windings *A* and *B*, we find that the resistance of the impedance coil is a non-inductive resistance and permits us to speak over the metallic circuit; one-half of the current going over the tip wire and the remaining half over the sleeve wire. So long as this condition of one-half of the current passing over each line wire obtains, so long do we have a clear talking circuit.

Note the diagrammatic representation of the phantom circuit. It will be observed that when 5 is talking to 6, the current equally divides at the point where it joins the metallic circuits, and further, that the telephones connected between the metallic circuit limbs do not give passage to any of the current passing between stations 5 and 6. This operation, in fact, is the entire secret of the successful phantom system; one-half the current must pass over each line—and if it does not, owing to a difference in the resistance between the two line wires through loose contacts or other causes, then cross talk is the result, and it is very difficult to provide any thoroughly reliable means which will prevent cross talk occurring at different times without a readjustment of certain equalizing arrangements which may be provided.

It is finally suggested that if your metallic circuit lines are of the same size and kind of wire, and all joints are properly soldered, you may give a phantom service between the points referred to. You can obtain the necessary impedance coils from any of our advertisers of telephone apparatus, but before you go into the operation of the phantom circuit in connection with switchboards, it will be necessary for you to obtain a large amount of data which has not been referred to in this answer, but by watching the columns of TELEPHONY you will be able to learn a great

deal about the necessary requirements for operating a phantom circuit in connection with switchboards, as this subject will be fully treated in the near future.

#### CARBON VERSUS METAL BLOCKS FOR LIGHTNING ARRESTORS.

Will lightning arc from carbon to a metal ground as well as from a metal to a carbon ground, or from a carbon to a carbon ground? If not, why not?—D. A., Kansas.

You are bringing up a question which is now being quite extensively investigated by the different companies. It appears, however, as though there should be practically no difference between current discharges from carbon to metal and metal to carbon. However, it may be found that discharges flow easier from carbon to metal because of the greater atomic weight of metal. Namely, it has a greater capacity for absorbing electricity, and if we assume that lightning discharges generally occur from line wire to earth, the metal blocks should connect to the earth and carbon blocks to the line. As stated, extensive experiments are being made on the plan in which both electrodes of the lightning arrester are made from copper, and so far very excellent results have been obtained.

#### WHAT FRANK L. BEAM SAYS.

In exploding the Bell yarn that the monopoly is absorbing the Independent telephone companies of Ohio, President Frank L. Beam of the Ohio association makes the following convincing statement:

"The Independent interests have 300,000 telephones in the state of Ohio to the Bell's 150,000, and Indiana has 186,226 Independent telephones, while the Bell has but 64,229. Almost everywhere the Independents control the local telephone business and give excellent long distance service over the lines of the United States and Indiana Long Distance systems. In order to save the Central Union Telephone Company from complete annihilation the Bell company has recently made a proposition to the Independent companies in Ohio and northern Indiana to abandon the local fields altogether, provided the Independents would take the Bell long distance lines into their switchboards and give the Bell such toll business as could not be handled over the Independent toll lines. So far none of the Independent companies has accepted the Bell proposition, as the rapid development of the Independent long distance lines will soon give them access to all the important trade centers in the west. The Independent companies of Ohio and Indiana have approximately 45,000 local stockholders who are not in favor of entering into agreements of any kind with the Bell company."

#### TELEPHONE DOES NOT INJURE HEARING.

European medical experts have exploded the theory that the continual use of the telephone is injurious to the sense of hearing. On the contrary, celebrated physicians say, the daily use of the telephone sharpens that faculty and increases its alertness, proving thereby a positive help. The question whether the long use of the telephone was injurious to the ear has been the subject of an exhaustive investigation by Prof. de Blegvard in the laryngological clinic in Copenhagen.

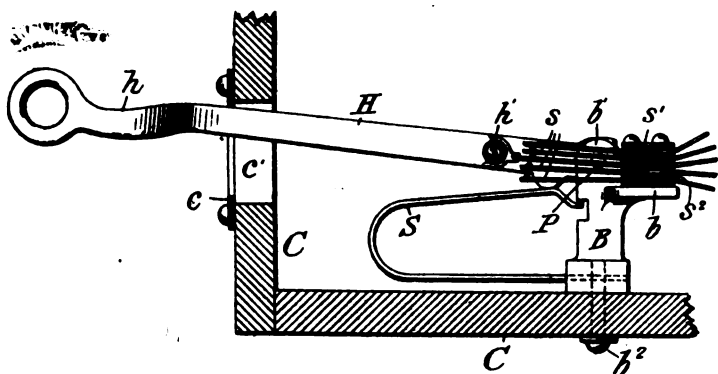
The examination of 371 "hello" girls led to the belief that continual telephone work did not damage the hearing. On the contrary, some of the subjects declared their hearing was materially improved owing to the practice.

Professor Blegvard concludes that the naturally healthy and normal ear will not be harmed by telephone work, accidents of lightning, short circuit, etc., excepted, and advises those contemplating the work to submit themselves to an expert examination. He advised that persons inclined to nervous trouble or congestion of the blood, and suffering from headaches should not enter the calling.

# DIGEST OF TELEPHONE PATENTS

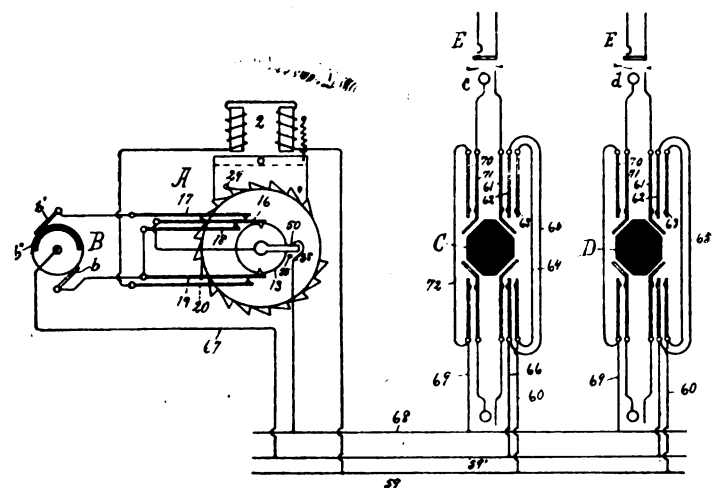
By Edward E. Clement

850,870. Electrical Switch. Manson. This is a switch set for telephone wall sets and comprises a base upon which the contact springs are mounted and a pivot post which is engaged by the hook lever which is slotted for this purpose. An extension on the hook lever limits its upward



movement by engagement with the base. This lever may be removed and placed in position without entering the casing. Patent assigned to the Dean Electric Company.

851,031. Electrical Impulse Counting Switch. Roberts. This is a substation sender which is arranged so that after the dial is set for a certain digit number and released, current is sent through a polarized magnet to step the indicator around a given number of times on impulses of a given

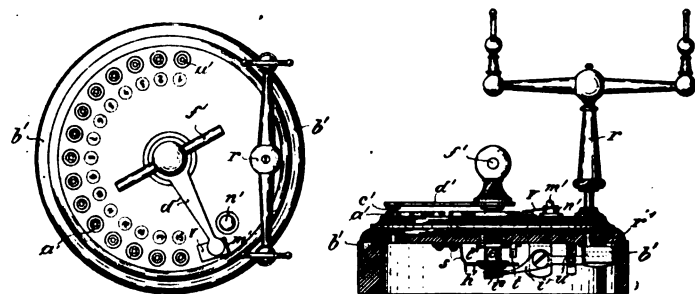


polarity and to automatically change the polarity. The device alternates in this manner until the dial reaches its normal position under the influence of the retractile spring. Patent unassigned.

851,090. Telephone Meter. Holland. This is a telephone meter for registering the time of conversation and depends for its operation upon the removal of the receivers at the connected subscriber's station. The meter which records the time and the call at the calling station is set in operative position when the call is initiated, but is not operated until the called subscriber removes his receiver. It is, however, continuously operated until both receivers are restored. Patent assigned by mesne assignment to Charles Bate of Boston, Massachusetts.

851,266. Line Selector for Intercommunicating Telephone Apparatus. Walloch. In this device a series of contacts corresponding each with an individual line are arranged around the dial and adapted to be engaged by a

contact arm carried on the indicator hand. A lever controlled by the receiver hook is so arranged as to have a portion engaging the end of the shaft upon which the



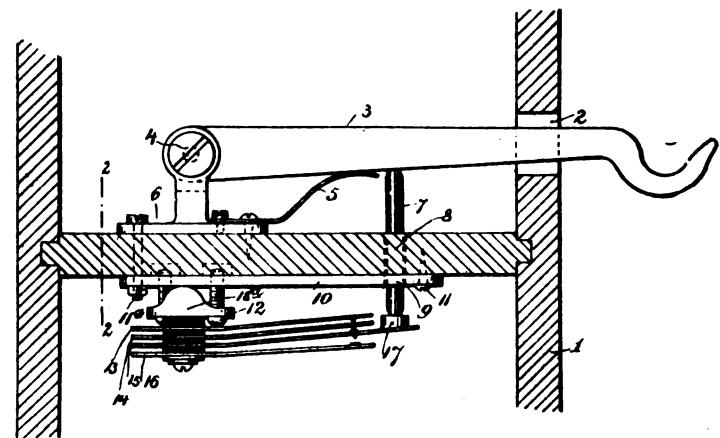
contact arm is carried and adapted to press the shaft outwardly and thereby force the contact arm away from the contacts so that it is impossible to get a connection with a line when the receiver is on the hook. Patent unassigned.

851,355. Telephone Transmitter. Houghton. This transmitter has its front plate formed in a conical face with a central opening therein. A U-shaped and dished member is secured to the opening with a number of peripheral openings to admit voice waves. Patent assigned to the Wire & Telephone Company of America.

851,458. Party Line Telephone System. Vollmer. The substation talking circuits are suitably controlled by a revolvable shaft which is held in a predetermined position by a clock train and is also freed thereby at a predetermined time so that the system will be returned to normal position. Patent unassigned.

851,500. Telephone Trunking System. Dean. In this system a signaling apparatus is associated with the incoming end of the ordinary trunk circuit and comprises a relay normally disconnected from one side of the trunk, and a second relay which is worked over the sleeve side of a trunk cord when connection is made with the line. The latter relay has its contacts normally completing a testing circuit. Means is provided for connecting the first relay to one side of a trunk cord and for disconnecting the testing circuit when connection is established. Patent assigned to Kellogg Switchboard and Supply Company.

851,761. Telephone Switchhook. Larsson. Within the casing of the wall set is an adjustable bridge upon the underneath side of which is mounted a series of contact



springs with an operating rod projecting through the base and operated by the switchhook which is carried upon the top thereof. Patent unassigned.

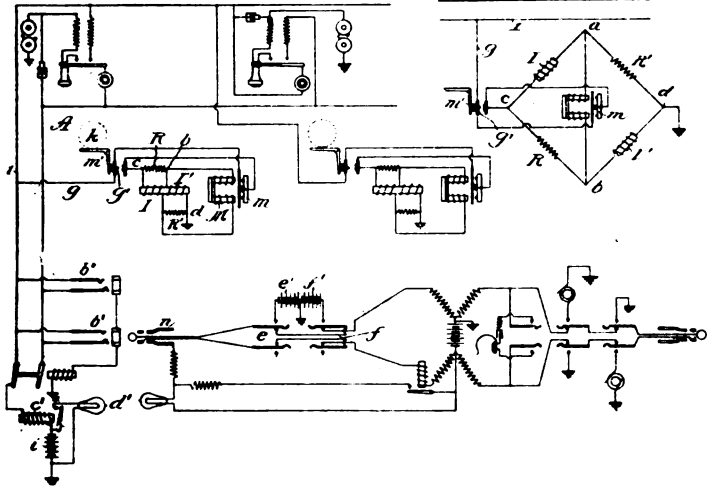
851,792. Telephone Exchange System. *Aven.* The operator receiving the call has no plug, but is provided with annunciators and means for communicating the number of the called subscriber to a connecting operator. Patent assigned by mesne assignments to the firm of Deutsche Telephonwerke Gesellschaft Mit Beschränkter Haftung of Berlin, Germany.

851,803. Telephone Trunking System. *Dean.* In this system a relay is associated with the incoming end of the trunk and a signal having a circuit partly controlled by said relay depends upon current either from the trunk line, the cord circuit or the called telephone line. This of course insures an operative signal until the cord is disconnected from the trunk and the subscriber's receiver is on the hook. Patent assigned to Kellogg Switchboard and Supply Company.

851,838. Circuit for Coin Collectors. *Roberts.* A circuit locally arranged is divided into two parallel branches with a bridged controlling magnet for the coin. Non-inductive and inductive resistances are arranged in the parallel branches of the circuit so that ringing current will not operate the magnet. A steady current of high voltage is

by when connection is made ringing current is automatically applied to signal the called party and is automatically cut off when the called subscriber responds. In case he does not respond, the ringing current is automatically cut-off after a predetermined time and a busy tone apparatus connected with the calling line. Patent assigned to Western Electric Company.

852,575. Telephone Exchange. *Norstrom.* In this system a series of local telephone stations each having a normal telephone connection with a party line and a device con-



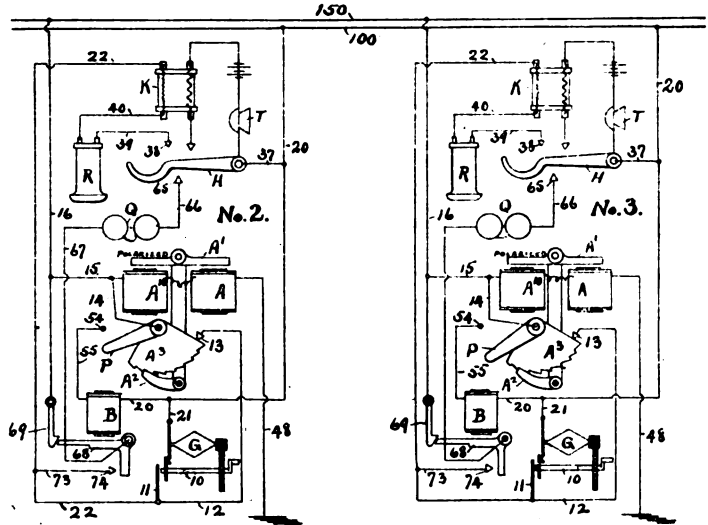
impressed upon the line by the operator to operate the magnet so that the coin may be either returned to the subscriber or deposited in the cash box. Patent assigned to the Western Electric Company.

851,948. Telephone System. *Lattig and Goodrum.* By connecting the supervisory relay to the sleeve side of the cord and the tip of the cord through the ordinary listening key, operator's set and high resistance choke coil to the negative side of battery, the inventor claims that a test circuit is completed, in testing, through the calling subscriber's line if he is calling, and through the supervisory relay of the opposite connecting cord to the positive side of battery if he is called, and through both when connection is made. Patent unassigned.

851,994. Telephone Switch. *Mount.* The substations of this system are provided with party line terminals and suitable line connections. Each subscriber's set includes mechanism for short circuiting any of the party line connections to lines which are desired to be locked out and for making connection with the party line wanted. Patent unassigned.

852,004. Automatic Telephone Switch System. *Wicks and McKay.* This system, the inventor claims, is an improvement of the Strowger type. The principal object of the invention is to provide novel means whereby the automatic selection or exchange mechanism will connect ringing current generating means to the different lines and to the different wires of a party line so that either party on the line may be called independently of the other. Patent unassigned.

852,523. Automatic Telephone Exchange. *Roberts.* A feature of this invention consists in the arrangement where-



trolled by the central office operates in connection with the line for simultaneously breaking the telephonic connections of all local stations. A connecting magnet at each local station upon a single operation will connect any station telephonically with the party line. Means controlled from central is used to select the connecting magnets so as to place desired stations in condition for communication. Patent assigned by direct and mesne assignments to John Anderson of Salina, Kansas; M. E. Richardson of Sterling, Kansas, and John H. Martin and H. Keating.

852,675. Telephone Exchange. *Norstrom.* In this system there is a central office and a series of local stations, together with normally disconnected sections of conductors extending from station to station. Each station is provided with means for connecting the ends of conductors terminating thereat and other devices for placing them in telephonic connection with the connected conductors, but the central office operator exclusively controls the operation of either device at the substations. Patent assigned by direct and mesne assignments to John Anderson of Salina, Kansas; M. E. Richardson of Sterling, Kansas, and John H. Martin and H. Keating.

852,806. Locking Device for Telephones. *Smith and Reinohl.* This device comprises a flexible band surrounding the standard above the switchhook and locked in position so as to prevent the switchhook from rising. Patent assigned to Ralph E. Walker of District of Columbia.

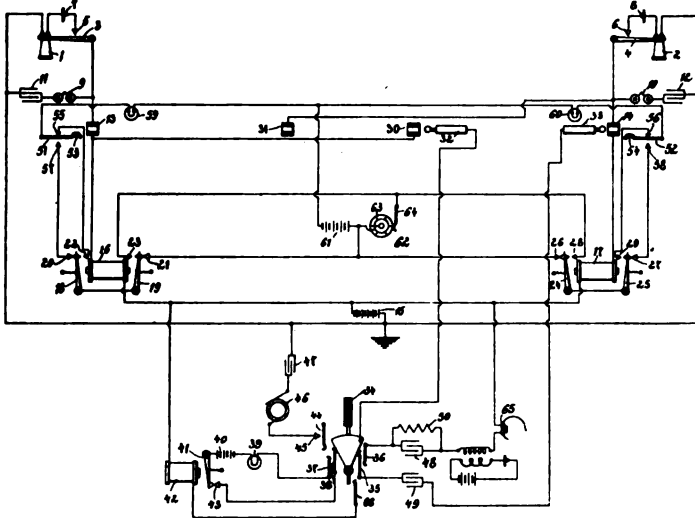
853,286. Telephone Trunking System. *Webster.* In this system a trunk circuit extending between different switchboard sections and adapted to connect telephone lines for conversation, is provided with a ringing signal for the incoming end of the trunk controlled by current through a relay which is actuated over one side of a telephone line and through the grounded signaling bell, when the subscriber has been called. A second relay at the incoming end of the trunk deprives said signal of operating current when the called subscriber responds. Patent assigned to Kellogg Switchboard and Supply Company.

853,287. Supervisory Signaling System. *Webster.* In this system, the supervisory signal relays are connected in a bridge of a cord circuit and are operated from the battery



buses through the line relay to the cord. The line relay of both calling and called lines remaining energized during the connection but the line signal being broken upon the insertion of the plugs. Patent assigned to Stromberg-Carlson Telephone Manufacturing Company.

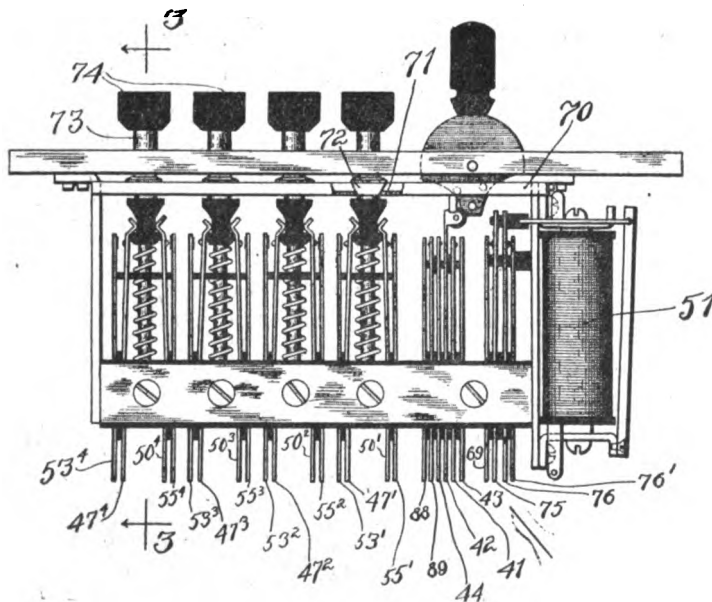
853,002. Telephone System. Burke. In this system the line and supervisory signal is one and the same but is



adapted to give a different character of light when connection is desired and when connection is completed. For instance, a steady glow will indicate a call, and a flashing light will indicate when the conversation is completed and the subscribers have hung up. Patent unassigned.

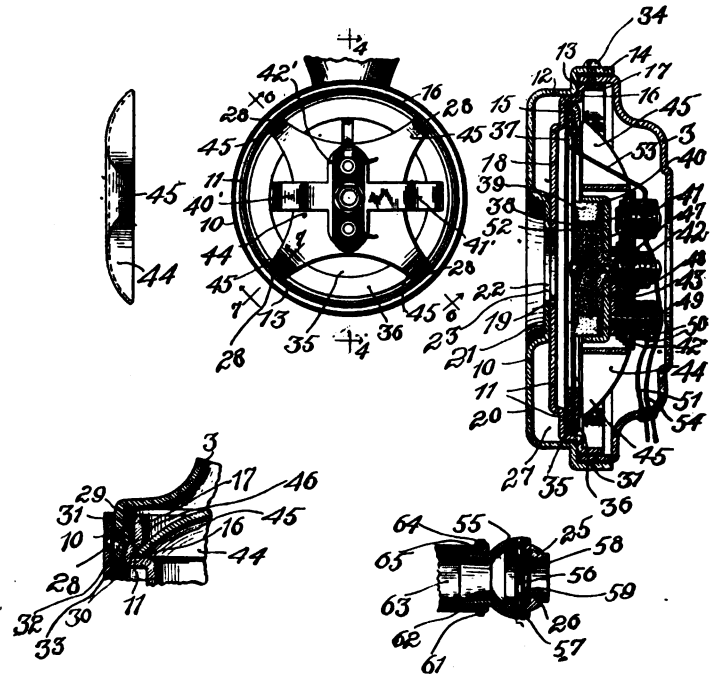
853,291. Telephone System. Babcock. In this system the subscriber may signal central independent of the other subscribers, he may select any one subscriber and connect himself for conversation independent of the exchange operator, or the exchange operator may independently and selectively signal any one of the subscribers on the party line. Each substation is provided with a reversing switch connected between the generator and the line whereby the current from the generator may be reversed to actuate a polarized bell at the substation wanted and normally connected in the same set. One station uses a full metallic line and the others may use the full metallic line as one side or one conductor and the ground the other. Patent assigned to Stromberg-Carlson Telephone Manufacturing Company.

