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NEW YORK, SEPTEMBER 1, 1903.

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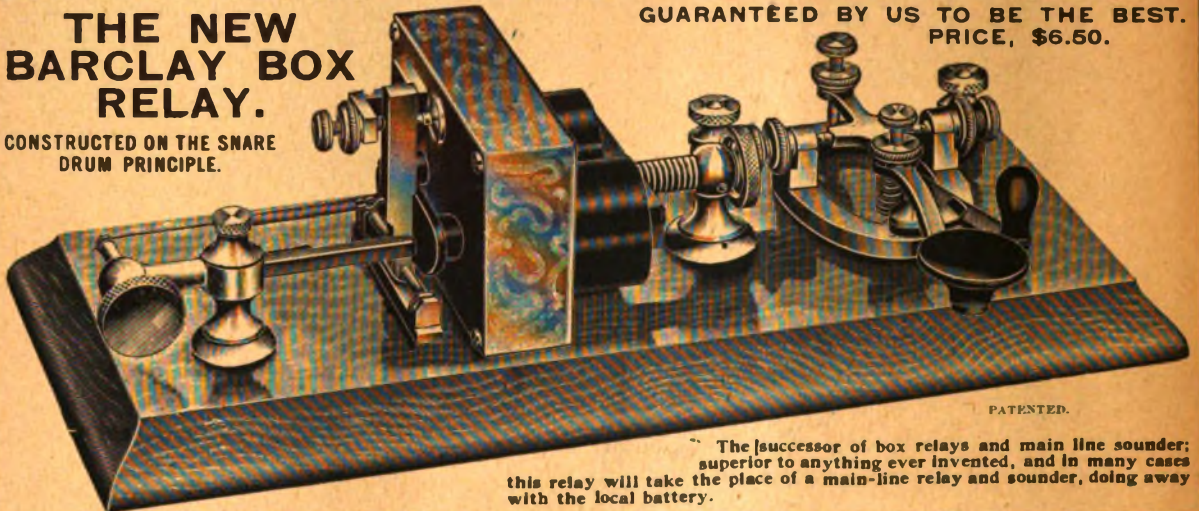
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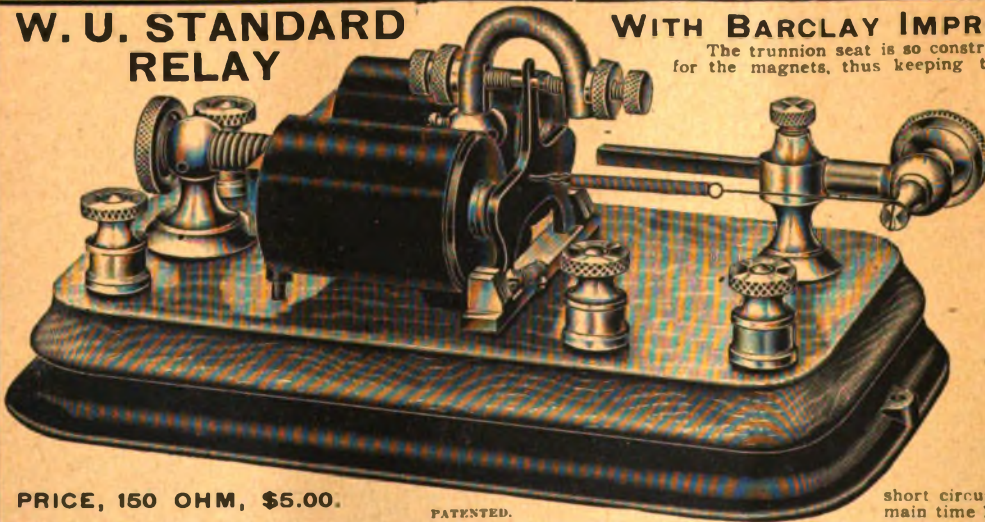