853,304. Telephone Exchange System. Kahl. In this system the cord circuit at the central station for connecting subscribers employs a source of ringing current controlled



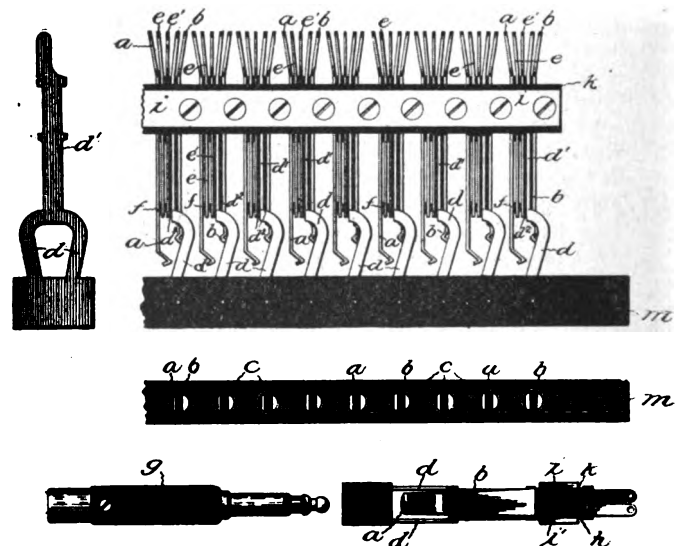
through a relay included in the source and also through a second relay for controlling the circuit of the first relay. Both relays are directly included in the cord circuit and control the continuity thereof. Patent assigned to Stromberg-Carlson Telephone Manufacturing Company.

853,337. Breast Transmitter. Birsfield. In this transmitter the front plate is built up out of two stampings and the carbon cup is placed directly against and secured to the



diaphragm which is provided with the usual rubber washer and which is faced with a moisture disc. The bridge which carries the button comprises a spider stamped out of one sheet of material. Patent assigned to Stromberg-Carlson Telephone Manufacturing Company.

853,370. Spring Jack for Telephone Switchboards. McBerty and Craft. The test thimble in this jack together with the anvil spring and a supporting member are formed



up of one sheet of material and bent into shape so that the legs of the supporting member extend rearwardly from the thimble to the anvil spring. The tip spring works between the legs of the supporting member. Patent assigned to Western Electric Company.

853,578. Telephone Receiver. Davis. This receiver is made for use in connection with systems of composite telegraphy and telephony, where very adverse conditions are

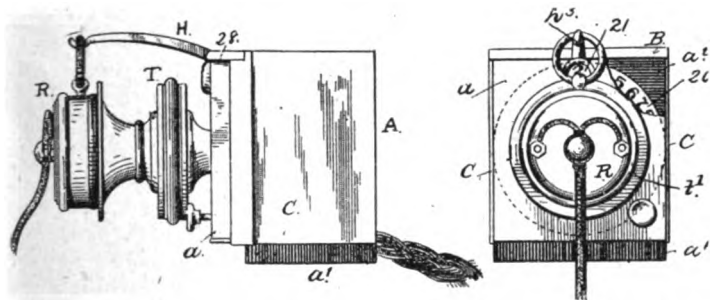
found, and comprises an electromagnet and a diaphragm of non-magnetic material of relatively high electrical conductivity. Patent assigned to the National Telegraphone Company.

853,672. Holder for the Receiver of a Telephone. Beavan. A pair of wires are suitably tied together and bent in such shape as to provide a fork for engaging the standard back of the receiver at one end and at the opposite end so bent as to form a cradle for the receiver. Patent unassigned.

853,682. Telephone Trunking System. Dean. In this system a retardation coil is legged to ground from one side of the talking circuit which is established by the connection of the cord with the trunk and a supervisory signal associated with the cord circuit is placed in operative condition by current flowing through said retardation coil. The supervisory signal is rendered inoperative by means actuated when the called subscriber responds which lowers the resistance between the two limbs of the trunk line. Patent assigned to Kellogg Switchboard and Supply Company.

853,818. Automatic Telephone System. Merk. This invention involves a peculiar arrangement of circuits and switches in an endeavor to improve upon the Strowger system. The general type is, however, maintained and a double switch principle is used wherein with a switchboard for 100 lines ten first selectors and ten connectors are used and in a 1,000-line system ten first selectors, ten second selectors, and ten connectors are used. In the 10,000-line exchanges forty switches are used. Patent unassigned.

853,855. Desk Telephone and Switching Mechanism. Andriano. This is a desk set for intercommunicating systems which is adapted to be placed in the pigeon-hole of a



desk, or the like. The hook switch is pivoted above the transmitter and when the receiver is hung thereon its cap is in engagement with the mouthpiece thereof. Patent assigned to the Direct Line General Telephone Company.

### THE BELL IN BOSTON.

One of the arguments used by the New England (Bell) Telephone Company to get subscribers is that the service of that corporation is a protection against burglars and fire. That the patrons of the company do not think much of the Bell safeguards, however, is shown by the following amusing article from the Boston Commonwealth, entitled "More Telephone Faking," which also demonstrates the value of telephone competition:

"The New England Telephone Company is still continuing to obtain money under false pretenses by installing residence telephones with the special provision in advertising that the telephone is a burglary protection and also a great assistance in getting the fire department to your house.

"Did you ever call up the New England Telephone Company and ask them for the fire department or the police department in a hurry? We tried it Wednesday noon, and the operator gave us Main Information. Main Information wanted to know if it was an emergency call and we said 'yes'. Then Main Information told us that the number was so-and-so, and it became necessary for us to ring up all over again. We got tired of waiting, and hung up the receiver. We didn't want the police department anyhow. We

just wanted to find out if the operators knew the police department or the fire department. It seems that, although the New England Telephone Company solicits hundreds of residence subscribers on the strength of the telephone company's ability to reach the fire department and the police department in a hurry, the girls in the central station do not know anything at all about the numbers.

It would hardly be looked upon as a great task for every operator to know the fire department and police department calls. There is but one call for each department. Surely a telephone girl ought to be able to carry two calls in her head, especially when the telephone company is soliciting business on their ability to furnish these two numbers at once. Like most of the New England Telephone Company's promises, there is nothing to it.

"What we want is to see better service in the city of Boston. An operator in New Bedford can give you the police department and give it to you quick. This is not because there are a greater number of calls for the police department in New Bedford than there are in Boston. It is simply because there is competition and the telephone people have to be tuned up in order to hold business. 'Burglary protection in your home' is funny. By the time a woman in Brighton could get to a telephone, wake up the operator in central, get the operator to give the night chief to her, and finally reach the police department, a burglar could put the pianola onto a moving van and be half-way over to Allston. If a man in Charlestown saw a fire breaking out next door, and he tried to get the fire department, it would take him three minutes, after 12 o'clock at night, before they would know anything about it at headquarters.

"The telephone company will reply to this that the people who have a telephone in the house ought to know the telephone number of the police department and the fire department. We defy anybody to pick the numbers out of the book inside of a half minute. When a man is in a hurry, it generally takes him six times as long to find a number as it does when he is taking his time.

"For the benefit of the Commonwealth readers who have been buncoed into subscribing to the New England Telephone residence system because of the protection from burglars and ravages by fire, we will say that police headquarters' telephone number is 'Haymarket 364,' and the fire department headquarters' number is 'Tremont 880'. It might be a good idea to paste these numbers on the brass railing at the head of your bed and then, when the burglar wakes you, you can quietly turn to the number and say, 'Just a minute, Mr. Burglar, I wish to call up police headquarters. I am insured against loss by burglary by the New England Telephone Company.' To this, the burglar will probably reply: 'I beg your pardon, I did not know you had a telephone in the house. Anybody who is foolish enough for the telephone story, hasn't got money enough left in the house to bother with. I will go around to the main office of the telephone company, to-morrow, and get my percentage.' He will then bid you an affectionate good evening, and you can relapse into another delightful slumber. It's fine to be 'conned' by the telephone company."

"Statistics issued at the close of the year 1906 show that there were in use in the United States alone more than 7,000,000 telephones," says The Forum, "while an aggregate of a little more than 6,000,000 miles of wire was used for telephone service. The telephone industry gives employment to 90,000 persons in the United States, an increase of 171 per cent in six years, while during the same period the number of stations has increased 239 per cent and the wire mileage 349 per cent."

The East Tennessee Telephone Company has closed its Maryville exchange, leaving that field to the Independent company. It left but a toll station.

# THE HOMER ROBERTS LOCK-OUT PARTY LINE SYSTEM

By Nathaniel D. Featherstone

THOSE interested in the telephone business, and particularly those connected with the operation of exchanges, whether large or small, have long felt keenly the need of a party line system which would give the limited user practically the same exclusive service as if he were served by an individual line.

As everyone knows, the principal investment necessary to provide facilities for telephone service is that required to produce the telephone line. In most cases the cost of instru-

house-top as to attempt to convey it in private over an ordinary party line. So widespread is the so-called practice of "rubbering" that people who would blush at the idea of eavesdropping or listening through a key-hole, will not hesitate to listen in on the wire whenever conversation between others is going on.

The ability of anyone to listen to the conversation of others on a telephone line is objectionable from other standpoints than that of privacy. Whenever a number of sub-

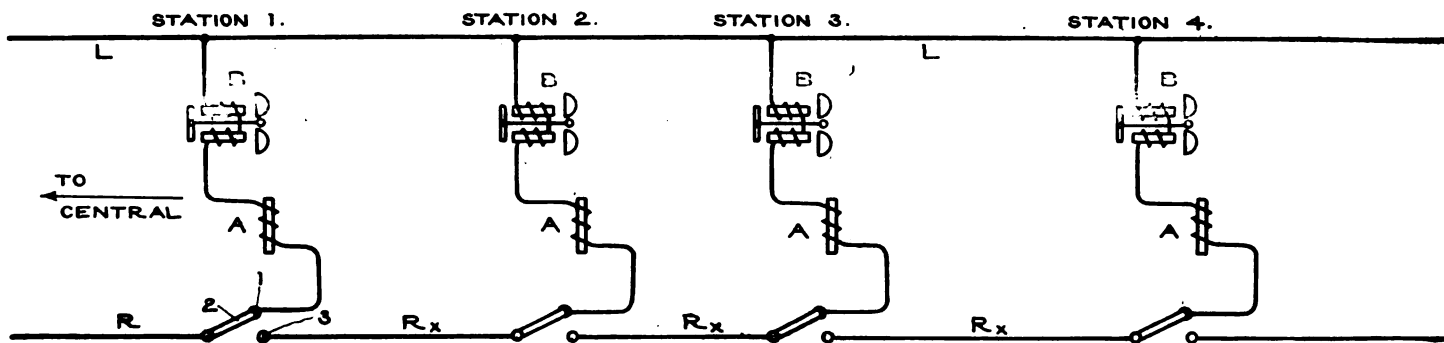


Figure 1.

ments and apparatus is small in comparison with the cost of the line. By far the greater number of subscribers are those who use their instruments a comparatively small number of times a day, and to maintain an expensive telephone line for the exclusive use of one such subscriber who will use it but a few minutes each day is on its face an economic waste. As a result, where individual line service is practiced exclusively one of two things must be true; either the average subscriber pays more for his service than he should, or else the operating company sells the service for less than

scribers on a line take down their receivers, the voice currents which otherwise would pass only through the receivers of the two parties in conversation is divided up among all the parties and a distinct loss of transmission is caused. It is frequently true that where a long-distance connection is involved the transmission is thus weakened to such an extent as to make communication impossible. Again, the large number of receivers thus caused to be bridged across the line frequently make it impossible to properly signal between the stations, because the signaling current leaks

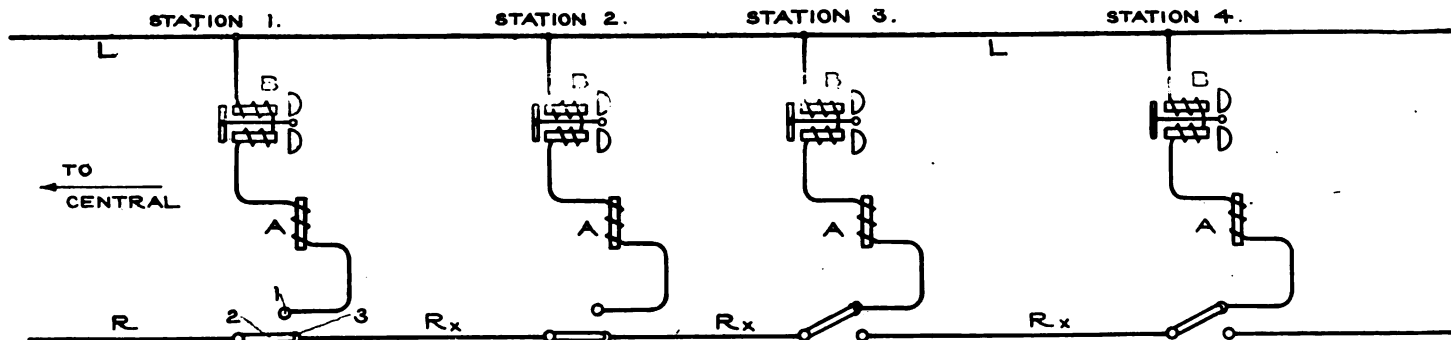


Figure 2.

it costs, or at best for an insufficient profit. Both of these conditions are unnatural and cannot be permanent.

The party line method of giving service, by which a single line is made to serve a number of subscribers, offers a solution to this difficulty, but the party line as it has existed up to the present time carries with it so many undesirable features that it has come into disfavor. These undesirable features work to the detriment of both the user of the telephone and the operating company.

One of the serious objections to the ordinary party line service is the fact that it affords no degree of privacy to the user; one might as well shout his information from the

from one side of the line to the other through the receivers instead of passing on to the distant bell which it should operate.

Still another very serious factor is brought into existence by this improper use of the line. The local batteries at each station are caused to run down very much faster than would be the case if the subscribers only concerned themselves with the calls that were meant for them. In rural communities especially it is not uncommon for people to sit for hours every evening with the telephone receivers at their ears, listening to all that is going on. A few such drains on the local battery will often render the battery practically

useless, with the result that the management is compelled not only to supply new cells but perhaps to pay for the time of a man and a team to drive many miles in the country at all times of the year to put these in.

Many attempts have been made to remedy these very obvious disadvantages of the party line by producing what are commonly called lock-out systems. These, as their name implies, employ such an arrangement of parts that when the line is in use by any two parties, all other parties are locked out from the circuit and cannot gain access to it until the parties who are using it are through. System after system for accomplishing this purpose has been announced, and some of them have been able after a fashion to accomplish some of the features that have been recognized as desirable. These attempts, however, have all necessitated the use of rather cumbrous moving parts at each telephone; usually a system of pawls, ratchets and springs and a degree of complexity that was wholly unwarranted. As a result lock-out systems in the past have introduced so many undesirable features as to seriously affect the smooth operation and reliability of the system.

In addition to the complexity, the ratchets, pawls and springs and the poor mechanical design, lock-out systems in the past, even when performing their functions as intended, have been so inflexible in their operation as to bring about intolerable conditions. To illustrate this, it has been possible for one party to secure the use of the line in such a

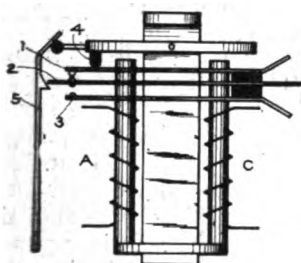


Figure 3.

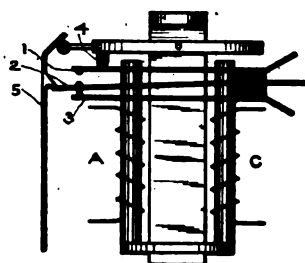


Figure 4.

way that no one else could use it for hours. Another subscriber on the line would be wholly unable to make a call, even in case of such an emergency as fire, accident or serious illness. Obviously for this reason, no lock-out system can succeed if any subscriber is thus able to tie up the line, either through thoughtlessness, selfishness or malice.

Such was the condition in the party line telephone field, among both Independent and Bell companies alike, at the time when the Homer Roberts selective lock-out system was produced. This system operates in a novel manner, presents many interesting operating features, employs no pawls, ratchets or marginal adjustments at the substations, and does not operate on the step-by-step principle in the ordinarily accepted meaning of that term.

The method employed in the Roberts system by which the selective ringing of subscribers is accomplished is particularly interesting and is based on a principle which we believe has not been used before in telephone practice. Primarily the Roberts system is a selective-ringing system, but the very means which brings about the condition for ringing any subscriber's bell to the exclusion of all others brings about at the same time a condition by which that subscriber only may talk. Furthermore, when a subscriber originates a call, the same operation by which the operator answers that call serves at the same time, and without further complication, to lock that subscriber on to the line and to leave all the others locked off.

The locking out of all subscribers but the one talking does not however mean that the subscribers so locked out are helpless. It is always within the power of the operator to prevent a subscriber from monopolizing the line in an unfair manner, and it is always within the power of the sub-

scriber, even though he is locked out, to convey to the central office an emergency signal, the sending of which will not interfere at all with the subscribers who may be using the line.

In this system there are no tuned bells, there are no positively and negatively polarized bells bridged to ground on each side of the line, and none of the other methods by which selective signaling has been accomplished on party lines are present. Instead of this, each instrument on the line is exclusively brought into operative relation with the line, and then removed from such operative relation until the subscriber wanted is connected, at which time all of the other instruments are locked out and the line is not encumbered by any bridge circuits at any of the instruments that are not engaged in the conversation. Furthermore, in the selecting of a subscriber or the ringing of his bell there is no splitting up of current among the magnets at the various stations as in ordinary practice, but the operating current goes straight to the station desired and to that station alone where its entire strength is available for performing its proper work.

This sounds almost revolutionary in telephone work, and it is astonishing how simple are the means by which this method of operation is secured. In order to understand the system it may be stated at the outset that one side of the metallic circuit line is continued as in ordinary practice, passing through all of the stations as a continuous conductor. The other side of the line, however, is divided into sections, its continuity being broken at each of the subscriber's stations. In order to illustrate this, the diagram of Figure 1 has been prepared. This is intended to show in the simplest possible way how the circuit of the line may be extended from station to station in such manner that only the ringer of one station is in circuit at a time. The two sides of the line, *R* and *L*, (indicating "Right" and "Left," respectively) are shown in this figure, and it will be seen that limb *L* extends from the central office on the left to the last station on the right without a break. The limb *R*, however, extends to the first station, at which point it is cut off from the extension *Rx* by the open contacts of a switch. For the purpose of simplicity this switch is shown as an ordinary hand switch, but as a matter of fact it is a part of a relay, the operating coil of which is shown at *A*, just above it, in series with the ringer *B*.

Obviously, if a proper ringing current is sent over the metallic circuit from the central office, only the bell at station 1 will operate, since the bells at the other stations are not in the circuit. If by any means the switch lever 2 at station 1 were moved out of engagement with contact 1 and into engagement with contact 3, it is obvious that the bell of station 1 would no longer be in circuit, but the limb *R* of the line would be continued to the extension *Rx* and the bell of station 2 would be in circuit. Any current then sent over the circuit of the line from the central office would ring the bell of this station. In Figure 2 the switches of both stations 1 and 2 have been thus operated, and station 3 thus placed in circuit. Inspection of this figure will show that the bells of stations 1, 2 and 4 are all cut out of circuit, and that therefore no current from the central office can affect them.

In order to understand just how these switches of Figures 1 and 2 are operated in practice, reference is made to Figures 3, 4 and 5. These figures show in diagram and perspective the line relay by which the functions of the switch lever 2, indicated diagrammatically in Figures 1 and 2, are performed. Referring to Figure 3, which shows the line relay in its normal position, it is seen that the framework of the device resembles that of an ordinary polarized ringer. Under the influence of current in one direction flowing through the left hand coil, the armature of this device depresses the hard rubber stud 4, and the springs 1,



2 and 3 are forced downwardly until the spring 2 has passed under the latch carried on the spring 5. When the operating current through the coil *A* ceases, the pressure of the armature on the spring 1 is relieved, allowing this spring to resume its normal position and spring 3 to contact with spring 2. The spring 2 cannot rise, since it is held by the latch 5, and the condition shown in Figure 4

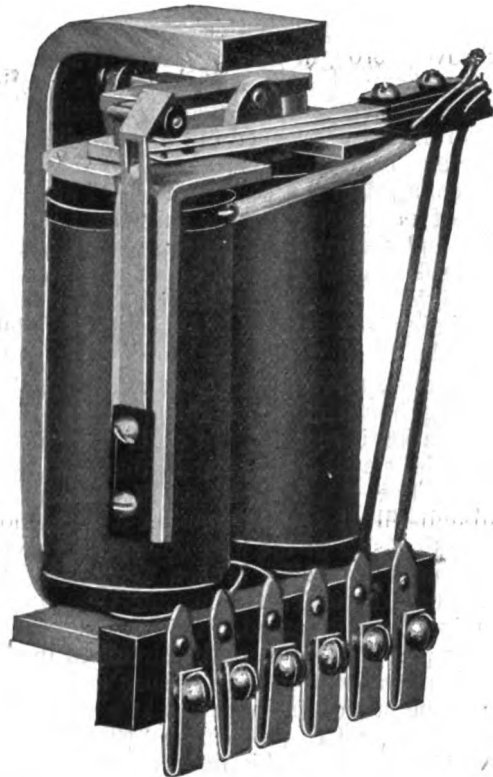


Figure 5.

exists. It will be seen that the spring 2 has in this operation performed just the same function as the switch lever 2 performed as described in connection with Figures 1 and 2. An analysis of this action will show that the normal contact between the springs 1 and 2, which controls the circuit through the relay coil *A* and the bell *B*, is not broken until the coil *A* is de-energized, which means that this relay is effective until it has accomplished its work. It is abso-

lutely impossible, therefore, for this relay to cut itself out of circuit before it has caused the spring 2 to engage under the latch 5.

If current of the proper direction were sent through the coil *C* of the relay, the opposite end of the armature would be pulled down and the projection shown at the left-hand end of the armature would bear against the bent portion of the spring 5 in such manner as to cause the latch of this

spring to release the spring 2 and thus allow the relay to assume its normal or unlatched position. A good idea of the mechanical construction of this relay may be obtained from Figure 5. When it is considered that the entire selecting function of the Roberts system is performed by such a simple piece of apparatus at each station as this relay, a fair comparison will be had of the relative simplicity of the mechanism of this system as compared with that of the other lock-out systems employing step-by-step devices with their complicated ratchet mechanisms.

The diagram of Figure 6 shows a four-station line, the circuits being given more in detail than in the diagrams of Figures 1 and 2.

It will be noticed that the ringer *B* and the relay coil *A* at the first station are bridged across the sides of the line leading to the central office. In like manner the bell and relay magnet *B* and *A* are bridged across the two limbs of the line leading into each succeeding station, but this bridge at each of the stations beyond station 1 is ineffective because the line extension *R<sub>x</sub>* is open at the next station nearest the central office.