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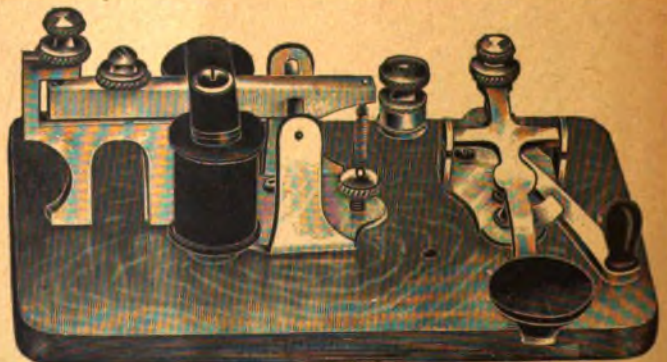
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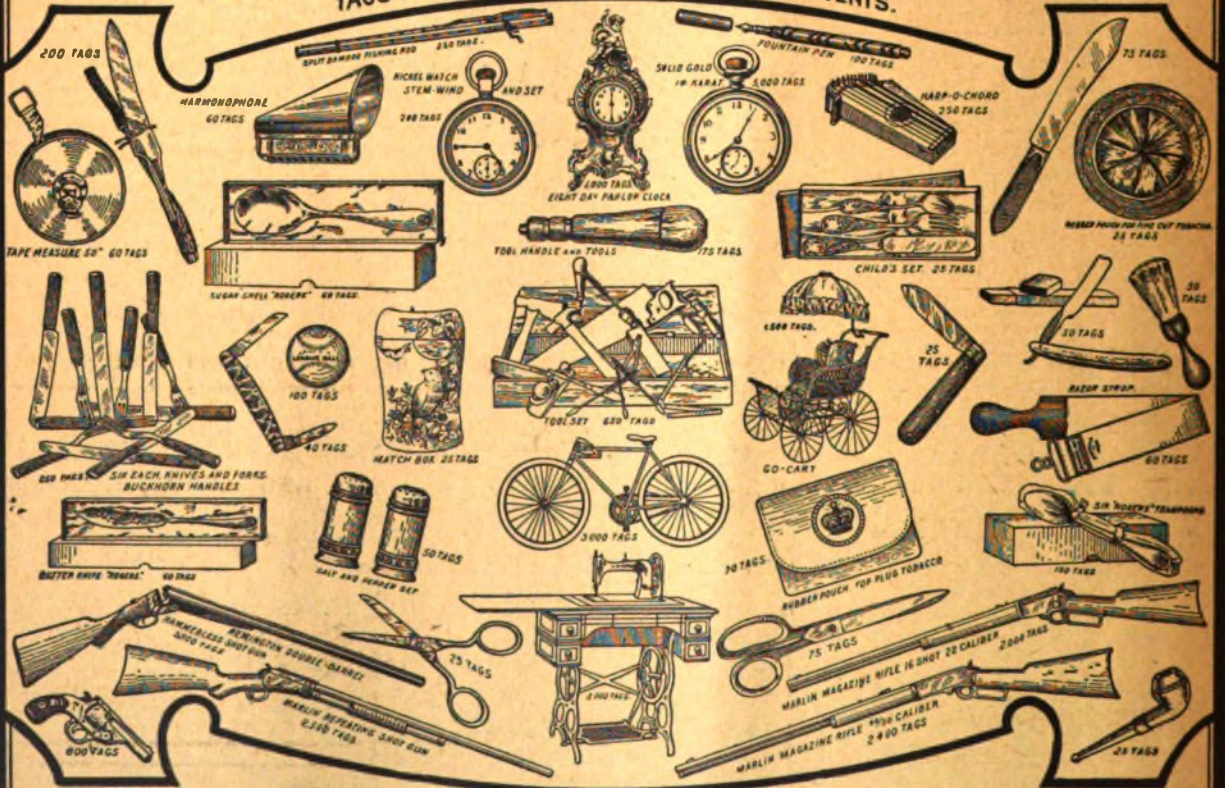
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THE TELEGRAPH AGE

No. 17.

NEW YORK, SEPTEMBER 1, 1903.

Vol. XX.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Passing of the Quadruplex for Long Circuits.

(Continued.)

Judging by the number of letters received referring to the article published in this department, on July 16, under the caption of the "Passing of the Quadruplex," it would appear that the agitation of the subject was not begun any too soon. Without exception each writer, thus far, has expressed the opinion that four-cornered work on long circuits is no longer satisfactory, or economical, yet no one has as yet offered a practical remedy for bettering the present conditions. The article referred to was written in the hope that among the suggestions which it was believed would be offered something might be evolved that would direct thought into a channel which would bring about more practical results.