In order to ring station 1 it is only necessary to send out ringing current from the central office. This current is in such direction as not to cause the operation of the relay, although it passes through the coil *A*. If on the other hand it is desired to ring station 2, a preliminary impulse would be sent over the metallic circuit from the central office, which impulse would be of such direction as to operate the relay *A* at station 1, but would not operate the bell at that station. The operation of the relay *A* at station 1 causes the spring 2 of this relay to engage the spring 3, thus extending the line on to the second station. After the spring 2 at station 1 has been forced into contact with the spring 3 it is caught by the latch of the spring 5 and held mechanically. When the impulse from the central office ceases, the spring 1 resumes its normal position, thus breaking the bridge circuit through the bell at that station. It is apparent now that the action of coil *A* at station 1 has made the relay powerless to perform any further action, and at the same time the line has been extended on to the second station. A second similar impulse from the central office will cause the relay at station 2 to extend the line on to station 3, and at the same time break the circuit through the operating coil and the bell at station 2. In this way any station may be picked out by sending the proper number of impulses to operate the line relays of all the stations between the station

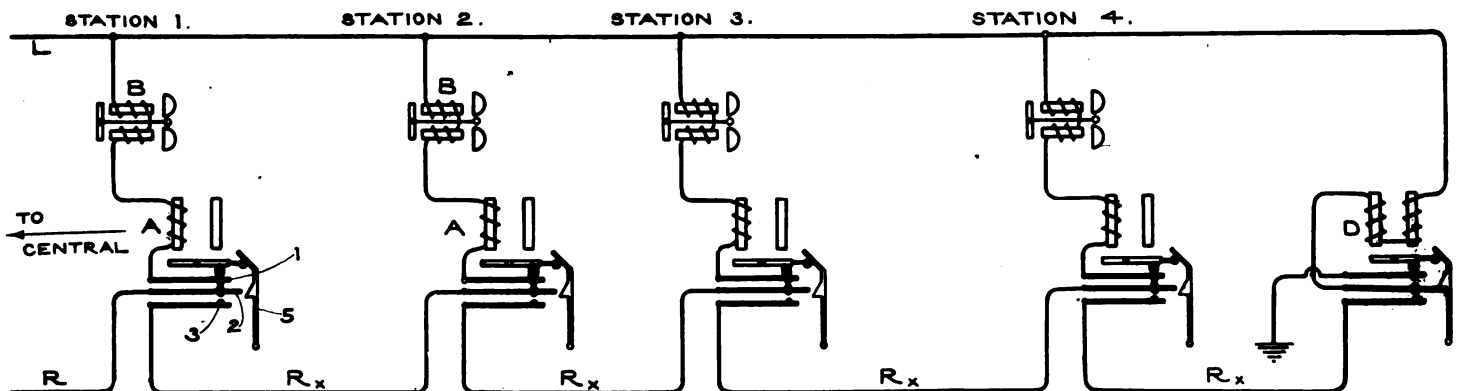


Figure 6.

desired and the central office, and having picked out any station it is only necessary to send out ringing current from the central office, which current is in such direction as to ring the bell but not operate the relay magnet.

In Figure 7 a four-station line such as is shown in Figure 6 is illustrated, but the condition shown in this is that existing when two preliminary impulses have been sent over the line, which operated the line relays at stations 1 and 2 in

the order mentioned. The action of these relays continues the line so as to include the bell of station 3, thus making the circuit of Figure 7 correspond to that indicated in the simpler diagram of Figure 2.

Some of the advantages of this method of operating may now be understood before proceeding further with the description.

Since only one bell and one relay are in circuit at any one time, it is obvious that all of the current that passes over the line is effective in operating a single bell or relay only. There is no splitting up of the current among a large number of bells as in the bridging system, which, as is well known, sometimes so greatly reduces the current effective for each bell that it is with great difficulty that they are made to respond. It will be noticed that there are no leaks or shunts of any kind about any of the apparatus that is being operated, and therefore all the energy available is applied directly to the piece of apparatus at the time it is being operated. By this means a very much greater surety of action may be attained, and the adjustment of the various pieces of apparatus may be made with much less delicacy than is required where many pieces of apparatus must necessarily be operated in multiple.

The method of unlatching the relays has been briefly referred to. After a connection has been established with a

The statement of operation so far given discloses the general method of building up the line in sections in order to choose any party and of again breaking it up into sections when the conversation is finished. It has been stated that the same operation which selects the party wanted also serves to give that party the use of the line and to lock the others off.

That this is true will be understood when it is stated that the ringer is of such construction that when operated to ring the subscriber wanted, it also operates to unlatch a set of springs similar to those shown in Figures 3 and 4, this unlatching causing the proper connection of the subscriber's talking circuit across the limbs of the line, and also closing the local circuit through his transmitter. The very first motion of the bell armature performs this unlatching operation, after which the bell behaves exactly as an ordinary polarized biased ringer. During the ringing there is no encumbrance whatever on the movement of the bell armature or its tapper.

The construction of this ringer is interesting and is shown in Figure 8. The group of springs carried on this ringer is entirely independent of the movement of the armature during the ringing operation. With reversed currents, however, the armature is moved in the opposite direction from that necessary to ring the bells, and this causes the latching

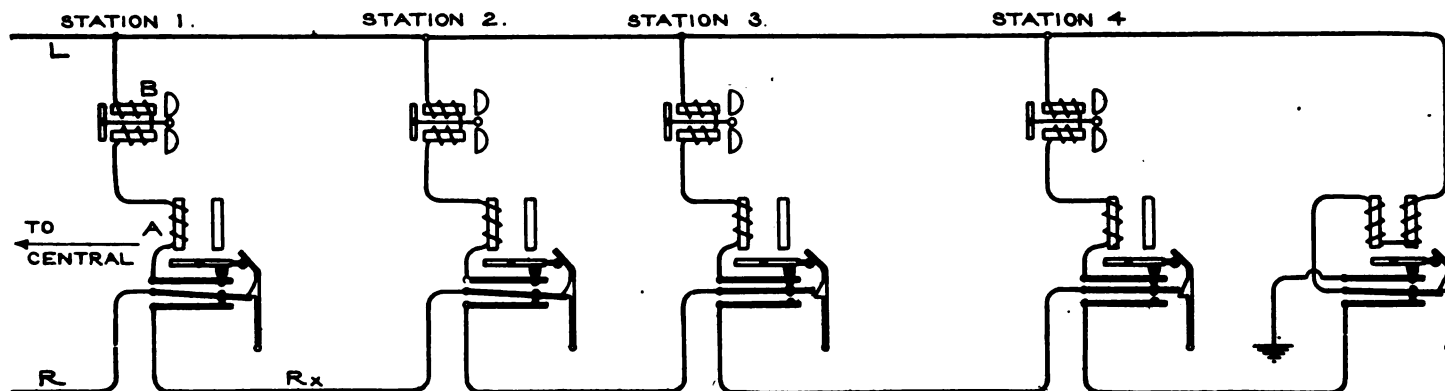


Figure 7.

station in the manner already described, the operator may clear the line when it is proper to do so by sending impulses of such a nature as to cause the line relays of the stations beyond the one chosen to operate, thus continuing the circuit to the end of the line. The operation of the line relay at the last station brings into circuit the coil *D* (Figures 6 and 7) of a grounding device. This is similar to the line relay but it holds its operating spring in a normally latched position so as to maintain the continuity between the end of the limb *L* and the last line extension *R<sub>x</sub>*. The next impulse following over the metallic circuit passes through the coil *D* and causes the operation of this grounding device which, as will be seen, grounds the limb *L* of the line through the coil *D*. This temporary ground at the end of the line makes it possible to send an unlocking or restoring current from the central office over the limb *L*, which current passes through all of the unlocking coils *C* shown in Figures 3 and 4, this causing the simultaneous unlocking of all of the line relays and the restoration of the line to its normal condition as shown in Figure 6. The unlocking windings on the line relays are of low resistance and differentially wound, one-half of each winding being placed in each limb of the line so that each exactly balances the other. As is well known, this construction results in the equivalent of placing a low ohmic resistance without any self-induction in the line, the presence of which produces no appreciable effect upon the transmission. The talking qualities of the line are therefore those of an ordinary standard metallic circuit line.

of the springs into their normal position. An extremely ingenious device is employed in order that the device shown in Figure 8 may perform this double function of ringer and relay. The secret of the whole matter is that the tapper rod of the bell is hinged on the armature so as to partake of the movements of the armature in one direction only. This has been called by the inventor and engineers of the Roberts system a "broken-back ringer," a name suggestive of the movable relation between the armature and the tapper rod rather than of any decrepitude in physical make-up. As a matter of fact, the construction of the ringer is of the same substantial nature as that of the standard polarized ringer universally employed, the hinge action between the armature and tapper rod being of such substantial nature as to make the tapper partake positively of the movements of the armature in one direction, but to remain perfectly quiescent when the armature moves in the other direction.

The mechanism at the central office by which selection of the proper station is made in a rapid manner is worthy of interest. It has already been stated that the selection of the proper subscriber is brought about by the sending of a predetermined number of impulses from the central office, these impulses passing in one direction only and over the metallic circuit. After the proper party has been reached, the ringing current is put on in the reverse direction. This could readily be accomplished by hand, the operator merely pressing a selecting button or key a certain number of times and then throwing on the ringing current. The device actually employed, however, eliminates all necessity on the

part of the operator to count the number of impulses. This device is shown in Figure 9.

The operator determines the proper number of impulses to be sent by placing the pointer opposite the number on the dial corresponding to the station wanted. The ratchet wheel shown in the figure is stepped around automatically by each impulse of the current which is doing the selecting. When the required number of impulses have been sent a projection carried on a group of springs shown drops into a notch on the drum of the selector wheel, which instantly stops the selecting current impulses and at the same time

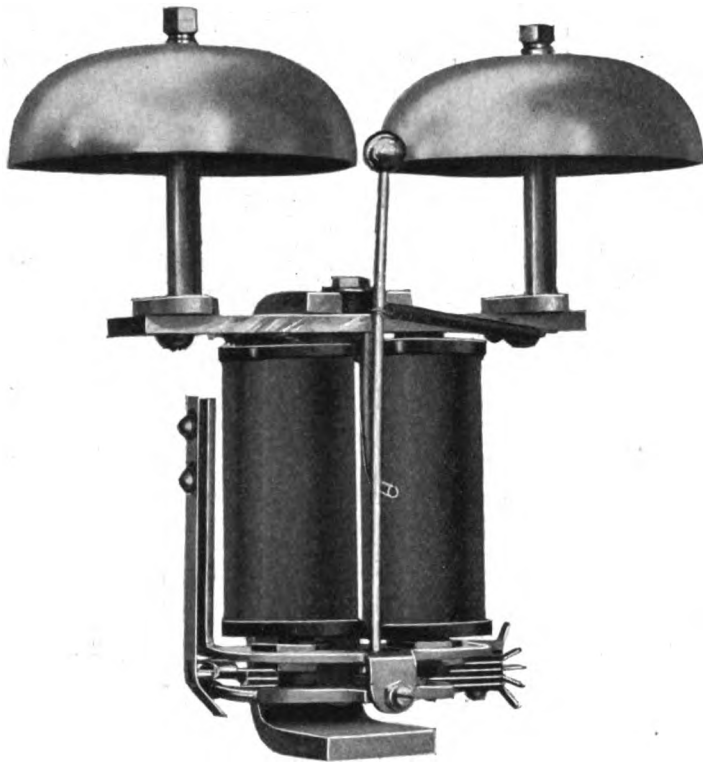


Figure 8.

throws on the ringing current. So rapidly does this device operate that it will readily throw the impulses of a Warner pole changer, even when this is adjusted to its maximum rate of vibration.

As a result of the use of this device, the operation of the system is made practically as rapid as that of an ordinary common battery party line without lock-out features. It is certainly more rapid than any bridging line where code ringing is used.

The selector shown in Figure 9 is practically the only piece of apparatus required at the central office that requires special description. The listening and ringing keys are of standard design, the spring arrangements only being modified to perform the particular circuit changes desired. All such pieces of apparatus as drops, jacks and plugs are of standard design, and in fact those of any ordinary board may be used.

Either a drop or a lamp controlled by a relay may be used as a line signal, the signal being displayed automatically by the removal of the subscriber's receiver from its hook. In this respect, therefore, the system has all the advantages of common battery work for signaling.

The supervision may be either of the double lamp or single lamp type as required, and the arrangement is such that the operator is not only notified when the subscribers are through talking, but also such that any subscriber desiring to use the line in an emergency may signal the operator without disturbing any conversation that may be going on.

The system of supervision is so complete that there is never a moment and never a condition or combination of

conditions which in the slightest degree interferes with the exchange operator's knowledge of the conditions on the line; and furthermore the system of control is so complete that the operator is always able, in spite of what any subscriber may do, to give any party the use of the line, to put any number of parties on the line at once if it is desired, or to take away the line from any party and give it to another. So completely has the privacy of the line been provided for that it is absolutely impossible for any subscriber to hear the faintest sound in his receiver unless he has been given a talking connection by the operator. At all times, except when a party has been given a connection by the operator, his receiver circuit is absolutely disabled. Moreover, the mechanism at the substation is so enclosed and the circuits so arranged that it is impossible for a subscriber to resort to any trick by which he can artificially establish a bridge or temporary circuit which would throw the voice currents through his receiver and enable him to listen.

A brief description of the method of operation of the system may now be of interest. In order to secure a connection a subscriber merely removes his receiver; and by so doing he transmits a signal to the central office in substantially the same manner as is now done in city practice. If the line is not already busy, the operator responds by inserting the plug of her cord as usual, and then pressing a signal key. Pressing this key connects the party who is called and rings his bell. Having taken his order, for example, for another party on another similar line, the operator inserts the plug of the other end of the cord in the proper jack, turns the dial pointer on the selector to the number corresponding to the called-for party's number on that line, and presses the signal key. Pressing this key causes impulses to "run down the line," selecting the proper party and ringing his bell in the manner already described. The connection between the two parties has then been established, and no one else can in any possible way except by permission of the operator obtain access to the line. There is, of course, no necessity for code ringing.

Should the line be busy when a subscriber calls in, two courses of action are open to him. He may either hang up his receiver and call at a later time; or a better way, and

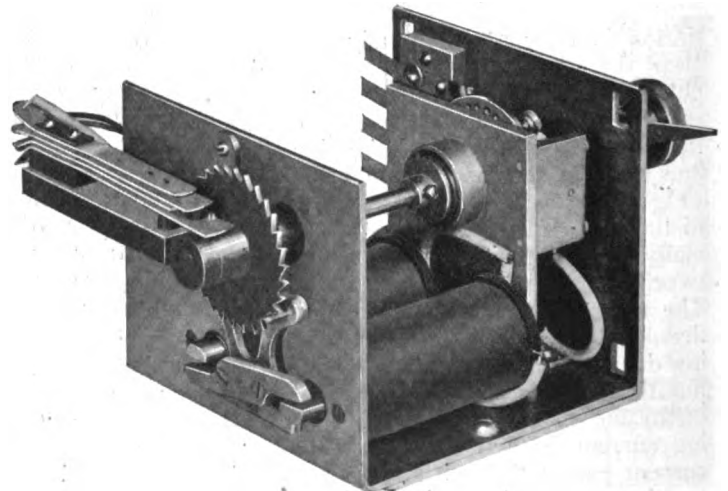


Figure 9.

one which the subscriber soon learns, is for him to lay down his receiver without returning it to the switch-hook, and proceed with whatever business he may have in hand. This interferes in no respect with the action of the line. As soon as the line has been released by the other subscribers, the subscriber who failed to obtain a connection will be automatically notified by the ringing of his bell. If two, or any greater number of subscribers should thus attempt to obtain a connection while the line was in use and follow this practice of leaving their receivers off the hooks, they would

be notified, one at a time, in proper turn, by the ringing of their bells, there being no confusion in their selection, and no bad effects on the line by their receivers being left off the hook. This selection of subscribers who have made unsuccessful calls is accomplished without any special action on the part of the operator, the regular duties which she performs in clearing a line after a connection, serving automatically, in proper turn, to ring the bells of the subscribers who may be waiting.

The emergency call or signal already mentioned is an important feature. The circuits are so organized that at all times, whether the line is busy or not, the movement of the switch-hook up and down operates a signal before the operator. If the line is not busy this signal is the drop or line lamp, if the line is busy the signal is one associated with the cord circuit. In either event a simple movement of the switch-hook up and down, slowly and repeatedly, indicates to the operator that the subscriber has an emergency call. If the operator finds that the subscriber has misused this privilege of making the emergency call, she may restore the connection to the parties at the time engaged in conversation.

The constant drain on the local batteries, that has already been referred to in connection with the ordinary system of party line working, is, without the addition of any parts or any complication of the circuits taken care of completely in the Roberts system. At no time can the subscriber close the circuit of his local battery until the operator gives him a connection with the line. A subscriber who leaves his receiver off its hook in order that he may be signaled by the operator when the line is free, causes no deterioration of the local battery because the battery circuit is held open by the switch contacts carried on the ringer. This important feature will be appreciated by those managers of telephone exchanges who have suffered both expense and annoyance by the constant drain on their batteries.

The economy of current is not confined alone to that of talking current in the Roberts system. Although less noticeable and less important there is also a considerable saving in the matter of ringing current, whether this be furnished by generators or by pole changers. Since it is only necessary in the Roberts system to ring one bell at a time, it is obvious that the current employed may be of considerably less strength than in those systems where it is necessary to operate a large number of devices in multiple.

Frequently in exchanges employing party lines much annoyance is caused by the inability of the operator to identify the station on a line from which a call is made. Sometimes when a message rate is charged the party calling will, with fraudulent intent, deliberately give the name or number of another party on that line. In other cases a subscriber may use abusive language or resort to other undesirable practices, the operator being unable to determine definitely at which station this occurs. In the Roberts system this identification of the station is always readily made by the operator, as will be understood from the description which has preceded.

An inspection of the circuits given in this article will make it evident that the problem of the trouble shooter is greatly simplified in the Roberts system, whether this trouble be on the line or in the substation apparatus. In order to locate almost any trouble, the operator has only to select each station successively and she will be at once notified as to the section of the line in which the trouble exists. It is evident that the location of the trouble on the line is thus greatly facilitated, and the simple construction of the instruments and the fact that they are all alike contribute to the facility with which repairs can be made after the trouble is found.

#### THE ROBERTS SYSTEM AS APPLIED TO TOLL LINE WORK.

There are many cases in sparsely settled communities

where the distance between exchanges is so great and the number of subscribers along the line connecting the exchanges so few that there is not enough traffic to warrant the establishment of a through toll line and of another line for picking up the local traffic. As a result, in these communities the ordinary practice has been to bridge the local subscribers on to the through line, thus greatly injuring the qualities of the line for toll work and making it possible for any of the local subscribers to listen in on the toll conversations, with all of the annoying results that have been pointed out.

Frequently when the number of subscribers is too great to be permanently connected to the through line, local switching stations are established at which stations operators must manually connect the subscribers as desired. The expense of this practice is frequently a serious burden to the exchange management, and the fact that such small switching stations are usually attended by indifferent operators makes the whole arrangement an undesirable one.

The adaptability of the Roberts system to such problems as this will be apparent with a little consideration. If we assume a line extending from one exchange to another, with a number of way-stations equipped in accordance with the Roberts system, it is obvious that the operator at one of the exchanges may at will cut the line straight through to the other exchange in order to get a through toll connection. When such connection is established the advantages of a through metallic circuit between exchanges are secured. None of the local or way-station subscribers may in any way interfere with the operation of the line, nor have they the power to bridge across the line any of their apparatus. When the line is not being used for a through connection any of the subscribers may be connected at will to any other subscriber on the line, or to any subscriber in either of the exchanges. During such use of the line by local subscribers the operator could cut off the local subscribers at any time in order to establish a through connection.

#### SOME VALUABLE SUGGESTIONS.

How little advertising is based on the telephone. The merchant prints his telephone number on each folder, or says "telephone orders given prompt attention." But very seldom does he send out advertising matter in which telephone orders are made the main issue.

A barber in New York city has the right idea, says Printer's Ink. His shop is on Broadway, in the downtown business district, where men are in a hurry. He distributes blotters through office buildings in his territory, and about the only thing on the blotter is the suggestion "make appointment by telephone and so avoid waiting." Then follows the telephone number. This convenience requires no laudation, nor does the manner of exploiting it. They speak for themselves.

Hotels in the uptown Broadway district distribute every morning about ten o'clock a printed menu of the day's luncheon through surrounding office buildings. Business men see what's for lunch, and are doubtless often led to a particular hostelry by some special dish. But this advertising would be made much more effective if upon the menu were printed a prominent note to the effect that tables would be reserved by telephone. It might even be practicable with guests who are known to state that steaks, chops and other dishes requiring some time to prepare would be put on the fire at any desired time by telephone order, and served at the moment the guest is ready to come, thus saving what is to most people an unpleasant wait.

The grocer is a man who ought to profit by the consistent exploitation of this telephone idea. Telephones mean prosperous customers, living on a fairly liberal scale. The morning delivery service and house-to-house canvass for orders could be very materially accelerated by issuing a



daily folder from which customers could order by telephone. A brief price list of vegetables, fruits and other green stuff would not be costly or inconvenient where a printing office is within reasonable distance, and the price list could be issued within two hours after the morning's stock was in, and distributed to householders in the grocer's territory. Or if this were not advisable, folders could be sent out emphasizing the fact that housekeepers have only to take down their telephone receivers any morning to learn what is in the market.

People need to be reminded that they have telephones, and shown how to use them in ordering. The telephone companies make good capital of folders that explain the uses of a telephone. Hundreds of persons would dash madly for the nearest fire-alarm box in emergency, never reflecting that the telephone is the quickest of all fire-alarms, did not the companies remind them of it in advertising. Every telephone order received puts the cost of selling on the customer, who pays for the message. What is needed is advertising matter that will make this telephone issue prominent. Readers should be impressed with the idea that the telephone is there in their own homes, and that messengers wait at the store to carry out any order they may send in. The druggist should educate his neighborhood to the speed, ease and advantages of the telephone in sending emergency calls for medicine. The physician would find this an unobjectionable form of advertising. The bank can get deposits by telephone, sending a messenger for them on request. The department store should make its daily bargains accessible by wire. Telephones are universal nowadays. They have a universal application to business. But the public is blind to many of their uses, and needs to be reminded by special telephone arguments.