In the issue of August 1, we published two letters on the subject in question, one received from Mr. E. L. Bugbee of Washington, D. C., and the other from Mr. Stephen Dudley Field, of Stockbridge, Mass., both valuable contributions, orig-

inal in expression, and viewing the question from different standpoints..

Mr. Bugbee deals with present conditions and offers a suggestion that matters would be helped by a path to the earth through the polechanger at the moment the break occurs. On this point Mr. Field concurs and makes the positive statement that the "bug" is really due to that portion of the incoming current which finds its way into the home condenser during the break, there being no other outlet.

The idea is not new, however, as the method has already been tried in an indifferent manner, mainly with a view of preventing excessive sparking of the polechanger. When it was found that a condenser connected around the contact points was more effective for that purpose the former experiment was abandoned. Now that it is recalled that a path to the earth through the polechanger offers additional advantage, perhaps further experiments along that line would result in some good. Experiments seem to have stopped just as they were unwittingly being made in this direction.

Mr. Field's letter, while treating the topic in his characteristic and forceful manner, contains a few suggestions which are to say the least, somewhat questionable, so far as the expected results are concerned. He begins by denying the existence of the quadruplex, stating that the quadruplex has not yet arrived, and then goes on to describe the faults of the mythical (?) device with a vengeance.

He attributes the present disastrous electrical condition of our pole line systems to the unnecessary employment of high potentials. He says: "The potentials at present used are more than double what they should be and the more they are increased the greater will be the damage. The battery resistance per volt is double what it should be; one ohm per volt is enough—it can safely be made less." The relay resistance is double what it should be."

On these points we cannot agree. No doubt the reduction of electrical pressure all around would greatly reduce the disturbing element, and lower wound relays might be used, but Mr. Field seems to forget that we must face facts as they are, not as they should be. What he states is hardly practical because the requirements are such as can never be brought about. Even should all telegraph companies agree to the reduction plan, there remains the disinterested electric light and power companies to be considered. They certainly cannot and would not reduce their pressure. Experience has shown that as the disturbing ele-

ments increase, higher wound relays and higher potentials are required in order to override the counter pressure. In other words, in the absence of a universal agreement to not put on more pressure, each forward move on the part of one electrical concern must be met by a corresponding step in the same direction by others, or be completely shut out. This point can be demonstrated in the following manner:

A polarized relay short-circuited through one cell of gravity battery will operate satisfactorily with less than a milliampere of current. Connect the same relay in a duplex circuit of, say, ten miles long, and it will respond fairly with 5 to 8 milliamperes; place it on a quadruplex circuit of the same length and the short end current must be increased to 10 milliamperes as a minimum. Finally insert the relay in a 400-mile quadruplex circuit and the minimum short end value must be increased to 15 or 18 milliamperes in order to override the counter effects of the pole line disturbances. Halving the resistance value of the relay coils would not reduce the total resistance of the quadruplex circuit to an extent that would be noticed, while the magnetic strength of the relay itself would be greatly diminished. These facts are demonstrated every day.

Experience has also shown that the insertion of two ohms per volt for protective purposes is none too great. Instruments are too expensive to incur a greater risk. Besides, the quadruplex battery resistance of 600 ohms could not be reduced where the dynamo arrangement obtains, without necessitating an alteration in the values of the leak and added resistance coils, a combination which Mr. Field himself devised as the basis of the "Field key system", for the dynamo quadruplex battery.

In another part of his letter Mr. Field says: "I regard the modern innovations, such as the Freir relay, the Jones inductorium, etc., as distinct misimprovements; as mechanisms they are highly ingenious, but they conceal the 'bug' without removing the same." As the walking beam pole-changer, which came with Mr. Field's invention, created the break that necessitated Mr. Jones' and Mr. Freir's Misimprovements" in order to make the method practicable, we presume that Mr. Field includes his own innovation as also a move in the wrong direction. The "bug" certainly grew to double its original size the moment the bar-lever pole-changer was installed.

However, in another paragraph Mr. Field has stated something that may possibly lead to the future subduing, or control of the pole line disturbances, in telegraph as well as telephone circuits. It is certainly worthy of consideration, and we quote: "In telephone installation it is found that the more varied the extraneous disturbances the less troublesome they become. Thus, ten wires 'grounded circuits' on one pole line can be independently utilized for quite long distances, while two wires under the same conditions cannot be depended on for a single mile; mutual neutralization takes place in the case of a multiplicity of conductors. In the West we could not work two

wires Morse on the same set of poles without grounding each pole, but when the number of wires increased to eight or ten the trouble completely disappeared." Now, this suggests something new in the way of a means of eliminating or, rather rendering harmless, the source of the troubles of today. It appears that telephone receivers cannot ignore irregular intermittent extraneous impulses, but when the latter become so rapid as to be practically continuous they are harmless.

The question arises: Why would it not be possible for telegraph companies to regulate or neutralize this pole line induction in a systematic manner? It can never be eliminated, hence it must be controlled.

As a suggestion, the Roberson quadruplex system with its alternating current, is today the least affected by induction from parallel lines of any multiplex as yet invented, while rain and fog cannot in themselves reduce the quad to a duplex. There is no fluctuation in the value of the current flowing, and the alterations are so rapid that the inductive effect is practically constant or continuous. If this system was used exclusively along a trunk line of pole wires and a great number of such quadruplex batteries were in operation at one time, would not the mutual neutralization mentioned take place, and thus greatly increase the present capacity of the quadruplex work?

We should be pleased to hear from others on this subject. It is new ideas and schemes we wish to solicit. One suggestion leads to another and in this way stimulates to help solve the problem.

Recent Telegraph Patents.

No. 735,508.—Multiplex Telegraphy. Paul E. Heina, Paris, France. Some features of this invention are a transforming device, having its primary located in the primary circuit and two secondaries. One secondary is connected to a line circuit the other in a counter-balancing circuit.

No. 12,141.—Apparatus for Selective Electric Signaling. John S. Stone, Cambridge, Mass. In a system of space telegraphy, a resonant circuit includes a condenser having one fixed armature and one movable armature, in combination with means for indicating the movement of the movable armature.

No. 735,311.—Attachment for Printing Telegraphs or other strip-delivering apparatus. Clarence M. Stiner, New York, assignor to the Auto Ticker Tape Display Company, New York. A receiver is provided for telegraphic strips, and means whereby the strips will be arranged in a regular, uniform order upon the receiver, with their treated side exposed to view throughout their length.

T. M. B. Association. Assessment No. 411 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of Davies C. Freeman, of Boston, Mass.; Luther E. Damon, of Wichita, Kans.; Geo. W. Patterson and Henry W. Sauer, of New York.

Resignations and Appointments.

Mr. C. E. Ott, who recently accepted a railroad position at Hudson, N. Y., has returned to Santa Ana, Cal.

Mr. S. T. Butler, formerly of Water Valley, Miss., has been transferred to the managership of the Western Union office at Oxford, Miss.

Mr. T. J. Gouldman, of Greenville, Miss., has been appointed manager of the Western Union Telegraph office at Huntsville, Ala., vice A. G. Crockett, transferred to Jackson, Tenn.

Mr. Charles F. Annett, formerly assistant superintendent of telegraph of the Illinois Central Railroad Company, Chicago, Ill., has been appointed assistant superintendent of the American District Telegraph Company at Boston, Mass.

Miss Lida M. Curry has been appointed manager of the Western Union Telegraph Company at Wilkesburg, Pa., vice Miss M. Frances Alley, resigned, to enter the service of the Postal Telegraph-Cable Company at Pittsburg, Pa.

Mr. Zoe A. Emerson, former manager for the Postal at Emporia, Kas., as noted in our issue of August 16, has been appointed manager at Topeka, Kan., for the same interests, succeeding Mr. J. C. Thomas, who has served the Postal faithfully at Topeka for some ten years past. Mr. Thomas goes to Indiana to engage in other business. Mr. Emerson was formerly with the Santa Fe Railroad at Flagstaff, Ariz., but has been with the Postal for a number of years, first as manager at Newton, Kan., and then at Emporia. His promotion to the larger office is a well deserved one. Mr. Emerson is one of the three brothers, managers in the western district, Bert being at Florence, Kan., and Will at Lamar, Colo. Mr. C. O. Porter, of Emporia, succeeded Mr. Emerson as manager at Emporia.

Recent New York Visitors.

Mr. T. W. Carroll, electrician, Postal Telegraph-Cable Company, Chicago, Ill.