#### ROYALTY AND THE TELEPHONE.

The names of crowned heads, princes and other sprigs of royalty all have their names in the telephone directory of the city where they reside, but it is not always possible to call them up and engage in conversation with them. President Faure, of France, once commanded his master of ceremonies severely to reprimand one of the ministers of state for "ringing him up" on the telephone to communicate an important and pressing piece of state news. He was deeply incensed at what he considered a flagrant breach of official etiquette. The offending minister was able to get the head of the republic at the telephone only by knowing his personal number, which in France is divulged but to a few. The Paris public telephone book gives merely: "101.60. Presidency of the Republic. Palace of the Elysée" (office and residence), no number being here assigned to the President himself. The President of France can not be personally communicated with over the telephone by the general public. A translation of an article in the *New Yorker States-Zeitung*, containing this information, states that the same is the case with the Emperor of Austria. The Vienna public telephone book gives numbers for the "Office of the Lord Steward of his Royal and Imperial Apostolic Majesty" and in it for the "Chamber of his Majesty the Emperor and King," but the Emperor personally is not put down as a subscriber. On the other hand, the work contains the numbers of the Crown Prince, "Nos. 15 and 16. Franz Ferdinand of Austria-Este, his Royal and Imperial Highness and his Serenity the Archduke."

The translation then says: "The future Emperor of Austria and Apostolic King of Hungary, then, is in this respect much more democratic than the President of the French Republic. To be sure, whether 'Franz Ferdinand of Austria-Este, his Royal and Imperial Highness and his Serenity the Archduke' himself comes to the telephone when he is rung up on No. 15 or 16 is doubtful. But, thanks to the information in the telephone book, he can be 'rung

up.' Other members of the house of Hapsburg-Lorraine have no objection to figuring in this place in company with other partly blue and partly red-blooded mortals. Thus, opposite No. 5,440 in the Vienna telephone book is to be read: 'Adelgunde, her Royal Highness the Archduchess Duchess of Modena.' However exclusive these exalted personages are usually, in the register of telephone subscribers they readily mingle with the people as 'connected.' But one thing distinguishes these telephone owners from the rest of telephoning humanity—the portentous titles with which the telephone management describes them. It is noticeable, however, that the management is thus lavish of titles only with members of the royal family. All other subscribers to the telephone system, however high their rank, however long their genealogy, however famous their name, are set down in a compass the brevity, dryness, and unadornedness of which must fill even the most fanatical republican with satisfaction. An instance of this is the following: 'No. 20,385. Guttadauro v. Reburdone, Eugene, prince.' That is exemplary laconicism! First name: 'Eugene.' And then, 'prince.' Is that the rank or the occupation? Perhaps it is both.

"The Vienna telephone book gives the subscribers both by name and by number. The Paris and Berlin registers lack this arrangement. They give the subscribers only by name. As regards the giving of titles, republican France and monarchical Germany are exactly alike. On the list of telephone subscribers all men are equal. '1998, v. Buelow, prince, chancellor, residence W. 8, Wilhelm-strasse 77.' Thus curtly and compactly is the highest official in the German Empire put down. In a single respect the Berlin telephone book is still more chary than the Paris, not to mention the Vienna one: The head of the state and the members of his family are not named at all. Though the Kaiser frequently makes use not only of the telegraph but of the telephone (conversations over the telephone, for instance, often take place between the Emperor and the Empress), and though telephone connections are everywhere at his command, he is not named among the telephone subscribers, either personally like the future Emperor of Austria or impersonally like the President of France. The Kaiser cannot be 'rung up.' The various ones of his court and other officials can be. The same is the case with the crown prince and the other sons of the Kaiser. The Kaiser and his family have a telephone, yet they are not in the telephone book.

"But not only the high ones of the earth make use of this means of protection against 'ringings-up'; many others, too, persons living on their income, in business, government officials, whole managements, great business houses prefer to disclose their telephone connection only to the initiated, to withhold it, on the other hand, from the public. The management guards the secret jealously. Quite recently it has been against impressed upon all telephone officials not to answer questions as to the number of unnamed subscribers. The telephone is a democratic contrivance that can facilitate direct intercourse with the high and highest ones. But it also can be aristocratically managed, for princes as well as for those who are not. Every one, if he feels so inclined, can keep off the 'ringing-up' herd. Before the telephone, all men are equal, but only all men who are willing to be equal."

The Cumberland Telephone Company, being now without opposition for long distance communication from Morganfield, Ky., has increased the charge for messages to Henderson, Ky., from ten cents to twenty-five cents, and to other points a corresponding advance has been made. The whole world is beginning to understand that competition in the telephone business is a public necessity.

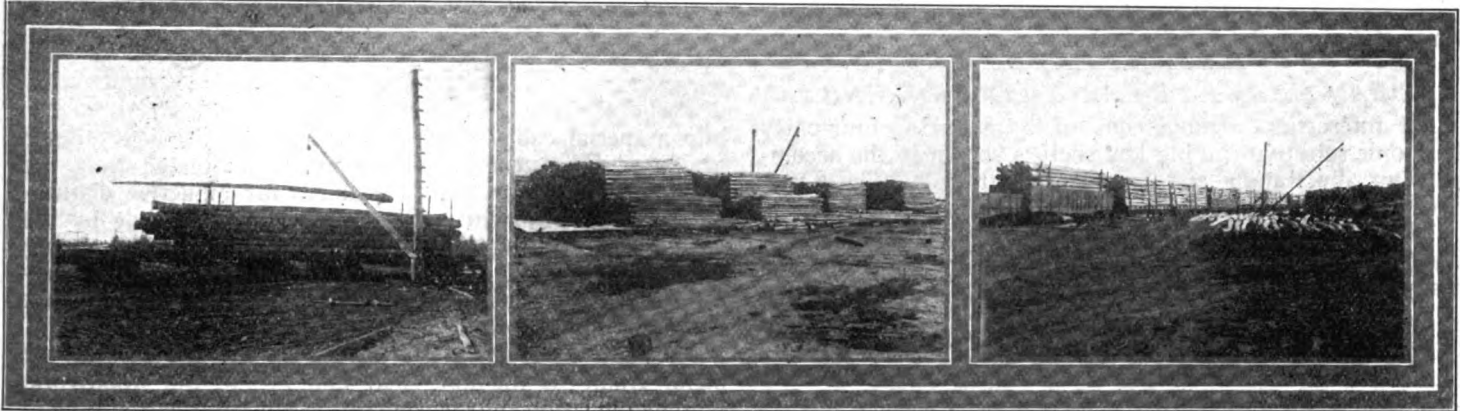
# MANUFACTURERS DEPARTMENT

## NATIONAL POLE COMPANY.

On account of the rapid development of its cedar department, the Pittsburg & Lake Superior Iron Company has deemed it advisable to segregate that portion of its business pertaining to the manufacture and handling of poles and other forest products, from the iron properties, and

gan, Wisconsin and Minnesota, will place the new corporation in a position to furnish even more promptly than before the requirements of its patrons in all parts of the country.

The Pittsburg & Lake Superior Iron Company first entered the field in 1890 as producer of a few ties and poles

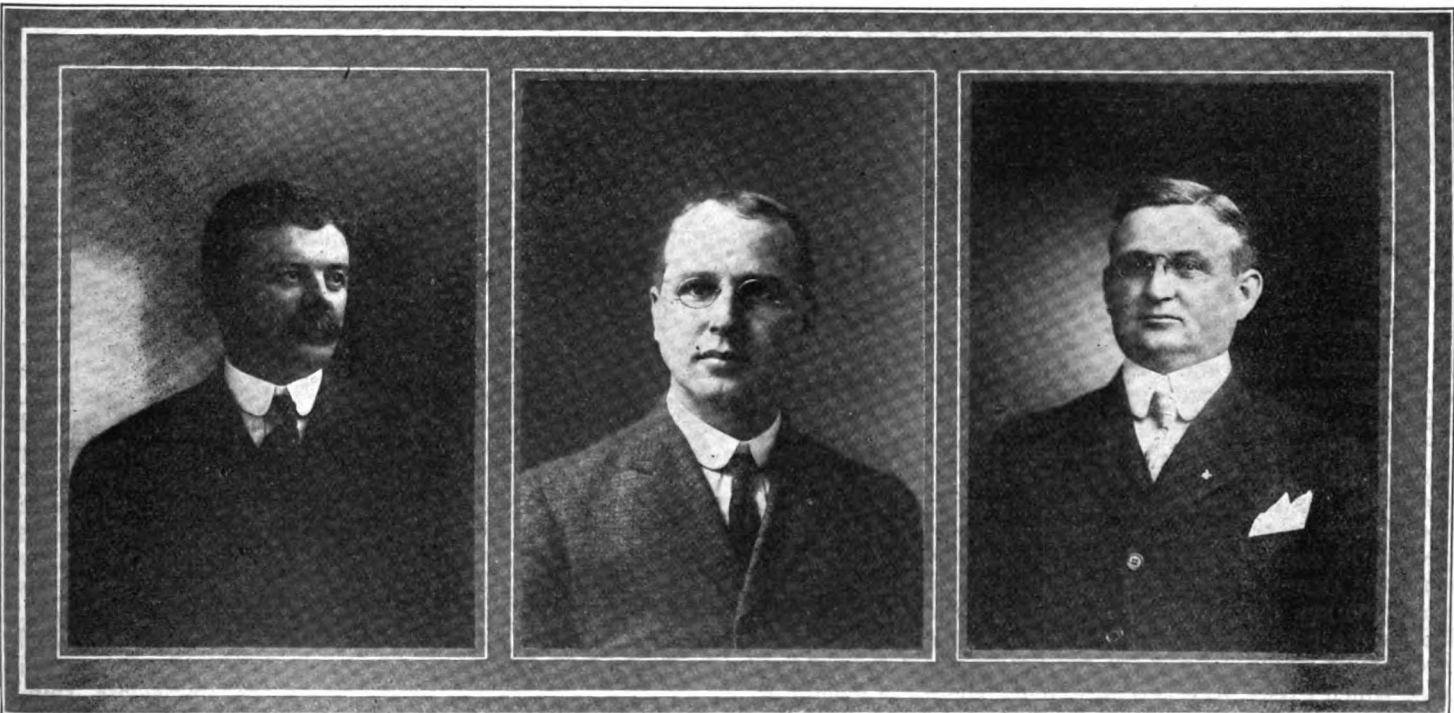


Cedar Yards of the National Pole Company, Escanaba, Michigan.

carry on the same as a distinct and separate corporation. To that end, a corporation known as the "National Pole Company" has been organized under the laws of the state of Michigan. The stockholders of the new corporation are identical with those of the present, and with but slight changes, the management and officers will be the same.

It will be the aim of the officials of the new corporation

at Whitney, Michigan. This cedar was taken out in connection with hardwood which was cut for the charcoal kilns which the company was then operating at Whitney. The company had large holdings of lands in that vicinity, and as the demand for poles increased arrangements were made for increasing the output, and the cedar department was made a feature of the business. The office of the cedar



J. C. Kirkpatrick, President and General Manager.

E. A. Hubbard, Secretary.

H. W. Reade, Vice President and Treasurer.

Officers of the National Pole Company, Escanaba, Michigan.

to carry out the policy and principles established by the parent company, and to increase its facilities by establishing yards on the Pacific coast, with headquarters at Everett, Washington, and also to carry stocks of poles in eastern states. These additional facilities, together with yards already established at various advantageous points in Michi-

department was moved to Escanaba in 1896, and the general office of the Pittsburg & Lake Superior Iron Company was transferred to Escanaba in 1902.

The business has shown an increase each year, and the field has broadened until at present this company is said to be handling more poles than any other concern in the

J. C. Kirkpatrick, president and general manager of the National Pole Company, has been president and general manager of the Pittsburg & Lake Superior Iron Company for several years, and his connection with the company dates back many years. He has a large acquaintance with users of cedar products, and is looked up to as an authority in this line. H. W. Reade, vice-president and treasurer, held the offices of secretary and treasurer of the Pittsburg & Lake Superior Iron Company for a number of years, and like Mr. Kirkpatrick, has been associated with the company for nearly twenty years. E. A. Hubbard, secretary of the National Pole Company, also has held the office of auditor of the Pittsburg & Lake Superior Iron Company for some time past.

#### DEAN SELECTIVE PARTY LINE RINGING.

An interesting arrangement of a magneto, four-party harmonic selective ringing key shelf is shown in the accompanying illustration and is manufactured by The Dean Electric Company, of Elyria, Ohio.

This key shelf possesses many unique features, the most important being the simplicity in wiring and the use of a complete iron frame construction, the hinges being fastened

located at the front end of the key structure in plain view when the key shelf is raised and are therefore completely accessible without removing the key from the shelf as is necessary on other types of construction. These features would not be possible with the arrangement and wiring used in Figure 2.

In the Dean switchboards the generator leads, up to the key wiring, are run with extra heavy insulated wires twisted

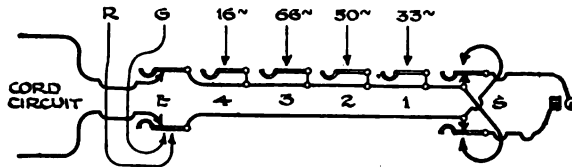


Figure 1.

into a special cable which is provided with a heavy outer braiding. The generator wires are thus isolated from the talking circuit wires and all chances for inductive disturbances done away with. The party line keys made by the Dean Electric Company are self contained, each being arranged with four plungers for four-party selective ringing, and when so ordered contain a reversing key *s*, Figure 1, for eight-party selective ringing.

As previously mentioned the keys are attached to the metal frame of the key shelf and not to the woodwork, thereby obviating the chances of splitting and warping as in the ordinary construction. The escutcheons which are of genuine Bower-Barff finish, are mounted so that their upper

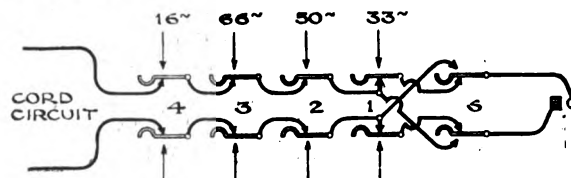


Figure 2.

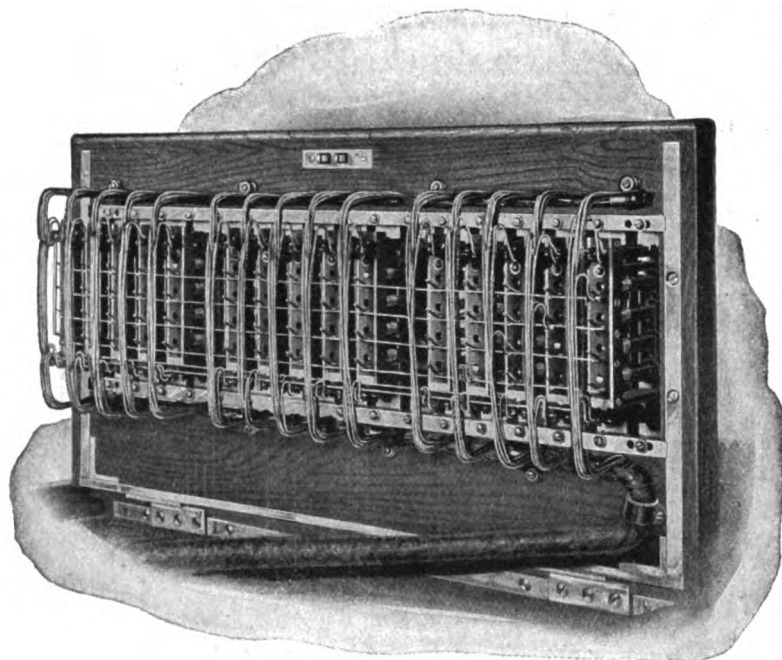
surfaces are flush with the surface of the key shelf, thereby giving a neat and substantial construction without the usual crevices for the collection of dirt and dust.

#### DURAND-STEEL LOCKERS.

Clothes lockers have become an indispensable part of the equipment wherever there are a number of employees. Tele-

phone exchanges, offices, linemen's headquarters, repair shops, etc., can hardly afford to be without them. Beside offering a clean and convenient place for clothes, they make for order and decrease lost time. Churchill & Spalding, 467 Carroll avenue, Chicago (manufacturing nothing but lockers), offer a line especially adapted for telephone service. The Durand-steel lockers are made in either single or double tier, and can be arranged in groups to suit the spaces in the room. Large numbers of the standard lockers are carried in stock at all times ready for immediate shipment. A specialty is made of executing large contracts.

The doors of the lockers are made of No. 16 U. S. gauge cold rolled, full pickled sheet steel, and No. 20 U. S. gauge is used for the sides, backs, tops, bottoms and shelves. The door is hung on pivot hinges, which are invisible when the door is closed, and the door is locked by means of the absolutely secure though simple three-place locking device, which can be controlled by a padlock, rim key lock, or combination lock. All



Magneto four party harmonic selective ringing key shelf.

to the metal work and the woodwork simply serving to cover the space not occupied by the keys. The latter are attached to this metal framework by machine screws making a most substantial design. The simplifying of the wiring is made possible by the use of the Dean selective ringing key which has its contacts arranged as shown in Figure 1. The plunger springs of these keys, marked 1, 2, 3 and 4, operate the contacts, marked 16, 33, 50 and 66. The latter, being the same for each cord circuit, are strapped straight across the key shelf connecting the like springs of all keys. This is the modern method of wiring the generator to the cord circuit ringing keys as it prevents generator inductive noise which exists, to a certain extent, where the generator leads are looped from key to key in the same cable with the talking circuits.

Figure 2 shows the usual method of key wiring required on other types of keys and makes use of six spring contacts for each plunger or twenty-four spring contacts for a four-party key. The Dean key, used on the key shelf, shown in the illustration, has but one spring contact for each plunger and only two series contacts in the talking circuit, due to the entire four-party key. These two series contacts are

parts are usually made solid except the door which is perforated for ventilation. Fire originating in one locker cannot spread to the adjoining lockers. All parts are thoroughly finished with a furnace-baked black japan (400 degrees), hard and glossy, which is not only an absolutely sanitary finish but exceedingly durable.

## A PRACTICAL BY-PRODUCT FOR TELEPHONE COMPANIES.

The problem which many able telephone engineers have been trying to solve for some time, of how to make telephone circuits more remunerative, is claimed to have been solved by the Denio General Electric Company, of Rochester, New York, with its telephone fire alarm system.

For over a year and a half past, this system has been in operation and the company has demonstrated its practicability, the system having received, it is said, the approval of the leading telephone engineers of the United States.

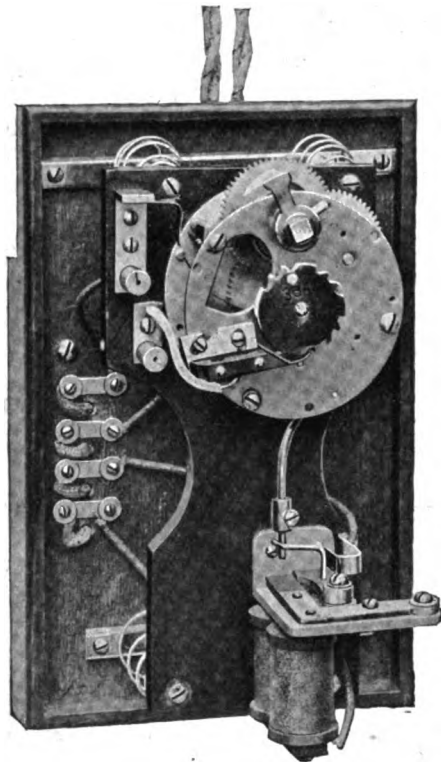


Figure 1.

For efficiency and revenue, it is pronounced the best by-product yet devised for telephone circuits, affording as it does complete fire protection to telephone subscribers at a minimum cost.

There is no trouble nor expense to the telephone companies either for installation or maintenance, as the arrangements which the Denio General Electric Company is making with telephone companies obviates expense to the latter, and at the same time gives them an added revenue. The Denio system is designed to assist in promoting the use of telephones, as the telephone company can by its use offer fire protection as well as telephone service. The fire losses of the past year being over five hundred million dollars, the inducement of such a proposition should be immense.

Two styles of boxes are made, either of which is connected by simply bridging onto the telephone circuit. No. 1 box, which is shown in illustration herewith (Figure 1), is designed for stores, factories and houses, where automatic protection is desired. This is accomplished by installing one box, which has a pair of magnets operated by the current on the line, no local battery being required. Leading from this box through the building may be in-

stalled as many manuals (Figure 3) as desired. The automatic alarm is accomplished by using thermostats, or, preferably, Montauk fire-detecting wire, which will close the circuit and operate the box, and which has been approved by the New York Board of Fire Underwriters, with a rebate

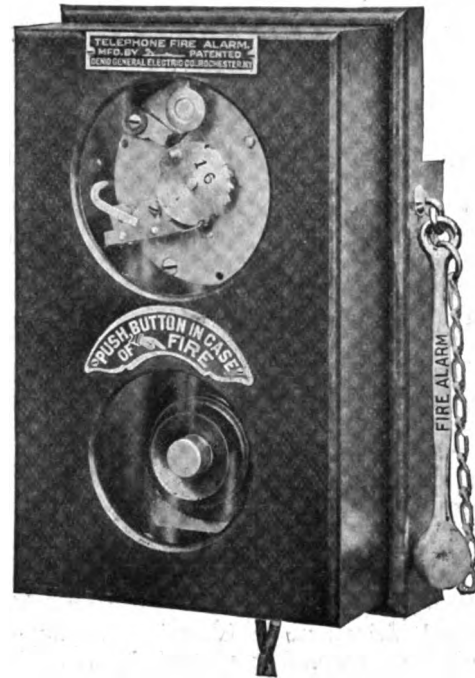


Figure 2.

allowed on insurance premiums thus protected. The closing of the circuit, either by breaking the glass and pushing the button in manuals, or by fusing of the thermostat by wire, operates the magnets, thus releasing the escapement of the movement in the signal box.

The mechanism, when set in motion, rapidly makes and



Figure 3.

breaks the circuit, giving a distinctive flash on the lamp in the exchange as well as a loud noise which the operator can never mistake nor overlook, the alarm being repeated fifteen or twenty times, or from five to eight minutes.

The make and break wheels are all cut differently as from number 12 up, so that as soon as the operator receives the



signal she can take her fire plug, which is on a line direct to the fire department and the number of the box is punched on a tape by a register commonly used in fire headquarters. As soon as the fire department gets the first round they know from the number of the box the exact location of the fire. As soon as the alarm has been received, also, the telephone operator may ring the subscriber's bell, notifying him that the alarm has been received, or, if the fire came in an automatic alarm, the subscriber would be awakened by the ringing of his telephone bell.

No. 2 box (Figure 2) is designed for those who wish a fire alarm box in the house and do not care for the automatic feature. This is operated by simply taking the hammer, breaking the glass and pushing the button, the alarm being transmitted to the fire department in the same manner.

The entire system is pronounced very simple, effective and practical, and no false alarm can occur unless by design, which is a misdemeanor.

The Denio system can be installed in any store, factory or house having a telephone; no interference nor changes are necessitated in the telephone company's switchboard, and thousands of the boxes may be installed without adding any more work for the telephone company.

The Denio General Electric Company is now in a position to furnish its boxes in quantities and solicits correspondence from telephone companies.

#### INLAND TELEPHONE & ELECTRIC COMPANY.

The Inland Telephone & Electric Company, St. Louis, was organized on December 1, 1906, by J. A. Becker, who has been in the independent telephone manufacturing business since 1895, starting with the Central Telephone & Electric Company, where he held the position of superintendent for seven years. Mr. Becker is president and general manager of the new company and is well known throughout the telephone field. The Inland Telephone & Electric Company already has established a reputation for turning out high-grade telephone apparatus and switchboards. A new catalogue, illustrating and describing up-to-date telephones, switchboards and other apparatus, used in connection with telephone exchanges, will be sent on application.

#### NEW BOOK ON AUTOS.

Many telephone men are finding the use of the automobile not only practicable but a great convenience in their work, and for such a book published by Theodore Audel & Company of New York will be found valuable. The volume is entitled "Self-Propelled Vehicles," and is by J. E. Homans. It is a practical treatise on all kinds of auto cars and contains a fund of information useful to those who own or drive a motor vehicle. The book includes illustrations and diagrams which are helpful aids to the text. The price of the volume is \$2.

#### CHURCH AND THEATER SERVICE BY TELEPHONE.

Wires in politics we all know and wires in ecclesiastical affairs are suspected by many, but wires in straight out, everyday gospel preaching are a novelty, yet twentieth century science is now made the servant of first century teaching. Lack of up-to-dateness in religion is a more serious shortcoming than lack of up-to-dateness in business. Though we may not approve all the ways and means used in church services, we cannot fail to approve the use of the telephone. Imagination loves to play about the Acousticon transmitter, standing like the listening ear of science, in front of the speaker on the pulpit. It is the most unresponsive of listeners. No eloquence disturbs its poise and no prosiness puts it to sleep. It is an impartial hearer, giving equal heed to sermon, song and exhortation. It rep-

resents the most curious audience which any man in this time addresses by spoken voice.

Through the thin wire which connects it with the telephone exchange, the messages go to hundreds of listening persons, who comprise a company which no man's vision can realize. The telephone line is a link that connects the church with innumerable "shut ins," each of whom has his own story to tell of why he seeks or needs the consolation and inspiration of religion. The value of a telephone to a chronic invalid is priceless. It breaks down the terrible wall of loneliness which shuts the sufferer in, and puts him in touch with the big world.

Even far-visioned Ben Franklin never dreamed of such a use for electricity as is now open for the use of any telephone company. With a special apparatus called "the acousticon," a specially designed transmitter, it is claimed that it is possible to convey the church services to another building squares or even miles away and reproduce them so as to be plainly heard throughout the auditorium.

This interesting scientific achievement suggests many possibilities. What's to hinder some brilliant clergyman from addressing several congregations at once? Still further the idea might be pushed. Where one might go to church by telephone, what is the use of getting out of bed at all on Sunday morning? One may listen while comfortably ensconced among the pillows—and everyone knows what a poor place for sleep the average church pew is—and during the prosy stretches of the sermon the receiver may simply be laid aside. Extending to its limit the day's tendency, the sermon might be cut out altogether and the music alone heard. Incidentally, all collections would be escaped, and there would never be experienced the un-

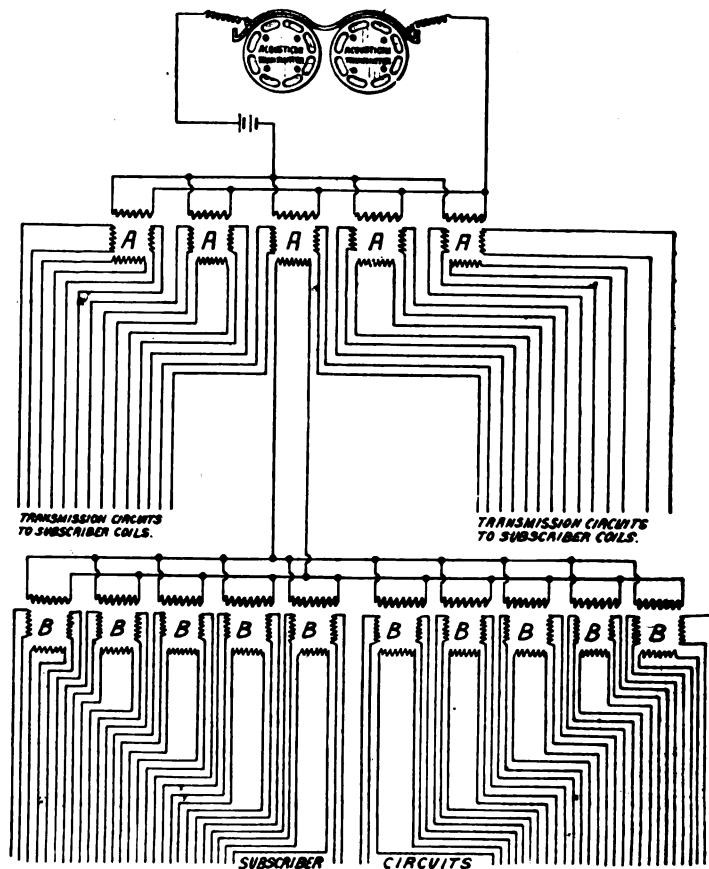


Diagram of Church Theater and Concert Circuit, General Acoustic Company. A shows Master Circuit Repeating Coils and B shows Subscribers' Circuit Repeating Coils.

comfortable sensation that the preacher has his eye on you in particular, and that he is saying, "Thou art the man." Decidedly, church going by telephone is more than novel, with all the uncomfortable features eliminated.

The up-to-date telephone company will not only be able

to furnish church services to its subscribers, but also will be prepared to give them concerts and let them listen to the operas and musical comedies as well. It will be found that if properly presented to managers, they will be glad to allow the telephone companies to place acousticon transmitters on the stage. For who, after listening through the telephone to some of the latest gems, could resist the temptation to "see the show?"

The Keystone Telephone Company of Philadelphia was the first company to give such a service on a large scale. Beginning with the presidential election in 1904, it has twice a year given its subscribers a special election service, by which they could listen to election bulletins, interspersed with music, for six hours and find out all about it without going down town. The Keystone company also gave concerts in Philadelphia and telephoned them to Atlantic City, Baltimore and Harrisburg, and furnished its subscribers the Torrey-Alexander revival services for two months, thus enabling thousands to hear the great evangelists, who could not have done so without such service. The Citizens' Telephone Company of Watertown, N. Y., has also introduced the acousticon transmitters, and is giving church services by telephone to its subscribers in Watertown and surrounding towns within a radius of thirty miles. It is surprising how greatly interested the telephone subscribers are in such services, and how the revenues of the telephone companies are increased by measured service calls, and calls from pay stations. It not only pleases the subscribers, but also is a great source of revenue to the company, and the service comes at a time when the wires are not busy.

The General Acoustic Company of 1265 Broadway, New York, will be glad to furnish information relative to the instruments that make it possible for telephone companies to please their subscribers and incidentally to reap the benefit of increased revenue from measured service and pay stations.

### F. W. PARDEE MAKES CHANGE.

Frank W. Pardee, who was general manager for Frank B. Cook, has resigned that position to become treasurer of



F. W. Pardee.

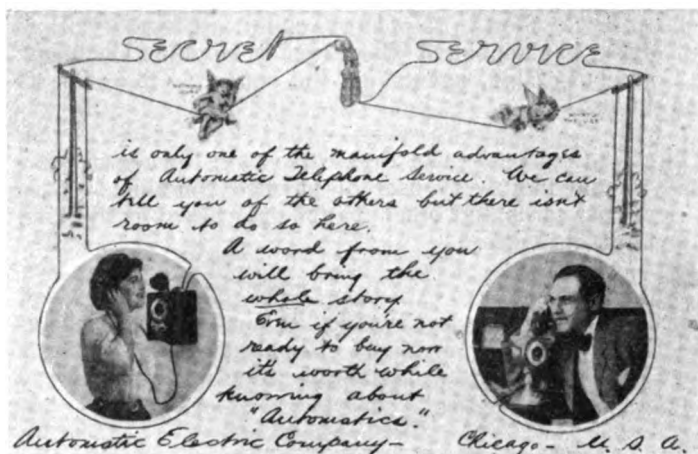
the Durant Electric Supplies Company, 56 Fifth avenue, Chicago. During his connection with the firm, Mr. Pardee saw Frank B. Cook's business extend from the occupancy of one floor to three and a half floors, and was active in promoting the firm's interests. Mr. Pardee in 1896, after

finishing a four-year electrical course, went into the advertising business, and then became connected with the Chicago Writing Machine Company. His success in these lines enabled him to make good with Frank B. Cook, and his decision to leave that firm and engage in business for himself was regretted by all connected with Mr. Cook's establishment. Mr. Pardee was the guest of honor at a farewell dinner arranged by the employes of Frank B. Cook, at which he was presented with a gold watch suitably inscribed.

The company with which Mr. Pardee is now identified is officered by young men well known in the telephone field. H. S. Durant is president and manager; J. F. Crook is vice-president; E. E. Dewey is secretary, and F. W. Pardee is treasurer. "We expect to work day and night to keep our customers promptly and properly supplied with the best of everything that the market affords," says Mr. Pardee, "including a few specialties of our own to be announced later."

### THE "SECRET SERVICE."

The Automatic Electric Company has distributed more than 100,000 of the "Secret Service" cards among the trade, and has found them to be one of the most attractive adver-



Secret Service Card.

tising features ever put out by that concern. H. H. Woodworth, advertising manager for the company, prepared the card showing the advantages of the "girl-less, cuss-less" telephone, and has received many compliments on the idea. The accompanying illustration shows the design, with the cupids vainly trying to "listen in" while the lovers are talking over the wire.

### RECENT DEAN CONTRACTS.

The Dean Electric Company, Elyria, Ohio, has secured a contract for a three-section, magneto, multiple switchboard for Nebraska City, Nebraska. This is the second large magneto board sold recently in this territory. The Nebraska City board will have six-hundred lines equipped and The Dean Electric Company will furnish the plant complete, including the Dean harmonic four and eight-party selective ringing equipment, individual ringing keys on each position, and racks. A combined toll and rural board goes with this installation. Grafton, West Virginia, has ordered a common battery lamp signal non-multiple switchboard with 300 lines equipped for immediate use. The Dean company furnishes the cross connecting and relay racks, power plant complete and full Dean harmonic selective party line ringing equipment. Colusa, California, has ordered six common battery switchboards for the Colusa County Telephone Company. Each board is to be arranged for four and eight-party selective party line ringing. A complete Dean harmonic converter goes with the selective ringing equipment for each board.

## TRADE NOTES.

C. H. MACKLIN is now with the Century Telephone Construction Company, Buffalo.

R. L. MITCHELL has resigned as manager of the Citizens' Telephone Company at Houston, Texas, and is now identified with the North Electric Company.

ON JUNE 1ST THE GOULD STORAGE BATTERY COMPANY moved from 1 W. Thirty-fourth street, New York, to 341-347 Fifth avenue, corner of Thirty-fourth street.

THE AMERICAN CONDUIT COMPANY, Chicago, New York and Los Angeles, is mailing out a series of post cards, presenting views of its conduit in process of installation.

W. N. MATTHEWS & BROTHER, 210 N. Second street, St. Louis, Mo., have issued a new, net price list, which is attractive in appearance and interesting as to contents.

THE BLAKE SIGNAL & MANUFACTURING COMPANY, Boston, Mass., has appointed The Erner & Hopkins Company, of Columbus, Ohio, agents for the state of Ohio, for its tube flux.

THE ROCHESTER SEWER PIPE COMPANY, Rochester, New York, would like every user of vitrified conduits to have its new post cards and other matter descriptive of the kind of conduits it makes.

THE STAR ELECTRIC COMPANY, Niles, Ohio, will be glad to mail all buyers of dry batteries its new folder, "Conclusive Evidence." The company claims that all known tests prove the Diamond Star special cells to be superior in every respect.

THE ANDERSON FORGE AND MACHINE COMPANY, Detroit, Michigan, has ready for the trade a new folder descriptive of its line of telephone specialties. Among these are cable winches, manhole cable hangers, pipe bends for cables, cable pole seats, cable reel jacks, pole raising wagons and drop forgings of every description.

GEORGE R. BLACKBURN, Cleveland, Ohio, manufacturer of the Blackburn ground clamps, states that one telephone company has used over 12,000 of these clamps in the past two and one-half years and is well pleased with results. This company previously used a clamp which cost double the price of the Blackburn clamp and reports that while saving money on its clamps it also gets much better results. Prices will be furnished on request.

M. W. DUNTON & COMPANY, of Providence, R. I., is probably the first manufacturer of a soldering paste to bring its product out in a decorated enameled box. For the return of fifty of the covers from these boxes the firm is giving, gratis, one of the "Little Beauty" blow torches. These covers are of no further use to the firm but simply serve to let it know that you have been interested enough to use and return the number required.

THE NORTHWESTERN ELECTRIC EQUIPMENT COMPANY, St. Paul, is now permanently established in its new quarters, 181 to 189 East Fourth street, and has the finest store and stock room in the northwest. A five-story building has been especially fitted up with a view towards handling telephone supplies and carrying a heavy stock in this line. The company recently issued a new telephone supply catalogue

and would be glad to mail copies to anyone interested in this class of material."

OWING to the large increase in the business of the Electric Cable Company, an extensive addition is to be made to its plant at Bridgeport, Conn. The new building will be constructed of concrete and brick and will embody the most improved forms of fireproof construction and equipment. The addition will be devoted exclusively to the production of weatherproof wires and cables.

A. J. COX & COMPANY, 1022 Chicago Stock Exchange Building, Chicago, has been appointed western sales agents of Legler, Grimes & Eilerman, manufacturers of finished or die-molded castings. It is stated for the benefit of any manufacturer who is producing parts on which there is a considerable amount of machine work, that this concern will duplicate a model so accurately that the variation in any measurement will not exceed 1-1000 of an inch. The firm's standard metal, which is the result of long experiments, is admirably suited to almost every requirement and can be plated handsomely in nickel, brass, bronze and other styles.

THE FAHNESTOCK ELECTRIC COMPANY, of Brooklyn, New York, manufacturer of the well-known Fahnestock spring binding post, wishes to call attention to the suitability of its large size, double-end, spring binding post for use as a test opener for telephone lines. The manufacturer claims for this test opener that it can be removed from the line at any time by simply pressing down on the spring, and that the absence of threads which corrode under the influence of the weather, as well as the absolutely positive spring grip with which the wire is held, tend to make this device absolutely reliable at all times. It is furnished for either iron or copper wires. The manufacturer will be pleased to answer all correspondence.

THE PREMIER ELECTRIC COMPANY, formerly at 118-132 West Jackson boulevard, Chicago, Ill., removed on May 1st to 141 South Clinton street, Chicago. This company is well known as a manufacturer of electrical braided goods and cords and wires for telephone purposes, Premier "B.B." switchboard cords, telephone receiver desk set and transmitter cords, switchboard receiver cords, braided cotton sleeve and jumper wire. In its new location it will have many improved facilities for handling its rapidly increasing business. The company is able to give prompt attention to orders from any part of the country. It will be pleased to explain the characteristics of its various products to telephone men who are able to visit its new offices or by mail on receipt of a request.

THE MONARCH TELEPHONE MANUFACTURING COMPANY, Chicago, has established a branch house at 177 Main street, Dallas, Texas, to handle the volume of business it is receiving from Texas, Oklahoma and Indian Territory. Inquiries and correspondence will be handled there in just as prompt and courteous a manner as such matters are taken care of by the general office in Chicago. The branch house is in charge of D. C. Lingo, who has spent six years in the telephone business in Texas, and is well known among the trade in the state, will carry out the Monarch principles and ideas. A large consignment of telephones, switchboards and construction material has been sent to Dallas and orders are now being filled without delay. It is intended that tele-

phone orders or in fact orders for any standard apparatus will be shipped from Dallas the same day as received.

THE WESCO SUPPLY COMPANY, of Ft. Worth and St. Louis, importers and jobbers of electrical machinery and supplies, announces the establishment of a new branch office at Birmingham, Alabama. This new office will be in charge of W. W. Moore, electrical engineer, who for several years has managed the apparatus department of the company with headquarters at St. Louis. Mr. Moore is a native of the South and a very capable and well-posted man in this particular branch of the electrical business. His wide acquaintance and many friends in that section assure his company in advance of an extensive and profitable patronage through their newly established office.

THE CENTURY TELEPHONE CONSTRUCTION COMPANY is now located in its new factory, 1738 Elmwood avenue, Buffalo, New York, where it has one of the largest, most complete and up-to-date plants for the manufacture of telephone apparatus in the country. The growing demand for Century common battery switchboards and telephones, also magneto apparatus, necessitated these large quarters, and there is every indication that the factory will be running night and day, the year around. The Century company also has a factory in Toronto, Canada, which takes care of its growing Canadian business, and has opened a branch house in Kansas City, and is in position to ship Century telephones and supplies from that point throughout the Southwest. The Century company also contemplates establishing a branch house in Chicago at an early date.

### IMPROVEMENT OF SERVICE.

BY E. K. HERTFORD.

Assuming that Independent telephone companies must derive their greatest strength from furnishing a service superior to that which is given by their competitors, there are two important elements which contribute to the maintenance of such a service. The first is the requirement of a well-designed and constructed switchboard and outside plant. With the necessary amount of money at hand there can be obtained a switchboard, lines, and instruments which are capable of being handled in such a way as to give results which conform to or even surpass the highest standards of our competitors. A normal amount of effort and expense serves to keep these appliances in such condition that they will continue for years to give the same results as at the time of installation. These may be considered as established standards, imposing limitations it is true, but of such a nature that improvement by the removal of these natural or physical causes which determine them lies within the province of the inventor.

The manager of a telephone exchange also is concerned with efforts to make the handling of calls with the apparatus at his disposal as efficient as possible. It is service that he has to sell and this is the commodity to the improvement of which his work should lead. This means that among other things he must constantly endeavor to have his operators manipulate their switchboard apparatus in such a manner as to complete each call without inaccuracies and with the minimum delay. What is more costly than a poorly manipulated switchboard? This is the cause of the loss of nearly all subscribers who discontinue their contracts, and of the failure to receive toll business with the constant increase at once of earnings and prestige to the Independent company. The friendship and confidence of subscribers, on the other hand, when secured by giving the most valuable service attainable, are extremely useful aids in the securing of new business. The operators, therefore, must be taught to educate the public to demand the best service, and to give such attention to their work that this service may be fur-

nished constantly and without a break which may be taken as a cause of complaint.

The local operator should be intelligent, accurate and courteous. One with these qualities can be trained in the requirements of her work until she is capable of securing the best results. Experience has demonstrated the nature of these results, and established standards which are to a large extent agreed upon. In the methods of securing them, however, the greatest divergence of practice exists. Various plans for obtaining knowledge of the grade of service which is actually given have been devised. Tests are made, and with the information obtained from them the manager is able to discover the extent of improvement necessary. Stimulation of interest, and where necessary, measures of discipline are resorted to in order to spur the operators to more constant efforts.

It is evident that whatever method of checking the work of the operator is resorted to should, for the attainment of the highest objects, be economical in operation, give a check not merely on a percentage of calls but upon all connections which are made, and be absolutely accurate. It is desirable that any difficulties in the service should be detected at the time they occur. Correction of the operator at fault is thus possible at the time when it will be most useful.

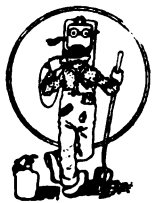
With these scientific requirements admitted it is a logical deduction that proper automatic apparatus, located under the observation of the manager or a competent chief operator affords an ideal check on the work at the switchboard. Such an apparatus should record for each position at the switchboard the number of calls, and enable any irregularity in a single call to be instantly detected by the person in charge of the service.

The writer became impressed some time ago with the necessity for such apparatus. Eager to give his subscribers the best returns for their payments, and aware of the benefit which could be obtained by progressive managers, he has invented an instrument in connection with a system of application which enables a supervisor to secure a constant and accurate knowledge of the work done by the force of operators. In this apparatus there is provided for each switchboard position a set of dials upon which is registered, by means of electromagnetically controlled recording mechanisms, the number of calls answered, timing each from the second or fraction thereof; each call is received at the position until the operator has answered the subscriber. Therefore with the daily record from each position on the switchboard for a period of twenty-four hours, the chief operator or manager may ascertain the exact degree of efficiency of her operators.

The operators should be paid in accordance with their merits, which does not only result satisfactorily for the operator, but very profitably for the company, as each operator is stimulated to the point of giving her best efforts and when so doing answers a greater number of calls than under ordinary circumstances, which will require fewer operators to handle the load. In the reduction of the operating force, which under a two year's practical test has shown 45 per cent, the company can afford to pay for such necessarily attained proficiency 25 per cent more salary than has been established, thus opening a more profitable and inviting position for operators at the company's gain of 20 per cent reduction in pay roll. The traffic being handled by superior operators increases the quality of the service which is all telephone companies have for sale, and by improving this keystone all other departments, whose success undoubtedly depends upon the operation of the switchboard, are proportionately improved.

The F. Bissell Company, of Toledo, Ohio, will manufacture the above described Hertford automatic monitor, and will be glad to mail further information to those interested in the betterment of their service, the reduction of the operating pay roll, although possibly increasing the wages of the deserving operator.