Mr. C. S. Rindfleisch, night chief operator, Postal Telegraph-Cable Company, Cleveland, O.

Mr. C. F. Annett, former assistant superintendent of telegraph of the Illinois Central Railroad Company, Chicago, Ill.

Mr. H. C. Hope, superintendent of telegraph, of the Chicago, St. Paul, Minneapolis and Omaha Railway, St. Paul, Minn. Mr. Hope was in the East to meet his daughter and sister who returned from Europe on August 19

Obituary.

M. M. McTigue, aged thirty-three years, an operator at Erie, Pa., died on August 14.

R. G. Strong, aged sixty years, for several years manager of the Postal Telegraph-Cable Company's office in Saratoga, N. Y., died on August 21. He was a member of the 109th Regiment,

New York Volunteer Infantry, during the Civil War. He had been a telegrapher for upwards of forty years.

Municipal Electricians.

Mr. Frank Hyland has been appointed superintendent of the police and fire alarm telegraph at Wilmington, Del., vice J. W. Aydon, resigned.

Mr. Frank P. Foster, of Corning, N. Y., secretary of the International Association of Municipal Electricians, was recently in New York, where he transacted considerable business pertaining to the association.

Personal Mention.

A full page engraving and complimentary write-up of Mr. H. P. Dwight, president and general manager of the Great Northwestern Telegraph Company, Toronto, Ont., appeared in "The American Syren and Shipping," of July 25, published in New York.

Mr. D. J. Hearn, health commissioner of Boston, Mass., who is an old time telegrapher, still pines for the telegraph business, in some of its phases. It was the business that he was brought up in, and as he says now, "Under certain conditions I think it is the best business in the world."

Mr. A. E. Kennelly, an old time telegrapher and at one time electrician on one of the cable steamers, past-president of the American Institute of Electrical Engineers and now professor of electrical engineering in Harvard University, was married on July 22 to Miss Julia Grice at Boston, Mass.

During the International yacht races the private yachts of Mr. A. J. Wise, president of J. H. Bunnell and Co., the telegraph instrument manufacturers, and the one chartered by Mr. H. L. Shippy, treasurer of the John A. Roebling Sons' Co., entertained many parties of telegraph and electrical people invited to view the races.

Signor Marconi, of wireless telegraph fame, arrived in New York from Europe, on August 29. He comes to this country at this time to consult with Mr. Edison in regard to his plans and the company's business. Mr. Edison is the consulting engineer of the Marconi Company. "Within three months" Mr. Marconi says, "arrangements will be perfected, and we will be sending and receiving commercial messages between Cape Breton and Poldhu, England. I have plans now which will greatly reduce the power necessary to send messages such a long distance."

Mr. Heman J. Pettengill, of Boston, Mass., general manager of the Western Telephone and Telegraph Company, formerly superintendent of the Postal Telegraph-Cable Company, at the same point, was the recipient of a flattering notice in the "Brunswick (Me.) Record," of August 14. Mr. Pettengill is a native of Brunswick, and that community is naturally very proud of his achievements. We can vouch for the fact that Mr. Pettengill was one of the brightest telegraph superintendents that ever had charge of a district and it is but natural that the

telephone people should appreciate his abilities which are of high order.

Wireless Telegraphy and the Yacht Races.—S.C

War has evidently been declared between the three wireless telegraph companies of New York city—the Marconi, De Forest and International companies. All were employed by news associations and papers to send bulletins direct from the international yacht race course. During the yacht race on August 25, there were few bulletins from any of them after the first leg of the race had been sailed.

The messages were started from the tugs all right, but before they had reached the shore melted in air. At the Marconi land station most of the messages got through with only one or two words missing. The greater part, however, were fragments of "The Wreck of the Hesperus," and detached letters of the alphabet, that were being sent by a rival firm that had promised to put the other two firms out of business.

Melville E. Stone, general manager of The Associated Press, said, concerning their failure to get complete messages from the wireless telegraphy company:

"Things worked so smoothly during the first two races that we supposed that the problem of reporting these races accurately and speedily had been solved once and for all. But after the freakish behavior of the electric currents on August 25, we are as far in the dark as before. The whole affair seems to me to be simply a contest between competing wireless companies. When one company finds itself unable to transmit its news, from unfavorable atmospheric conditions or some other cause, it does its best to impair the most successful work of its competitor."