# ITEMS FROM THE RURAL LINE DISTRICTS



Illustrated by O. H. Brandenburg

The Bristol Telephone Company have put in a phone for Willis Upson. Call four rings.—*Kenosha (Wis.) Telegraph-Courier.*

The Beef River Telephone Company this week strung a wire and put in some telephones in Osseo.—*Independence (Wis.) Wave.*

Telephone service is being extended from Pottstown to the rural sections of Fagleysville and Swamp.—*Allentown (Pa.) City Item.*

John Johnson is a new subscriber to the telephone. He has been added to the L. line.—*Pohoco Correspondence Fremont (Neb.) Tribune.*

Miss Myrtle Coffman has resigned her position as operator at the telephone office and is employed in the Oriental Confectionery.—*Anna (Ill.) Talk.*

Thomas and Fred Dupeas, managers of the People's Telephone Company, have re-roofed their telephone headquarters.—*Sigourney Correspondence Muscatine (Ia.) Journal.*

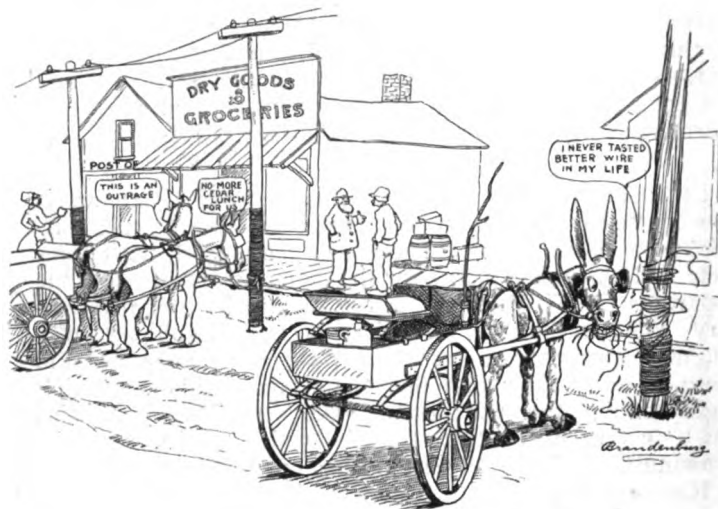
The Lamoni Telephone Company were in our neighborhood last week repairing telephones, etc. The line is in tip-top condition and phone was installed in the Al. Grinstead home.—*Bethany (Nev.) the company is to be congratulated on their work. A new tele-Republican.*

Geo. Whittleton, who manages the Slater Telephone Exchange, made a "high dive" from a telephone pole in East Slater Friday, but fortunately escaped any serious injuries. His safety appliance getting out of order caused his fall.—*Slater Correspondence Marshall (Mo.) Republican.*

Messrs. Louis Bitz and George H. Frank made a business trip to the large Cedar Lake last Sunday in the interest of the Jackson Telephone Co. While there they had the chance of seeing the largest fish ever taken out of these waters, weighing twenty-eight pounds.—*West Bend (Wis.) News.*

J. K. Stone, iving nine miles south of Bangs, was in town this week figuring with the Bangs Telephone Company on putting in a line to his place. He says he wants to keep posted on what is going on in the county during the summer while he is busy with his crop.—*Brownwood (Tex.) Bulletin.*

The local exchange of the telephone company this week installed a chair telephone system in Rusbolt's barber shop. This is the only barber shop in the upper peninsula supplied with this system, which is a great convenience. With it patrons who are having work done may make use of the telephone without leaving the chair and with no inconvenience. It undoubtedly will be greatly appreciated by Mr. Rusbolt's patrons.—*Ironwood (Mich.) Times.*



Ed. Hanley was in Triumph several days the first of the week shaking trouble along the Armstrong telephone line, and wiring a few poles in town so that horses could not indulge in a cedar lunch while hitched to them unless they first disposed of a bale of wire as an appetizer.—*Fairmont (Minn.) Independent.*

Telephone manager Hale was out one day last week and remained out all day locating and repairing defects in the telephone system. Mr. Hale was tired from his arduous work tramping through mud, climbing poles, etc. "Well," said he, "I would not mind all that if only some way could be divined and devised to stop that abominable "rubbering."—*Onarga (Ill.) Review.*

Conrad Baum, the well known barber, located in the basement of the Citizens' National Bank building, has installed a telephone in his place of business and is now prepared to attend to the wants of all his patrons and friends who may be ill and not able to come to his tonsorial parlors to be shaved. If you want a barber to call at your residence to shave you, and barber is required, call 974-R and you will be supplied on short notice.—*Marietta (O.) Times.*

"Don't cuss the telephone company. It has troubles enough already. If there is a fire in town the telephone company is bound to suffer. Poles are burned, cables destroyed and the system generally demoralized. If a cyclone shoots across country it is sure to result in a tangle that it takes a month to straighten out. If a team runs away, it is likely to break off a pole or two in its flight. A big snow storm or heavy sleet breaks the wires. Man and nature seem to conspire to keep the telephone company in trouble. In fact, the telephone man has almost as much trouble as an editor."—*Gardner (Mo.) Gazette.*

Manager Gary, at Macon, Mo., of the Macon county telephone system, received a letter inclosing \$1 as restitution from a person near College Mound who, six years ago, playfully shot an insulator from one of the company's poles. "I have obtained salvation," writes the man, "and I'm going to make good with everybody I wronged while in darkness. I not only request a letter acknowledging monetary satisfaction, but your complete forgiveness. In the old days I thought it smart to stand off as far as I could see and smash your insulator with a rifle ball, but things look different now, and I'm going to do as I would be done by."—*Fayette (Wis.) Advertiser.*

The Corn Belt Telephone Company have made a change in their operators at this place. Okley Bandy, who has held the position for the past three years, has purchased the restaurant stock of Mr. Hamilton at Bristow, and will remove to that town in the near future, and the office here will be under the supervision of Mrs. A. P. Withers and husband, who have just moved here from Waterloo. Mr. and Mrs. W. have given the patrons very good service and very few have much to complain of, and Mrs. Withers comes to us with a great deal of experience and it is to be hoped that we will find these people excellent managers of the central office as well as good accessions to our town.—*Dumont Correspondence Marshalltown (Ia.) Republican.*



Chicken thieves in the neighborhood of Hampton have adopted the scientific war tactics of "cutting cables" when they start out to rob chicken roosts in a neighborhood. The first thing they do is to cut the telephone wires connecting the several farm houses so that neighbors cannot communicate. If this plan of procedure becomes common, it will be a good plan for farmers, if they find their telephone shut off in the night time, to take it as a warning to be on their guard against some kind of robbery.—*Alden (Ia.) Times.*

# Electric Time Stamps



You will find our Time Stamp as much of a necessity upon your desk as your telephone.

It is the ideal dating device, and being operated by one of our Automatic Electric Self-Winding Clocks, it is always in order, accurate, and ready for business. The ideal cost keeping stamp. The arrival of your mail dated to the minute. Orders checked in and out and all of your business transactions correctly dated.

Send for Catalogue.

**American Clock Co.**

Wabash Avenue and 20th Street  
CHICAGO

THE STANDARD FOR RUBBER INSULATION



1889  
Paris Exposition  
Medal



TRADE MARK  
REG. U. S. PAT. OFFICE.

1893  
World's Fair  
Medal



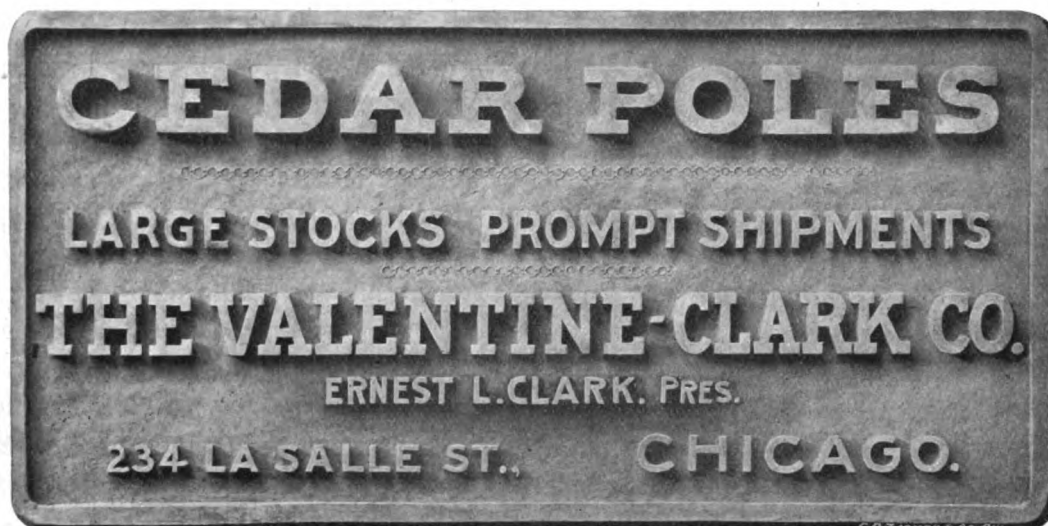
**OKONITE WIRES**  
**MANSON TAPE**  
**OKONITE TAPE**  
**CANDEE WEATHER-PROOF WIRES**

WILLARD L. CANDEE, } Managers  
H. DURANT CHEEVER, }

GEO. T. MANSON, General Superintendent  
W. H. HODGINS, Secretary

SOLE MANUFACTURERS

253 BROADWAY THE OKONITE CO., LTD. NEW YORK CITY



# Save Money

Also Save Time and Worry

We have the Poles. Our Prices are right and  
 we can deliver the goods.

Write us.

## NAUGLE POLE & TIE CO.

226 LA SALLE STREET, CHICAGO

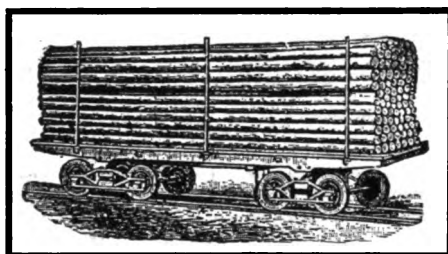


We Offer This Season

THE BEST STOCK OF

# CEDAR POLES

Which We Have Ever Produced



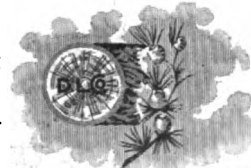
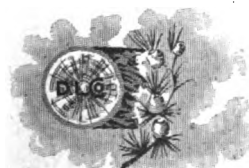
Sound, Straight and Satisfactory  
In Every Respect

May We Have the Pleasure of Quoting  
You Prices?

## DULUTH LOG CO. DULUTH, MINN.

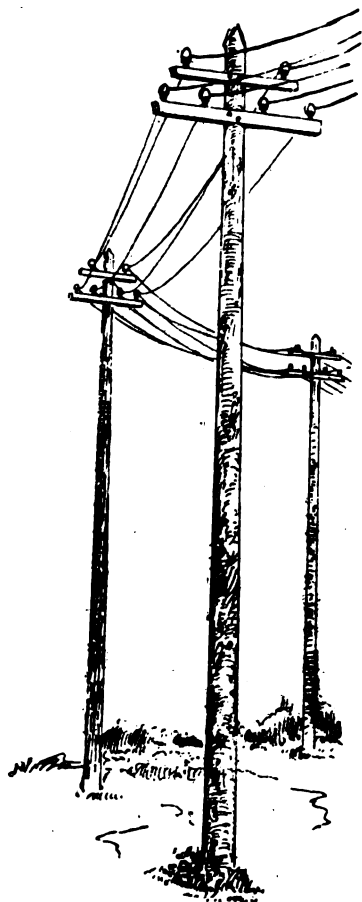
PRINCIPAL CEDAR YARDS AT:

Duluth, Minn.; Hawthorne, Wis.; Washburn, Wis.; Aitkin, Minn.;  
Deer River, Laporte, Northome, Durrinos Spur, Duluth Spur  
and Big Falls, besides other various yards and con-  
centrating points throughout the northwest.



Duluth Log Co. You get the benefit of the best possible freight rates Duluth Log Co.





# National Pole Company

ESCANABA, MICHIGAN

Successor to the Cedar Department of the  
Pittsburg & Lake Superior Iron Co.

Producers and Shippers of

## CEDAR POLES

From the Stump to the Line

We carry large stocks of Poles at various points in the States of Michigan, Wisconsin, Minnesota, Idaho, Washington and Maine, and are in position to make immediate shipments at lowest prices and freight rates.



## WHITE CEDAR POLES

There are none better than we produce and ship. We never lose an old customer or neglect a new one. Our prices must be right.

**L. K. DEAL LUMBER CO.**  
800 Clapp Block  
DES MOINES, IOWA

## T. M. PARTRIDGE LUMBER CO.

Producers and Merchants

### White Cedar Poles

Large Stocks, Prompt Shipment,  
Full Assortment

Can furnish anything, but are long on following sizes:

4" 16 ft.      4" 20 ft.      5" 25 ft.  
5" 30 ft.      6" 30 ft.

Yards at

TENSTRIKE, MINN.  
BLACKDUCK, MINN.  
HOUP, MINN.  
NORTHOME, MINN.

Main Office, MINNEAPOLIS, MINN.

# CEDAR POLES

## RABER & WATSON

Old Colony Building  
Chicago

Yards at Chicago, Ill., Menominee and  
Cheboygan, Mich.



**OUR AIM** IS TO GIVE  
TO OUR TRADE  
CAREFULLY GRADED  
**CEDAR POLES**

Being Cedar Pole Specialists and having Modern facilities, we are able to fill satisfactorily all orders given us.

Our prices are always as low as is consistent with Good Quality and Market Value

We ask a trial order from you.

We have made many steady customers by our trial shipments. May we have one?



**Cedar Pole Specialists**  
Lumber Exchange, Minneapolis, Minn.



**CYPRESS**  
AND  
**CHESTNUT**  
**POLES**

A Very Complete and Select Stock

**Also White Oak and  
Cypress Piling**

We claim that telephone men will find our Poles the most satisfactory and the least expensive.

Will you let us prove it?

**CRESCENT LUMBER CO.**  
501-2 MACHESNEY BUILDING  
223 Fourth Avenue : PITTSBURGH, PA.

# CEDAR TELEPHONE TELEGRAPH POLES

**MARSHALL H. COOLIDGE COMPANY**

OFFICE

MINNEAPOLIS—826 Guaranty Building—MINNESOTA

We produce our own stock! Know the requirements of the trade! Have six large yards and several smaller ones! Can make prompt shipments of any lengths from sixteen to sixty feet.

**These Facts Ought To Be Worth Your Attention When Buying Poles!**

## White Cedar Poles

Will Sell Cheap—Ship Quick

WE HAVE THE FOLLOWING STOCK DRY AND READY FOR SHIPMENT

3627 Poles 4 inch top 16	900 Poles 5 inch top 30
1114 " 5 " " 16	1865 " 6 " " 30
9000 " 4 " " 20	1714 " 7 " " 30
4000 " 5 " " 20	1113 " 6 " " 35
1127 " 6 " " 20	727 " 7 " " 35
3005 " 4 " " 25	250 " 7 " " 40
8763 " 5 " " 25	114 " 7 " " 45
7397 " 6 " " 25	63 " 7 " " 50

WRITE US.

"We Will Save You Money"

**Kaye & Carter Lumber Co.**  
811 Lumber Exchange, MINNEAPOLIS, MINN.

## Piling Railroad Ties Cedar Poles

WHOLESALE TIMBER  
LUMBER, ETC.

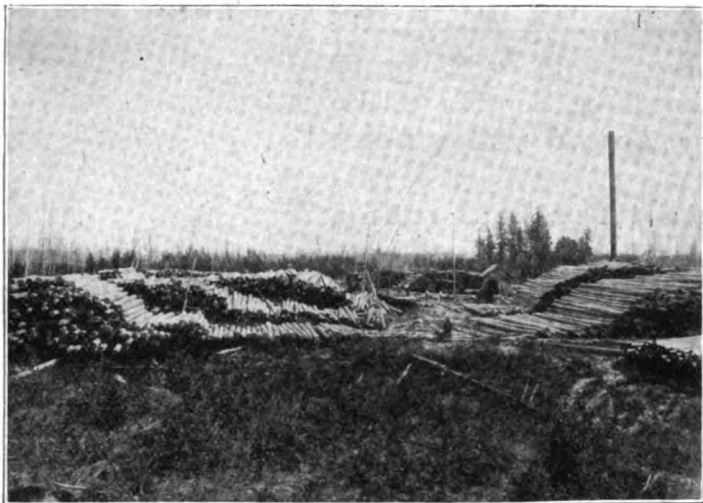


**EDW. Z. MASON**

809 D. S. Morgan Building  
BUFFALO, N. Y.

"FROM FOREST TO CONSUMER."

# CEDAR POLES



**All Sizes      Large Stock**

**Low Prices**

**Prompt Shipments**

**LONG POLES A SPECIALTY**

**WRITE FOR PRICES**

**The Humbird Lumber Co., Ltd.**

**SAND POINT, IDAHO**

# CYPRESS POLES

**QUICK SHIPMENTS**

**ALL LENGTHS  
COMPLETE STOCK  
LOW PRICES**

*≡ Write to-day for ≡  
DELIVERED PRICES*

**ABELES & TAUSSIG  
ST. LOUIS, MO.**

# PENDLETON & GILKEY

**MINNEAPOLIS, MINN.**

**PRODUCERS OF EVERYTHING  
IN CEDAR**

# CEDAR POLES

**All Sizes      Large Stock  
Low Prices      Prompt Shipments**

**YARDS:**

**MOUNTAIN, WIS.**

**OCOP, TO, WIS.**



# CEDAR POLES

## LARGE BUTTS

We cut poles from lands owned by our Company in Northern Michigan on Lake Superior Shore, where the cedar is very **sound** and **stocky** with **heavy butts**.

All sizes in stock all the year round.

**Write for a Copy of Our Telegraph Code for Cedar Products Giving Valuable Information About Poles.**

# C. H. WORCESTER CO.

1708-1710-1712 Tribune Bldg., Chicago, Ill., U. S. A.

MICHIGAN WHITE CEDAR

# POLES

**WILL OUTLAST  
ALL OTHER KINDS**

We can fill orders for all lengths and sizes,  
from our own stock.

Will have 150,000 Poles in Stock, April 1st, 1907.  
Have over 100,000 now. Put your orders in early.

**PROMPT SHIPMENTS**

(For 27 years we have been producers)

## W. C. STERLING & SON CO.

Principal Office: **Monroe, Mich.**

Yards: Bay City, Omer, Boyne Falls

# POLES

Michigan No. 1

## White Cedar

Write us, giving the number of Poles you require of each size and point at which you wish them delivered, we will be pleased to quote you *Special Prices* F. O. B. your station.

## Warner Lumber Co.

624 Murray Building GRAND RAPIDS, MICH.  
PRODUCERS AND MANUFACTURERS

Principal Yards { MENOMINEE, MICH.  
 PESHTIGO, WIS.  
 CAVOUR, WIS.

# CEDAR POLES

PRODUCERS AND WHOLESALERS  
 of the class of POLES your construction  
 demands. Prompt shipment absolutely  
 guaranteed. Write US for Delivered Prices.

**C. J. HUEBEL CO., Menominee, Mich.**

Cedar                      Creosoted  
 Cypress                  Yellow Pine  
 Chestnut                      Juniper

## POLES



WE can give you any-  
 thing you want in  
 poles and ship when you  
 want them. Try us.

**JOHN H. FOWLER & CO.**  
 1913 Fisher Building                  CHICAGO

## Southern Creosoting Company, Limited

Slidell, Louisiana

Capacity 22,000,000 Feet Annually

A thoroughly modern plant for the preservation of  
 wood by the injection of dead oil of coal tar. Located  
 in the heart of the yellow pine timber belt.

**Creosoted Cross Ties  
 Telephone Poles and Cross Arms  
 Heavy Timbers and Piling  
 Paving Blocks**

We make a specialty of Cross Arms  
 and can handle large orders with  
 the utmost promptness.

**IT PAYS To Use CREOSOTED MATERIAL**

# White Cedar Poles of Quality



FROM STUMP TO LINE

We Produce and Wholesale the Best Cedar Poles that Money and Experience can Furnish. Our Assortment is yet Complete—Everything at Competitive Prices. "We can deliver the goods." Try us with your next order. We never neglect an old customer or lose an opportunity to secure a new one. Your inquiries solicited.

**MINNESOTA YARDS:**

Lammar's, McCarty's, Hoyt's, Shook's Spur, Spur 144, Gemmell, Turtle River and Guthrie  
All on M. & I. Ry.

## W. C. CHURCH LUMBER & COAL CO.

General Office, Manhatto Block

DES MOINES, IOWA

# CEDAR POLES

**Large Stock; Best Quality; Prices Right**

**Write us before purchasing elsewhere**

## WITTENBERG CEDAR CO.

WITTENBERG,

WISCONSIN

## White Cedar Poles

14 to 65 Feet Long.

### Francis Beidler & Co.

Prompt Shipment

Chicago, Ill.

### Pole Yards:

MENOMINEE, MICH.  
ESCANABA, MICH.  
SUPERIOR, WIS.  
DEER RIVER, MINN.



Located on Nine  
Railroads.

# "DE-LIGHTED" THAT'S WHAT THEY ALL SAY ABOUT OUR CEDAR TELEPHONE POLES



Thoroughly Seasoned  
Any Length or Size  
Immediate Shipments  
Seven Distributing Yards

We have a very fine stock of  
20 foot—4 inch; 20 foot—5 inch  
25 foot—4 inch; 25 foot—5 inch  
poles, produced on our own lands in  
the Lake Superior district, on which  
we are offering close prices. Every-  
body knows the best cedar grows  
there. Send us a trial order and see  
for yourselves.

We are  
Producers of White Cedar Poles,  
Shingles, Posts and Ties.

Address all orders,  
inquiries, etc.

**Wm. Mueller Company, BLANEY, MICHIGAN**  
Established 1862

MAIN OFFICE

## CHESTNUT POLES

Twelve Yards,  
Good Quality,  
Prompt Shipments.

Ask us why Chestnut is Better than any other.  
We can give you some information to reflect upon.

NEW BOOK ON  
"CHESTNUT POLES"  
JUST OUT.  
WE WANT YOU TO HAVE A COPY.

**Greenbrier Pole Company**  
Charleston, W. Va.

## IDAHO and MICHIGAN CEDAR POLES

8 Yards, Idaho  
3 Yards, Michigan

FOR DELIVERED PRICES, ADDRESS

**Western Lumber & Pole Co.**

Main Office: Suite 415 Charles Bldg. :: :: DENVER, COLO.

We Are Producers and Wholesale Dealers in  
Western

## CEDAR POLES

WRITE FOR DELIVERED PRICES.

**CHURCHILL CEDAR COMPANY**

Box 1409, SPOKANE, WASH.



# White Cedar Poles

We have a large stock of all sizes from 14 feet to 65 feet. Shipments made promptly from Deer River, Cohasset or Beaudette, Minn.

We are producers and can save you jobbers' profits.

*Write us for delivered prices*

## ITASCA CEDAR CO.

Deer River

Minnesota

### DIRECTORS:

G. D. Hauptman,  
C. R. McCormick  
E. S. Hicks,  
S. M. Hauptman,  
F. L. McGillan,  
W. R. Hewitt

Hicks-Hauptman Lumber Co.  
Chas. R. McCormick & Co.  
Northern California Lumber Co.  
Big Star Lumber Co.  
Curtin Spur Lumber Co.  
Associated Redwood Shingle Co.  
W. D. Young & Co.

## CALIFORNIA POLE & PILING COMPANY

25 California St., SAN FRANCISCO, CAL.

F. L. MCGILLAN, Manager

An ample supply of excellent stock, superior facilities, abundant capital, experience and every other resource which goes to insure one satisfactory service are respectfully submitted.

### TELEPHONE POLES A SPECIALTY

Kindly Let Us Quote You Prices

## White Cedar Poles

**From Stump to Consumer**

We produce our poles so we can make  
as low prices as anyone

**Buy At Headquarters**

Eight Shipping Yards in Northern Minnesota  
**WRITE US FOR DELIVERED PRICES**

### J. W. Morrison Lumber Co.

General Office

918-919 Lumber Exchange  
MINNEAPOLIS, MINNESOTA

### The Lindsley Brothers Co.

Producers and Shippers of

## Western Cedar Poles

and Manufacturers of

### RED FIR CROSS ARMS

SPOKANE, WASHINGTON

EASTERN SALES OFFICE

835 Monadnock Bldg.,

Chicago



# White Cedar Poles

4,500 Pieces	4"	16'	350 Pieces	5"	18'	1,900 Pieces	4"	25'
650 "	5"	16'	3,650 "	4"	20'	1,350 "	5"	25'
600 "	6"	16'	900 "	5"	20'	135 "	6"	25'
800 "	4"	18'	300 "	6"	20'			

And other lengths and sizes of POLES—also POSTS.

WRITE FOR DELIVERED PRICES

## HOLT LUMBER CO., Oconto, Wis.

CHICAGO OFFICE: 315 DEARBORN STREET

STOCKS AT

Oconto, Wis., C. & N. W., and C. M. & St. P. Ry. Mountain, Wis.,  
C. & N. W. Ry. Bruce's Crossing, Mich., D. S. S. & A. Ry.

### Idaho Cedar Poles

Large Stock. Best Quality.  
Prices Right. . . . Write to  
us before purchasing elsewhere.

**HERMAN VOGEL**  
CLARK FORK, IDAHO

### CEDAR POLES

OF ALL LENGTHS AND SIZES  
SPECIAL PRICES UPON APPLICATION  
PROMPT SHIPMENT A SPECIALTY

A. E. WHITMORE, 230-31-32 Lumber Exchange, Minneapolis, Minn

White Cedar, Cypress and Red Cedar

## POLES

W. F. Bruer, 514 HALL BUILDING, Kansas City, Mo.

### YELLOW PINE CROSS ARMS

The Best Yellow Pine and Fir Cross Arms

It will save you money if you write us before placing your order. Same thing applies to Pins, Brackets and Poles. Quick shipments if you wish.  
Get the Bissell Book—write for prices.

The F. BISSELL COMPANY, 224-230 Huron Street TOLEDO, OHIO

## Idaho Cedar Poles

PACIFIC COAST POLE COMPANY  
Spokane, Wash.

## CROSS ARMS

the BEST are made of

## JUNIPER (White Cedar)

From the famous Dismal Swamp of Virginia

This Wood has THREE essential properties for Cross Arms

**Light-Weight, Strength  
and Durability**

NO NEED FOR CREOSOTE—ASK US

JOHN L. ROPER LUMBER CO., Norfolk, Virginia

# Telephony's Advertisers

WE assume that every concern which caters to the telephone trade needs little argument on the desirability of advertising as a general proposition. Indeed, we never knew of a successful concern which did not advertise in some way or other; the question being, simply, how and where.

Everyday, also, it is becoming more and more established that good trade journals are one of the most efficient and most economical means which can possibly be employed. A trade journal of age and influence covers its chosen field, as a rule, thoroughly and effectively, and its rates, in proportion to the number of prospective purchasers reached, are more economical than any other form of publicity known.

Each subscriber, who pays \$1.00 a year for a monthly like TELEPHONY, does so because he is interested in the paper and because he feels that by careful perusal of its pages he can be benefited and his money made to earn him dividends. Not only have the readers of the telephone field endorsed TELEPHONY'S contents by giving it the greatest telephone circulation in the world, but buyers everywhere have come to regard its advertising pages as a reliable index to all that is new and worthy in their line of work.

The telephone tradesman who does not advertise in TELEPHONY and avail himself of its auxiliaries, the Manufacturers' Mailing List and Directory of the Telephone Industry, for his follow-up work, is not enjoying half of the opportunities which should be his.

The cost is not excessive.

## Acousticians.

General Acoustic Co., New York, N. Y.

## Anchors, Guy.

D. & T. Anchor Co., La Crosse, Wis.  
Everstick Anchor Co., St. Louis, Mo.  
Matthews & Bro., W. N., St. Louis, Mo.  
Miller Anchor Co., Norwalk, O.  
Nagel Electric Co., W. G., Toledo, O.  
Wapak Hollow Ware Co., Wapakoneta, O.

## Arms, Telephone Transmitter.

Baird Mfg. Co., Chicago, Ill.

## Attorneys, Patent.

Climent, E. H., Washington, D. C.  
Faythe, Edwin H., Chicago, Ill.

## Batteries, Dry.

Central Electric Mfg. Co., Rock Island, Ill.  
Manhattan Electrical Sup. Co., Chicago, Ill.  
National Carbon Co., Cleveland, O.  
Huggesser Electric Battery Co., Cleveland, O.  
Rock Island Battery Co., Cincinnati, O.

## Batteries, Storage.

Electric Storage Battery Co., Philadelphia, Pa.  
Gould Storage Battery Co., New York, N. Y.

## Bells.

Schwartz Electric Co., Adrian, Mich.  
Beards, Power.  
American Electric Telo. Co., Chicago, Ill.  
Dean Electric Co., Myria, O.  
Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

## Books, Telephone.

Corporation Publishing Co., Boston.  
Telephone Printing Co., Dedance, O.  
Telephone Publishing Co., Chicago.

## Boths.

Fisher-Stevens, Charles City, Ia.  
Yesbera Mfg. Co., Toledo.

## Brackets.

Central Tel. & Elec. Co., St. Louis, Mo.  
Commercial Elec. Supply Co., St. Louis, Mo.  
Huloyd Co., The, Chicago.  
Locke Insulator Mfg. Co., Victor, N. Y.  
Maine Hub & Mfg. Co., W. Sebods, Me.  
Norton Tool Co., West Park, O.  
Oliver Mfg. Co., A. F., Buffalo, N. Y.  
Palmetto Mfg. Co., Nashville, Tenn.  
Peirce Specialty Co., Chicago, Ill.

## Brass and Copper.

Scovill Mfg. Co., Chicago, Ill.

## Cables.

American Electric Telo. Co., Chicago, Ill.  
American Electrical Works, Phillipsdale, E. I.  
Brixey, W. R., New York.  
Commercial Elec. Sup. Co., St. Louis, Mo.  
Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.  
New York Insulated Wire Co., New York, N. Y.  
Okonite Company, New York, N. Y.  
Standard Underground Cable Co., Pittsburg, Pa.  
Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

## Cable Clamps.

Diamond Expansion Bolt Co., New York, N. Y.  
Yonkers Specialty Co., Yonkers, N. Y.

## Cable Compound.

Massachusetts Chemical Co., Walpole, Mass.

## Cable Grips.

Mullin, Colman J., New York, N. Y.  
Universal Cable Grip Co., Syracuse, N. Y.

## Calculographs.

Calculograph Co., New York, N. Y.

## Cable Reel Jacks.

Anderson Forge & Machine Co., Detroit.

## Cable Winches.

Anderson Forge & Machine Co., Detroit.

## Call Registers.

Baird Mfg. Co., Chicago, Ill.  
Gray Telephone Pay Station Co., Hartford, Conn.  
United States Pay Station Co., Toledo.

## Cleats, Fibre.

Blake Signal & Mfg. Co., Boston, Mass.

## Climbers.

Blakeslee Forging Co., Plantville, Conn.  
Klein & Sons, Mathias, Chicago, Ill.  
Oshkosh Logging Tool Co., Oshkosh, Wis.  
Reidy, John J., New Haven, Conn.

## Clips, Cable.

Chase-Shawmut Co., Newburyport, Mass.  
Cleveland Galvanizing Works Co., Cleveland, Ohio.  
National Telephone Supply Co., Cleveland.

## Clocks, Electrical.

American Clock Co., Chicago, Ill.

## Coils, Induction.

American Electric Telephone Co., Chicago, Ill.  
Central Tel. & Elec. Co., St. Louis, Mo.  
Dean Electric Co., Myria, O.  
Conduit, Underground.  
American Conduit Co., Chicago, Ill.  
American Sewer Pipe Co., Pittsburg, Pa.  
Barnard & Co., B. S., New York, N. Y.

Camp Co., The H. B., New York.  
Clay Products Co., Brandt, Ind.  
Fibre Conduit Co., Orangeburg, N. Y.

McBoy Clay Works, Brandt, Ind.  
Peirce Specialty Co., Chicago, Ill.  
Rochester Sewer Pipe Co., Rochester, N. Y.

## Connectors.

American Electric Fuse Co., Muskegon, Mich.  
Cook, Frank B., Chicago.  
D. & W. Fuse Co., Providence, R. I.  
Fahnestock Electric Co., Brooklyn, N. Y.  
Rolle Elec. Co., Rochester, N. Y.  
Yonkers Specialty Co., Yonkers, N. Y.

## Contractors.

Crumb & Co., W. H., Chicago, Ill.  
General Engineering Co., Chicago, Ill.  
Jones & Winter, Chicago, Ill.  
Miller & McMeen, Chicago, Ill.

## Condensers, Telephone.

American Electric Telo. Co., Chicago, Ill.  
Andrae & Sons Co., Jukins, Milwaukee, Wis.  
Dean Elec. Co., Myria, O.

## Cords.

American Electrical Works, Phillipsdale, E. I.

Belden Mfg. Co., Chicago, Ill.

Premier Electric Co., Chicago.

Russel-Lens Elec. Mfg. Co., Chicago.

Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.

## Counters.

Baird Mfg. Co., Chicago, Ill.  
Gray Telephone Pay Station Co., Hartford, Conn.  
Veeder Mfg. Co., Hartford, Conn.

## Crosscutting.

Southern Crosscutting Co., Sildell, La.

## Cross Arms and Pins.

Central Electric Co., Chicago, Ill.  
Central Tel. & Electric Co., St. Louis, Mo.

Cleveland Galvanizing Works Co., Cleveland, Ohio.

Commercial Elec. Supply Co., St. Louis, Mo.

Dearborn Electric Co., Chicago, Ill.

Lewis Lbr. & Mfg. Co., Hattiesburg, Miss.

Maine Hub and Manufacturing Co., West Sebods, Maine.

Nagel Electric Co., W. G., Toledo, O.

Northwestern Elec. Equipment Co., St. Paul, Minn.

Palmetto Mfg. Co., Nashville, Tenn.

St. Paul Elec. Co., St. Paul, Minn.

Southern Pine Mfg. Co., Paducah, Ky.

## Diggers.

Iwan Bros., Streator, Ill.  
Kohler & Co., F. E., Canton, Ohio.  
Oshkosh Logging Tool Co., Oshkosh, Wis.

## Drills.

Kraeuter & Co., Newark, N. J.

## Drop Forgings.

Blakeslee Forging Co., Plantville, Conn.

## Engineers, Construction.

Crumb & Co., W. H., Chicago, Ill.  
General Engineering Co., Chicago, Ill.  
Jones & Winter, Chicago, Ill.  
McMeen & Miller, Chicago, Ill.  
Wildner, George W., Chicago, Ill.

## Engravers.

Pontiac Engraving Co., Chicago.

## Extension Gears.

Elec. Mfg. & Equip. Co., Atlanta, Ga.

## Eyephones.

Fox-Borden Manufacturing Co., New York, N. Y.

## Fans, Telephone Booth.

Ft. Wayne Electric Works, Ft. Wayne, Ind.

## Financial Agents.

W. F. Little & Co., St. Louis, Mo.

## Fire Alarm (Telephone).

Denio General Electric Co., Rochester, N. Y.

## Flexiphones.

Oliver Mfg. Co., Philadelphia, Pa.

Holtzer-Cabot Elec. Co., Chicago, Ill.

## Galvanizers.

Cleveland Galvanizing Works Co., Cleveland, Ohio.

National Galvanizing Co., Chicago, Ill.

## Generators, Telephone.

American Electric Telephone Co., Chicago, Ill.

Chicago Telephone Supply Co., Elmhurst, Ind.

Dean Electric Co., Myria, O.

Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.

Bureka Electric Co., Genoa, Ill.

Monarch Telephone Mfg. Co., Chicago.

Stromberg-Carlson Tel. Mfg. Co., Chicago, Ill.

## Generators, Ringing.

Current Elec. Co., Chicago, Ill.

Holtzer-Cabot Elec. Co., Chicago, Ill.

Both Bros. Co., Chicago, Ill.

Sandwich Pole Change Co., Sandwich, Ill.

Warner Electric Co., Muncie, Ind.

**Gongs.**  
Schwarze Electric Co., Adrian, Mich.  
**Ground Clamps.**  
Blackburn, George R., Cleveland.  
**Guy Clamps.**  
Cook, F. E., Chicago, Ill.  
Norton Tool Co., West Park, O.  
**Hangers, Cable.**  
American Electric Fuse Co., Muskegon, Mich.  
Bissell Co., The F., Toledo, O.  
Central Electric Co., Chicago, Ill.  
Chase-Shawmut Co., Newburyport, Mass.  
Cook, F. E., Chicago, Ill.  
National Tel. Supply Co., Cleveland, Ohio.  
Standard Underground Cable Co., Pittsburg, Pa.  
**Head Bands.**  
Chicago Chatelaine Bag Co., Chicago, Ill.  
**Instruments, Measuring.**  
Weston Electrical Instrument Co., Newark, N. J.  
**Insulating Material.**  
Faultless Insulating Compound Co., Chicago, Ill.  
Mass. Chemical Co., Walpole, Mass.  
New York Insulated Wire Co., New York, N. Y.  
Russell-Louis Elec. Mfg. Co., Chicago.  
Standard Underground Cable Co., Pittsburg, Pa.  
Stone, M. O., Washington, D. C.  
**Insulators, China and Porcelain.**  
American Electric Fuse Co., Muskegon, Mich.  
Central Electric Co., Chicago, Ill.  
Nagel Electric Co., W. G., Toledo, O.  
**Insulators, Glass.**  
Hemingray Glass Co., Covington, Ky.  
**Insulators, Glass Tree.**  
Cutter, Scott C., Oswego, Ill.  
**Insurance.**  
Electrical Reciprocal Underwriters, Oregon, Mo.  
**Iron, Norway.**  
Blakeslee Forging Co., Plantsville, Conn.  
Nash & Co., Geo., Chicago, Ill.  
Stevens Co., Chas. G., Chicago, Ill.  
**Lightning Arresters.**  
Berry Electric Manufacturing Co., Marion, O.  
Chance Manufacturing Co., Centralia, Mo.  
Rofe Elec. Co., Rochester, N. Y.  
**Lockers.**  
Churchill & Spalding, Chicago.  
Merritt & Co., Philadelphia, Pa.  
**Magnet Winding Machines.**  
Belden Mfg. Co., Chicago.  
**Manhole Cable Hangers.**  
Anderson Forge & Machine Co., Detroit.  
**Material, Construction.**  
American Electric Tel. Co., Chicago, Ill.  
Anderson Forge & Machine Co., Detroit.  
Andras & Sons Co., Julius, Milwaukee, Wis.  
B-E Elec. Mfg. Co., Kansas City, Mo.  
Bigley Tel. Co., Chicago, Ill.  
Bissell Co., The F., Toledo, O.  
Central Electric Co., Chicago, Ill.  
Central Tel. & Elec. Co., St. Louis, Mo.  
Chicago Telephone Supply Co., Elkhart, Ind.  
Cleveland Galvanizing Works Co., Cleveland, Ohio.  
Commercial Elec. Supply Co., St. Louis, Mo.  
Cook, F. E., Chicago, Ill.  
Dearborn Electric Co., Chicago, Ill.  
Doubleday-Hill Electric Co., Pittsburg, Pa.  
Electric Appliance Co., Chicago.  
Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.  
Hallett Iron Works, Chicago, Ill.  
Hodge Electric Mfg. Co., Kansas City, Mo.  
Hubbard & Co., Pittsburg, Pa.  
Illinois Electric Co., Chicago.  
Inland Electric Co., St. Louis.  
Klein & Sons, Mathias, Chicago, Ill.  
Lawrence Elec. Co., F. D., Cincinnati, O.  
Manhattan Electrical Sup. Co., Chicago, Ill.  
Mountain State Elec. Co., Wheeling, W. Va.  
Nagel Electric Co., W. G., Toledo, O.  
Northwestern Elec. Equipment Co., St. Paul, Minn.  
Norton Tool Co., West Park, O.  
Oliver Mfg. Co., A. F., Buffalo, N. Y.  
Oshkosh Logging Tool Co., Oshkosh, Wis.  
Petree Specialty Co., Chicago, Ill.  
St. Paul Elec. Co., St. Paul, Minn.  
Sterling Electric Co., Lafayette, Ind.  
Sumter Tel. Mfg. Co., Sumter, S. C.  
Swedish-American Tel. Co., Chicago.  
Vote-Berger Co., La Crosse, Wis.  
Wesco Supply Co., St. Louis, Mo.  
Western Telephone Mfg. Co., Chicago, Ill.

**Williams Telephone & Supply Co.,** Cleveland, O.  
**Motors.**  
American Electric Telephone Co., Chicago, Ill.  
Gray Telephone Pay Station Co., Hartford, Conn.  
**Miniature Lamps.**  
General Electric Co., Harrison, N. J.  
Jager Miniature Lamp Co., New York, N. Y.  
**Motorcycles.**  
Armac Motorcycle Co., Chicago.  
Merkel Motor Co., Milwaukee, Wis.  
Wagner Motorcycle Co., St. Paul, Minn.  
**Monthpieces.**  
Slamson Hard Rubber Corporation, Bridgeport, Conn.  
**Name Plates.**  
Hausermann Metal Mfg. Co., Chicago.  
**Nippers and Filers.**  
Klein & Sons, Mathias, Chicago, Ill.  
Nagel Electric Co., Toledo.  
**Ohmmeters.**  
Bissell Co., F., Toledo, O.  
Weston Electric Instrument Co.  
**Operators' Chairs.**  
Andrews & Co., A. H., Chicago, Ill.  
Davis Chair Co., Marysville, O.  
Richards Chair Panel Co., Chicago.  
**Paints, Insulating.**  
Mass. Chemical Co., Walpole, Mass.  
**Pay Stations.**  
Haid Manufacturing Co., Chicago.  
Graeber-Entrikin Mfg. Co., Philadelphia, Pa.  
Gray Telephone Pay Station Co., Hartford, Conn.  
U. S. Coin Register Co., Toledo, O.  
**Pins, Insulator.**  
Huloyd Co., The, Chicago.  
Locke Insulator Mfg. Co., Victor, N. Y.  
Main Hub & Mfg. Co., W. Sebouis, Me.  
National Electrical Supply Co., Washington, D. C.  
Palmetto Mfg. Co., Nashville, Tenn.  
**Pipe Bands.**  
Anderson Forge & Machine Co., Detroit.  
**Platinum.**  
Baker & Co., Inc., Newark, N. J.  
Crosemire & Ackor, Newark, N. J.  
**Poles, Cedar.**  
Beidler & Co., Francis, Chicago, Ill.  
Wm. F. Bruer, Kansas City, Mo.  
California Pole & Piling Co., San Francisco, Cal.  
Columbia Cedar Co., Minneapolis, Minn.  
W. C. Church Lbr. & Coal Co., Des Moines, Ia.  
Churchill Cedar Co., Spokane, Wash.  
Coolidge Co., Marshall H., Minneapolis, Minn.  
Davison & McBryde, Nashville, Tenn.  
L. K. Deal Lumber Co., Des Moines, Ia.  
Duluth Log Company, Duluth, Minn.  
Fowler & Co., John H., Chicago.  
Holt Lumber Co., Oconto, Wis.  
C. J. Huebel & Co., Menominee, Mich.  
Humbird Lumber Co., Sand Point, Idaho.  
Itasca Cedar Co., Deer River, Minn.  
Kays & Carter Lbr. Co., Minneapolis, Minn.  
Lindley Bros. Co., Spokane, Wash.  
Mason, Edw. Z., Buffalo, N. Y.  
Morrison Lbr. Co., J. W., Minneapolis, Minn.  
Wm. Mueller Co., Janey, Mich.  
National Pole Co., Escanaba, Mich.  
Nangle Pole & Tie Co., Chicago, Ill.  
Pacific Coast Pole Co., Spokane.  
Page & Hill Co., Minneapolis, Minn.  
Partridge Lbr. Co., T. M., Minneapolis, Minn.  
Pendleton & Gilkey, Minneapolis, Minn.  
Raber & Watson, Chicago, Ill.  
Sand Point Cedar Co., Sand Point, Idaho.  
Sterling & Son, W. C., Monroe, Mich.  
Valentine-Clark Co., Chicago, Ill.  
Vogel, Herman, Clark Fork, Idaho.  
Warner Lumber Co., Grand Rapids, Mich.  
Western Lumber & Pole Co., Denver, Colo.  
Whitmore, A. E., Minneapolis, Minn.  
Wittenberg Cedar Co., Wittenberg, Wis.  
Worcester Co., O. H., Chicago, Ill.  
**Poles Chestnut.**  
Crescent Lumber Co., Pittsburgh.  
Greenbrier Pole Co., Charleston, W. Va.  
Nashville Tie & Cedar Co.  
Paducah Pole & Timber Co., Paducah, Ky.  
J. M. Senseman, Parkersburg, W. Va.  
**Poles, Cypress.**  
Abels & Tausig, St. Louis, Mo.  
Wm. F. Bruer, Kansas City, Mo.  
Crescent Lumber Co., Pittsburgh.  
Fowler & Co., John H., Chicago.

**POLES**  
*for*  
**PARTICULAR**  
**PEOPLE**

**SAND POINT**  
**CEDAR**  
**COMPANY**  
**SAND POINT**  
**IDAHO**



## Chestnut Poles

Try spending two cents  
getting our prices before  
placing your orders

All Lengths Can ship to-day

**PADUCAH POLE & TIMBER CO.**  
PADUCAH, KY.

## CHESTNUT POLES

ALL LENGTHS  
20 YARDS

**DAVISON & McBRYDE**  
NASHVILLE, TENN.

## CHESTNUT POLES FOR QUICK SHIPMENT

500-6" tops 25' long  
500-7" " 25' "  
1500-7" " 30' "  
1000-7" " 35' "

With a fair stock of longer poles. Can also  
furnish 8" tops when required.

**NASHVILLE TIE & CEDAR CO.**  
NASHVILLE, TENN.

## CHESTNUT POLES From 25 to 60 feet long

We are Producers. We sell to Telephone  
Companies direct.

We can Save you Money and will deliver promptly.

**J. M. Senseman Lumber Co., Parkersburg, W. Va.**

OAK AND LOCUST PROMPT SHIPMENTS ANY QUANTITY

**PINS OAK BRACKETS**

**THE HULLOYD COMPANY**

315 DEARBORN ST., CHICAGO, U.S.A.

Kennett Cypress Hardwood & Lbr. Co., Kennett, Mo.  
Sayer Railway Supply Co., Berwyn, Ill.