On August 27, probably half a dozen bulletins by the Marconi system got through to The Associated Press office in a fairly satisfactory manner. The work, however, was far from perfect, and it was evident that the interference of rival companies was the cause of the trouble. Each company virtually accuses the others of trying to hinder its work. It was said at two of the offices that one company that failed to get some desired contracts went to various newspaper offices and desired to be bought off from interfering with the service already obtained. Failing in this, it is said, it made threats that the other two wireless companies would experience much difficulty in getting a message through. That two of them did have much trouble is now a matter of record.

Mr. W. H. Bently, vice-president of the Marconi Wireless Telegraphy Company of America, issued a statement on August 26, saying in part:

"The reason for the falling off in efficiency is this: While we have been able, by means of our improved apparatus, to cut out six of the seven competing stations, one high power land station has been able to disturb us. The proprietors of the high power station switched in more power on August 25, and from 9 o'clock in the morning,

until 5 o'clock in the evening incessantly kept the station key rattling out 'A B C, A B C, A B C,' except when varying this monotonous programme with meaningless phrases. On Thursday and Saturday of the previous week the erudition of the operator was more clearly disclosed by obscene expressions. On Saturday we received from the troublesome high power station a considerable part of 'The Wreck of the Hesperus.'"

In view of the fact that the recent wireless telegraph conference held at Berlin, Germany, declared that it would be better not to countenance a monopoly of wireless telegraphy, it is evident that the game of interference will be played by others whenever one of the companies undertakes to transact business. It would seem to us that wireless telegraphy should be under the directing control of a single management.

Mr. T. A. Edison is quoted by the "Wall Street Journal," as follows, in regard to the Marconi system: "There is absolutely no reason why Marconi may not develop a speed of 500 words a minute in the transmission of transatlantic messages. On the other hand, there are technical scientific and mechanical obstacles which make it absolutely impossible to increase the speed of transmission by ocean cables. There is absolutely no doubt but that the Marconi system is successful. All this talk about lack of secrecy, interruption and the interception of messages is nonsense. What secrecy is there in cable operation? At least ten men know the contents of every cable message, and none of them receives a very high salary. No business man ever entrusts an important business secret to the wires without employing a cypher code. There is no doubt but that code will be necessary in the wireless system just as it is in the cable system. Personally, I have no doubt but that the Marconi system is both a commercial and a scientific success. I have agreed to act as a member of the company's technical board and expect to consult with Mr. Marconi when he returns to this country."

A cable despatch from London says: "The French Wireless Telegraph Company has replied to Marconi's assertion that his messages cannot be intercepted by informing him that for the past six months every message sent, not only from his station at Poldhu but from any Marconi stations around the British coasts, has been intercepted by the French Wireless Telegraph Company's station at Cape de la Hague, and that copies of these messages are at his service. Marconi has not asked for copies. When the Prince of Wales recently visited Poldhu station he asked Marconi to send a message across the Atlantic, but the inventor informed him that it would be six months before the apparatus would be ready to carry out that experiment."

Purser Graham, of the Cunard line steamer *Campania*, which arrived in New York on August 15, reports a new use to which the wireless tele-

raphy aboard the ship was put on the voyage from Liverpool and Queenstown. Shortly after leaving the last named port Henry Robertson, a passenger, found himself with insufficient funds to pay expenses, and having no friends on board to whom he could appeal, recollected that his mother was a passenger on the *Lucania*, of the same line, bound east. A happy thought struck him, and he sent the following message by the Marconi system:

"Mrs. J. L. Robertson, Passenger, *Lucania*: Pay purser *Lucania* £10, asking him to advise purser *Campania* to pay me.—Henry."

Communication was established with the *Lucania* when the ships were fifty miles distant on August 12, at 12.45 A. M. This reply was received at 1.45 A. M.:

"Graham, Purser, *Campania*: Pay Henry Robertson £10. Have collected amount from his mother on board *Lucania*.—Milliken, Purser."

This is said to be the first Marconigram money order sent in midatlantic, and opens up a wide field.

The deliberations of the wireless telegraph congress at Berlin, just closed, will, it is believed, as intended, result in a death blow to the ambitions of the Marconi company to monopolize the business. There is authority for stating that the congress declared unanimously in favor of making wireless telegraphy the business of the various governments as inland telegraphy is now regulated in Europe. Recommendations to that effect will be made to the various governments represented at the congress, particularly by the British delegates. It is understood that a subsequent congress will give effect internationally to the recommendations of the present conference.

Prof. R. A. Fessenden has accepted the position of consulting electrical engineer with the Collins Marine Wireless Telephone Company. Prof. Fessenden is continuing work at Old Point Comfort on his wireless telegraph system, which is stated to have about reached the stage of commercial application.

The Cable

Mr. John H. Smart, superintendent of the Commercial Cable Company, New York, is again experiencing considerable trouble with his eyes, which causes his confinement to his home. Mrs. Smart, who is at Cape Cod, Mass., for the summer with her family, is reported to be critically ill with pneumonia.

The West Indies were visited by a fierce and destructive hurricane in the first part of August. The hurricane demolished the cable hut, landlines, and office at Holland Bay, Jamaica, the landing place of the Porto Rico cables. Communication was restored by rejoining the cables on the beach, an operation of great difficulty.

The United States cable ship *Burnside* has arrived at Seattle, Wash., from Sitka, where she

completed the preliminary work of laying the cable between that city and Alaska. She has taken on board 600 miles of cable. A despatch from Dawson says that after a work of months American troops have replaced most of the line destroyed by fire in Tanana Basin.

The "Daily Chronicle," of London states that the treasurer of the Australian Commonwealth has received communications from the Imperial Treasury which show that unless some unexpected boom in cable business takes place before the end of this year, the partners in the Pacific cable will, on March 31, 1904, have to face a loss of over £212,000 (\$1,060,000).

On August 8 the telegraph operators for the new Seattle-Alaska submarine cable arrived in Seattle and reported to Capt. E. Russell on board the cable ship *Burnside*. In all there were twenty men in the party, which arrived from the East.

The Seattle station has been finished. The 1,500 mile of cable which must be laid between Seattle and Sitka is made in two sections of 600 miles each and one of 300 miles. Col. Allen will relieve Capt. Russell and will have charge of laying the cable, which will not consume much time when everything is in readiness.

In a recent address before the London Chamber of Commerce, Mr. Charles Bright stated that the total length of submarine cables now amounts to over 200,000 nautical miles, representing a total investment of about \$250,000,000. The present market value of the combined capital of these cables largely exceeds this figure. The cable construction and shipping output of Great Britain is about 100 nautical miles per day. The cost of construction may be estimated at \$750 per mile and the cost of laying at about half as much. A cable carefully manufactured and laid, if the conditions of the sea bottom be favorable, should be expected to last thirty years or more. It might be kept in operation indefinitely by the successive replacement of the parts. The cost of maintenance is usually put down at from \$30 to \$40 per mile per annum, though there is always the possibility that heavy expenses may be called for to make repairs.

The Railroad.

Siemens and Halske, the electrical engineers, of Berlin, Germany, have devised an audible and visible signal for railroad grade crossings. The apparatus is illustrated and described in the "Scientific American" of August 15.

In connection with the plans of the Pennsylvania Railroad Company for the improvement of its telegraph system, it proposes to establish in the Broad Street Station, Philadelphia, the largest and most improved telegraph office for railroad purposes in the United States.

Mr. G. H. Wilson, chief train dispatcher at New York, of the New York, New Haven and Hartford Railroad Company, who has recently

been promoted to be superintendent of the New York division of the road, began his railroad career as a telegraph operator in 1884 on the Pennsylvania Railroad. He has been in the service of the Consolidated road in the telegraph department since 1887.

THE RAILWAY SIGNALING CLUB.

On Tuesday, September 8, the date for the regular September meeting of this club, there will be held two meetings, one at the Great Northern Hotel, in Chicago and one at the Manhattan Hotel, in New York. This course has been decided on in response to the quite general desire to have frequent conferences which can be conveniently attended by a large number.

Experiments with the Telegraphone have lately been made on trains on the Atchison, Topeka and Santa Fe Railroad in the vicinity of Topeka, Kas. It is hoped that the enterprising superintendent of telegraph of that system, Mr. C. H. Gaunt, will have something to say in regard to the utility of this device. Mr. Gaunt is up-to-date on all devices calculated to increase the efficiency of the railroad telegraph service and his opinion of this apparatus would be of great value to the railroad fraternity in general at this time.