**Pole Changers.**  
Sandwich Pole Changer Co., Sandwich, Ill.  
Warner Electric Co., Muncie, Ind.

**Pole Houses.**  
F. Bissell Co., Toledo.  
Northwestern Elec. Equipment Co., St. Paul, Minn.

**Pole Raising Wagons.**  
Anderson Forge & Machine Co., Detroit.

**Pole Seats.**  
F. Bissell Co., Toledo.  
Telephone Appliance Co., Minneapolis, Minn.

**Preservative Treatment.**  
Southern Creosoting Co., Sildell, La.  
Universal Pole & Post Co., Circleville, O.

**Printing, Books, Forms, Etc.**  
Carnahan-Sherwood Co., Indianapolis.  
Telephone Printing Co., Defiance, O.

**Protectors, Telephones.**  
American Electric Fuse Co., Muskegon, Mich.  
American Electric Telephone Co., Chicago, Ill.

Central Tel. & Elec. Co., St. Louis, Mo.  
Chicago Telephone Supply Co., Elkhart, Ind.

Cook, F. B., Chicago, Ill.  
Commercial Elec. Supply Co., St. Louis, Mo.

D. & W. Fuse Co., Providence, R. I.  
Helios Mfg. Co., Bridesburg, Pa.  
Moon Mfg. Co., Chicago, Ill.

Oliver Mfg. Co., A. F., Buffalo, N. Y.  
Rofe Elec. Co., Rochester, N. Y.  
Sterling Electric Co., Lafayette, Ind.

**Purchasing Agents.**  
Cox & Co., A. J., Chicago, Ill.

**Receiver Cases.**  
General Insulate & Machine Co., Brooklyn, N. Y.  
Siemon Hard Rubber Corporation, Bridgeport, Conn.

**Receivers, Telephones.**  
Illinois Specialty Mfg. Co., Chicago.  
Murdock, W. J., Chelsea, Mass.

**Reels, Ready Pay Out.**  
Nagel Electric Co., W. G., Toledo, O.  
Oshkosh Logging Tool Co., Oshkosh, Wis.

**Revolution Counters.**  
Belden Mfg. Co., Chicago.

**Seals, Incorporation.**  
Middleton & Co., J. W., Chicago, Ill.

**Sleevings.**  
Belden Mfg. Co., Chicago.  
M. W. Dunton Co., Providence, R. I.

**Soldering Paste.**  
Dunton & Co., M. W., Providence, R. I.

**Solder, Self-Fixing.**  
Belder Manufacturing Co., Chicago.

**Specialties, Telephones.**  
Baird Mfg. Co., Chicago, Ill.  
Gray Telephone Pay Station Co., Hartford, Conn.

Howe, Frank F., Cleveland, O.  
Veeder Mfg. Co., Hartford, Conn.

**Splicing Compound.**  
Mass. Chemical Co., Walpole, Mass.

**Staples, Insulated.**  
Blake Signal & Mfg. Co., Boston, Mass.

**Steel, Magnet.**  
Nash & Co., Geo., Chicago, Ill.  
Stevens Co., Chas. W., Chicago, Ill.

**Supplies, Telephones.**  
American Electric Fuse Co., Muskegon, Mich.  
American Electric Telephone Co., Chicago, Ill.

Andrae & Sons Co., Julius, Milwaukee, Wis.  
B-E Elec. Mfg. Co., Kansas City.

Bigley Tel. Co., Chicago, Ill.  
Baird Mfg. Co., Chicago, Ill.  
Bissell Co., F., Toledo, O.

Central Electric Co., Chicago, Ill.  
Central Tel. & Elec. Co., St. Louis.  
Chase-Shawmut Co., Newburyport, Mass.

Chicago Telephone Supply Co., Elkhart, Ind.  
Commercial Elec. Sup. Co., St. Louis, Mo.  
Cook, F. B., Chicago, Ill.

**Switchboards, Automatic Telephones.**  
American Automatic Tel. Co., Rochester, N. Y.

Automatic Electric Co., Chicago, Ill.  
Chicago Telephone Supply Co., Elkhart, Ind.

Hodge Electric Mfg. Co., Kansas City, Mo.  
Hubbard & Co., Pittsburg, Pa.

Inland Electric Co., St. Louis.  
Lawrence Elec. Co., F. D., Cincinnati, O.

Long Distance Tele. Mfg. Co., South Bend, Ind.  
Manhattan Electrical Sup. Co., Chicago, Ill.

Mountain State Elec. Co., Wheeling, W. Va.  
Nagel Electric Co., W. G., Toledo, O.

National Telo. Supply Co., Cleveland, Ohio.  
North Electric Co., Cleveland, O.

Palce Specialty Co., Chicago, Ill.  
Sterling Electric Co., Lafayette, Ind.  
Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

Swedish-American Telephone Co., Chicago, Ill.  
Sumter Telo. Mfg. Co., Sumter, S. O.

Vote-Berger Co., La Crosse, Wis.  
Wesco Supply Co., St. Louis, Mo.

Western Telo. Mfg. Co., Chicago, Ill.  
Williams Telo. & Supply Co., Cleveland, O.

**Switchboards, Common Battery.**  
American Electric Telephone Co., Chicago, Ill.

Century Telephone Construction Co., Buffalo.

Chicago Telephone Supply Co., Elkhart, Ind.  
Dean Electric Co., Elyria, O.

Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.

International Telephone Mfg. Co., Chicago, Ill.

North Electric Co., Cleveland, O.  
Sterling Electric Co., Lafayette, Ind.

Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

Sumter Telo. Mfg. Co., Sumter, S. O.  
Vote-Berger Co., La Crosse, Wis.

Western Telo. Mfg. Co., Chicago, Ill.

**Switchboards, Magneto.**  
Acme Telo. & Mfg. Co., Albia, Ia.

American Electric Telephone Co., Chicago, Ill.

Andrae & Sons Co., Julius, Milwaukee, Wis.

Central Tel. & Elec. Co., St. Louis, Mo.

Century Telephone Construction Co., Buffalo.

Chicago Telephone Supply Co., Elkhart, Ind.

Dean Electric Co., Elyria, Ohio.  
Electric Appliance Co., Chicago.

Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.

Eureka Electric Co., Genoa, Ill.  
Farr Telephone & Construction Supply Co., Chicago, Ill.

Inland Electric Co., St. Louis.  
International Telephone Mfg. Co., Chicago, Ill.

Monarch Telephone Mfg. Co., Chicago, Ill.  
North Electric Co., Cleveland, O.

Sterling Electric Co., Lafayette, Ind.  
Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

**Tape.**  
Massachusetts Chemical Co., Walpole, Mass.

New York Insulated Wire Co., New York, N. Y.

Standard Underground Cable Co., Pittsburg, Pa.

**Tape, Friction.**  
Mass. Chemical Co., Walpole, Mass.

**Telephones, Adjustable.**  
American Electric Telephone Co., Chicago, Ill.

Oliver Mfg. Co., Philadelphia, Pa.

**Telephones, Automatic.**  
American Automatic Telo. Co., Rochester, N. Y.

Automatic Electric Co., Chicago, Ill.  
Chicago Telephone Supply Co., Elkhart, Ind.

**Telephones, Common Battery.**  
American Electric Telephone Co., Chicago, Ill.

Century Telephone Construction Co., Buffalo.  
Chicago Telephone Supply Co., Elkhart, Ind.

**Sumter Telo. Mfg. Co., Sumter, S. O.**  
**Vote-Berger Co., La Crosse, Wis.**  
**Wesco Supply Co., St. Louis, Mo.**  
**Western Telo. Mfg. Co., Chicago, Ill.**

**Telephone Holders.**

**Fox-Borden Manufacturing Co., New York, N. Y.**

**Telephones, Intercommunicating.**

**Corwin Telephone Manufacturing Co., Chicago.**  
**National American Telo. Co., Chicago, Ill.**

**Telephones, Look Out.**

**Baird Mfg. Co., Chicago, Ill.**  
**Johanson Elec. Mfg. Co., Chicago, Ill.**  
**Roberts Telephone Co., Homer, Chicago.**  
**Select Telo. Mfg. Co., Springfield, Ohio.**

**Telephones, Magnets.**

**Acme Telo. & Mfg. Co., Albia, Ia.**  
**American Electric Telephone Co., Chicago, Ill.**  
**Andrae & Sons Co., Julius, Milwaukee, Wis.**  
**Baird Mfg. Co., Chicago, Ill.**  
**Central Electric Co., Chicago, Ill.**  
**Central Tel. & Elec. Co., St. Louis, Mo.**  
**Century Telephone Construction Co., Buffalo.**  
**Chicago Telephone Supply Co., Elkhart, Ind.**  
**Commercial Electric Supply Co., St. Louis, Mo.**  
**Dean Electric Co., Elyria, O.**  
**Dearborn Electric Co., Chicago, Ill.**  
**Electric Appliance Co., Chicago.**  
**Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.**  
**Eureka Electric Co., Genoa, Ill.**  
**Farr Telephone & Construction Supply Co., Chicago, Ill.**  
**Inland Electric Co., St. Louis.**  
**International Telephone Mfg. Co., Chicago, Ill.**  
**Long Distance Telo. Mfg. Co., South Bend, Ind.**  
**Monarch Telephone Mfg. Co., Chicago, Ill.**  
**Mountains State Elec. Co., Wheeling, W. Va.**  
**Nagel Electric Co., W. G., Toledo, O.**  
**North Electric Co., Cleveland, O.**  
**Sterling Electric Co., Lafayette, Ind.**  
**Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.**  
**Sumter Telo. Mfg. Co., Sumter, S. O.**  
**Swedish-American Telephone Co., Chicago, Ill.**  
**Vote-Berger Co., La Crosse, Wis.**  
**Wesco Supply Co., St. Louis, Mo.**  
**Western Telephone Mfg. Co., Chicago.**  
**Williams-Abbott Electric Co., Cleveland, O.**  
**Williams Telephone & Supply Co., Cleveland, O.**

**Telephone Parts.**

**Acme Telo. & Mfg. Co., Albia, Ia.**  
**American Electric Telephone Co., Chicago, Ill.**  
**Andrae & Sons Co., Julius, Milwaukee, Wis.**  
**Chicago Telephone Supply Co., Elkhart, Ind.**  
**Dean Electric Co., Elyria, O.**  
**Dearborn Electric Co., Chicago, Ill.**  
**Ericsson Telephone Mfg. Co., L. M., Buffalo, N. Y.**  
**Gray Telephone Pay Station Co., Hartford, Conn.**  
**Holtzer-Cabot Elec. Co., Chicago, Ill.**  
**Monarch Telephone Mfg. Co., Chicago, Ill.**  
**North Electric Co., Cleveland, O.**  
**Sterling Electric Co., Lafayette, Ind.**  
**Sumter Telo. Mfg. Co., Sumter, S. O.**  
**Swedish-American Telephone Co., Chicago, Ill.**  
**Vote-Berger Co., La Crosse, Wis.**  
**Western Telo. Mfg. Co., Chicago, Ill.**  
**Williams Telephone & Supply Co., Cleveland, O.**  
**Willix & Young, Mt. Vernon, Ia.**

**Telephone Repairing.**

**Rigley Telo. Co., Chicago, Ill.**  
**Halcomb Telephone Supply Co., Kansas City.**  
**Telephone Equipment Co., Racine, Wis.**

**Telephones—Second-hand.**

**Rigley Telo. Co., Chicago, Ill.**  
**Halcomb Telephone Supply Co., Kansas City.**

**Testing Clamps.**

**Cutter, Scott C., Oswego, Ill.**

**Testing Clips.**

**Frankel Display Fixture Co., New York, N. Y.**

**Terminals, Cable.**

**American Electric Telo. Co., Chicago, Ill.**  
**Cook, F. B., Chicago, Ill.**  
**Protective Electrical Supply Co., Ft. Wayne, Ind.**  
**Moon Mfg. Co., Chicago, Ill.**

**Time Stamps.**

**American Clock Co., Chicago.**  
**Baird Mfg. Co., Chicago, Ill.**  
**Calculagraph Co., New York, N. Y.**

**Tools, Construction.**

**Anderson Forge & Machine Co., Detroit.**  
**Bissell Co., The F., Toledo, O.**  
**Illinois Electric Co., Chicago.**  
**Klein & Sons, Mathias, Chicago, Ill.**  
**Mack & Co., Rochester, N. Y.**  
**Manhattan Electrical Supply Co., Chicago and New York.**  
**Norton Tool Co., West Park, O.**  
**Oakhosh Logging Tool Co., Oakkosh, Wis.**  
**Hubbard & Co., Pittsburg, Pa.**

**Tools, Linemen's.**

**Illinois Electric Co., Chicago.**  
**Klein & Sons, Mathias, Chicago, Ill.**  
**Mack & Co., Rochester, N. Y.**  
**Oakhosh Logging Tool Co., Oakkosh, Wis.**

**Voltmeters.**

**Illinois Electric Co., Chicago, Ill.**  
**Weston Electrical Instrument Co., Newark, N. J.**

**Wax.**

**Faultless Insulating Compound Co., Haku Mfg. Co., Chicago.**

**Wire, Copper.**

**American Electrical Works, Phillipsdale, B. I.**  
**Manhattan Electrical Sup. Co., Chicago, Ill.**  
**Roebbling & Sons Co., John A., Trenton, N. J.**  
**Scovill Mfg. Co., Chicago, Ill.**  
**Standard Underground Cable Co., Pittsburg, Pa.**  
**Western Wire Sales Co., Chicago.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Galvanized Iron.**

**Indiana Steel & Wire Co., Muncie, Ind.**  
**Manhattan Electrical Sup. Co., Chicago, Ill.**  
**Monarch Elec. & Wire, Chicago, Ill.**  
**Northwestern Elec. Equipment Co., St. Paul, Minn.**  
**Roebbling's Sons Co., John A., Trenton, N. J.**  
**St. Paul Elec. Co., St. Paul, Minn.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Magnet.**

**Belden Manufacturing Co., Chicago.**  
**Haku Mfg. Co., Chicago.**  
**Runsel-Lens Elec. Mfg. Co., Chicago**  
**Standard Underground & Cable Co., Pittsburg, Pa.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Strand.**

**Roebbling's Sons Co., John A., Trenton, N. J.**  
**Standard Underground & Cable Co., Pittsburg, Pa.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Telephone Switchboard.**

**Belden Manufacturing Co., Chicago.**  
**National India Rubber Co., Bristol, B. I.**  
**Runsel-Lens Elec. Mfg. Co., Chicago.**  
**Premier Electric Co., Chicago, Ill.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Weatherproof.**

**Bissell Co., The F., Toledo, Ohio.**  
**Briley, W. R., New York.**  
**Central Electric Co., Chicago, Ill.**  
**Chicago Insulated Wire Co., Chicago**  
**Dearborn Electric Co., Chicago, Ill.**  
**Detroit Insulated Wire Co., Detroit, Mich.**  
**Nagle Electric Co., W. G., Toledo, O.**  
**National India Rubber Co., Bristol, B. I.**  
**New York Insulated Wire Co., New York, N. Y.**  
**Standard Underground Cable Co., Pittsburg, Pa.**  
**Western Wire Sales Co., Chicago.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Wire, Rubber Covered.**

**Dearborn Electric Co., Chicago, Ill.**  
**Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.**  
**National India Rubber Co., Bristol, B. I.**  
**New York Insulated Wire Co., New York, N. Y.**  
**Okonite Company, New York, N. Y.**  
**Runsel-Lens Elec. Mfg. Co., Chicago.**  
**Standard Underground & Cable Co., Pittsburg, Pa.**  
**Western Wire Sales Co., Chicago.**  
**Wire & Telo. Co. of America, Rome, N. Y.**

**Woodwork.**

**American Electric Fuse Co., Muskegon, Mich.**  
**Sumter Telo. Mfg. Co., Sumter, S. O.**



## National Electrical Supply Co.

### Washington, D. C.

Manufacturers of  
and Dealers in

## High Tension Wood Pins, Locust Pins, Oak Brackets, Oak Pins, Cross Arms, Chestnut Poles, Railroad Ties, Etc.

CORRESPONDENCE SOLICITED.

## CLASSIFIED ADVERTISEMENTS

And want advertisements not exceeding twenty words exclusive of address, will be inserted in these columns for \$1.00 each. Over twenty words the rate will be 5 cents per word.

WANTED—Stromberg-Carlson 2 M. F. condensers. Address No. 397, care TELEPHONY.

WANTED—To buy second-hand telephones and switchboard. Address 401, care TELEPHONY.

WANTED—Small telephone exchange of 150 subscribers or more. Address No. 417, care TELEPHONY.

WANTED—To buy a 50-pair Sterling or Cook inside terminal. Midland Telephone Co., Worthington, Minn.

WANTED—50 pair Sterling or Frank B. Cook terminal with heat coils and carbons. Address No. 420, care TELEPHONY.

WANTED—A salesman for telephone instruments and supplies in the middle West. Address No. 419, care TELEPHONY.

FOR SALE—500 Eureka Express Drops with or without cabinet, in good condition, at a bargain. Address, New State Telephone Company, Sioux City, Iowa.

WANTED—Position by an all around switchboard trouble or line man; wants steady employment; have had five years' experience. Address W. L. Edson, Louisville, Ill.

WANTED—To buy, second-hand 4 and 5 bar compact bridging telephones; 4 and 5 bar generators; also Stromberg and Kellogg switchboards. Address No. 396, care TELEPHONY.

FOR SALE—Two telephone exchanges with country lines, 320 phones, and increasing. Good construction, northern Kansas. Price for both, \$16,000. Address No. 418, care TELEPHONY.

FOR SALE—\$95 takes one Stromberg-Carlson visual signal switchboard, 26 instruments, one 110 volt ringing machine, also storage battery. Address J. Leonard, 104 W. Congress St., Chicago, Ill.

WANTED—One second-hand section 120 Central Energy, visual signal, visual clearing-out, Stromberg-Carlson switchboard. Must be in good repair. State length of cable in connection. Ed D. Glandon, Pittsfield, Ill.

FOR SALE—Post hole digging, hoisting, and cable pulling machine mounted on trucks. Also one No. 6 cube concrete mixer, and other construction apparatus. Above used four months. Quincy Home Telephone Company, Quincy, Ill.

PATENTS—H. W. T. Jenner, patent attorney and mechanical expert, 608 F street, Washington, D. C. Established 1883. I make free examination and report if patent can be had, and exactly how much it will cost. Send for circular.

WE WILL NOW SELL—Patent No. 828,218, Aug. 7th, 1906. Patent No. 850,433, Apr. 16th, 1907. Patent No. 850,434, Apr. 16th, 1907. An improved system for selective signaling and lockout for party line telephones. Commercially practicable, its application does not necessitate changing present installations. Address No. 421, care TELEPHONY.

SECOND-HAND SWITCHBOARDS FOR SALE—Two 100 capacity Chicago Telephone Supply Co.; one 200 capacity and one 100 capacity Western Telephone Construction; one 100 capacity Swedish-American; two 50 capacity and two 100 capacity Eureka; one 100 capacity Standard; three 100 capacity Keystone; three 200 capacity and one 100 capacity North. Address Victor Telephone Works, 6583 State St., Chicago, Ill.

FOR SALE—85 Kellogg 60 cycle party line ringers complete; 100 Kellogg 20 cycle party line ringers complete; 8 Kellogg 60 cycle single gong desk set boxes for two conductor cords; 8 Kellogg 20 cycle single gong desk set boxes for two conductor cords. One Holtzer-Cabot 24 volt direct current motor generator, 75 volt alternating and pulsating generator. Address, The Knox County Home Telephone Company, Vincennes, Ind.

FOR SALE—One complete battery charging outfit with switchboard and instruments; also ringing machine described as follows: One Roth motor gen. set, for pole five hundred volt D. C. motor, 60 volt generator. One Roth five hundred volt D. C. and one hundred A. C. ringing machine. One slate power switchboard made by The Weston Electrical Instrument Co., Newark, N. J. All of the above in perfect condition and will be sold at a bargain if taken at once. Alpena Mutual Benefit Telephone Co., Alpena, Mich.

FOR SALE—We offer for sale the following assortment of Stromberg-Carlson central telephones displaced by our installation of Automatic equipment:

- 250 Type E central energy desk telephones with stationary head, corrugated nickel plated pedestal, black enamel metal base, bipolar receiver, gold electrode transmitter.
  - 1,000 No. 204 desk telephones with adjustable transmitters, knuckle joint arm, nickel plated pedestal and base, same transmitter and receiver as above.
  - 100 Type C. E., latest style desk telephone with No. 4 transmitter, all rubber bipolar receiver, black rubber pedestal, nickel plated base, induction coils at end of cord instead of in base. A modern instrument.
  - 1,000 Former type ZZ, later known as No. 37, business style central energy wall telephones complete with triplet set consisting of combined switch-hook, transmitter with adjustable arm, bipolar receiver, etc. This instrument is provided with shelf.
  - 100 Former type Z, later known as No. 35, residence style, central energy wall telephone without shelf, otherwise same as No. 37.
- These instruments are in good condition and will be sold at a reasonable figure. Prices will be furnished upon application to W. F. Laubach, manager, Akron People's Telephone Company, Akron, Ohio.

Please tell the Advertiser you saw

## Maine Black Birch Pins and Brackets

Are being imitated. Black Birch from Maine is the best by test. Accept no substitute. Ask us about our latest proposition whereby carloads can be carried in stock without much expense.



CORRESPONDENCE INVITED.

SPECIAL WORK PROMPTLY.

**MAINE HUB AND MANUFACTURING COMPANY : : : West Sebois, Maine**

Western Sales Agents, The W. R. GARTON COMPANY,  
118-132 W. Jackson Blvd., Chicago, Ill.

## FIVE CAR LOADS

## Genuine Black Locust Pins

MADE FROM SELECT STOCK  
READY FOR SHIPMENT

Any Style Pin Wanted Made  
To Order On Short Notice.

**PALMETTO MANUFACTURING  
NASHVILLE COMPANY TENNESSEE**

## Yellow Pine Cross Arms

From Alabama Yellow Pine Virgin Timber

We own both timber and mills.

Our Inducements to you are

**GOOD MATERIAL QUICK SHIPMENTS**

In the market or going to be?

Write us to-day for prices.

**Southern Pine Mfg. Co.,** PADUCAH, KY.

## Long Leaf Yellow Pine Cross Arms

SPLENDID STOCK. PROMPT SHIPMENTS

We make a specialty of all heart stock and of special sizes. Would like to have your inquiries.

**THE LEWIS LBR. & MFG. CO.**

HATTIESBURG

MISSISSIPPI

## LOCUST PINS

First Class Yellow Mountain Locust. Carloads, one to three weeks; small lots from stock.

**THE LOCKE INSULATOR MFG. CO.**  
VICTOR, N. Y.















BOUND  
Aug 4 1911

UNIVERSITY OF MICHIGAN



3 9015 08016 8456