Officials of the Pennsylvania Railroad, at Pittsburgh, have recently tested a device for the recording of telephone messages, says the "American Telephone Journal." The machine which is called the Telegraphone was invented by D. Poulsen, of Denmark. The principle on which it operates is the recording of sound waves by localizing magnetism. The waves are recorded on steel discs, piano wires or steel bands. One may talk into an ordinary receiver and have his conversation recorded by means of the instrument. The machine has a number of magnetic attachments which give off on separate wires the conversation recorded on one wire. By means of long spools of wire it is expected to make some radical changes in the system of electrical communication now in vogue, as a man in Pittsburgh may talk one hour, and the conversation be recorded on a spool which is then arranged in connection with a line to New York. The spool is then caused to revolve at a high rate of speed, fifty times as fast as it revolved originally. A second spool at New York receives the message and by being made to revolve slowly it gives off the message again, unreeling it, as it were. The record is destroyed by simply passing a magnet over or across it, when the discs and wires are again ready for use. The chief objection to the use of the telephone by railroads, has been the lack of record of the message sent. The advantages of the Telegraphone are being carefully considered by the local Pennsylvania officials and will result, it is said, in its possible adoption in the yard system of telephones.

"Pocket Edition of Diagrams," etc., is \$1.50 per copy.

Got Into the Wrong Pew.

The Chicago Postal office called up a newspaper branch office in that city a few nights ago with the enquiry:

"Hasn't that man M ——— arrived there yet; he's been on the way over an hour?"

"No sir, I've seen nothing of him," promptly came the reply.

The name of the operator was a new and unfamiliar one, and as the man in charge of the office to which the stranger had been assigned had occasion to visit the office of the Western Union across the hall, it occurred to him to enquire of the manager whether he had any strange operator on duty.

"Yes, there is a man here on whom I never 'cast my lamps' before, but he's at work all right," was the answer.

The Postal manager looked over the list of Western Union men on duty and there sure enough appeared the name of the missing Postal operator; not only that, there too among the employees was the man himself seated behind a typewriter working away as big as life.

Approaching the unsuspecting operator the Postal manager demanded:

"Are you working for the Postal?"

"Sure, Mike," was the laconic reply,"

"Well you're in the wrong pew," exclaimed the Postal representative, "come out of it;" and suiting the action to the word, he "helped" the astonished operator from his seat with much celerity.

The whole occurrence was very funny and a general laugh followed.

It may be remarked that the missing operator was sent to his original destination under guard and heavily tagged.

Our Book Table.

"The Twentieth Century Manual of Railway and Commercial Telegraphy" is an invaluable reference and text book for branch office managers, railway station operators and all others holding mediocre positions and are seeking advancement on merit. It affords opportunities to specialize in almost any line. The work embraces all kinds of practical train orders, technical reports, market reports, box-score, race special, government signals, grain, provision and live stock C. N. D's., as well as a part on elementary electricity that cannot help but give the average operator a broader view of life, its needs and its demands and afford advantages not to be found in restricted positions. The price of the book is one dollar which covers the prepayment of express charges. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York City.

A customer recently asked a receiving clerk why it was that his message was marked red, and black ink was used in copying his message.

Concerning Cable Codes.

There are many men who in their business conversation murder brevity and step all over the humanitarian rule to say a thing once only. They maul their subject almost out of recognition. They work it slowly back into shape again. They finish it off with a number of personal anecdotes and when they are leaving they turn back and start all over again.

When one of these men writes letters he finds it expedient to compress an hour's talk into a single page. When he telegraphs he can generally get the same matter boiled down into ten words. When he cables and has to pay from 25 cents to \$5.99 for each word, he realizes that sometimes talk is not at all cheap, and he soon learns the gentle art of cutting it short. If he has considerable cabling to do, he finds that it will be true economy to invest a few dollars in a cable code.

What are cable codes?

They are books containing lists of classified phrases, alphabetically arranged according to subject. Each phrase is represented by a code word. These code words are also arranged alphabetically so that the receiver of a code cable can easily translate the message.

A code book generally begins as follows:

(SUBJECT) ABSENCE.

00000 Aababer—Expect to be absent on the date you name.

00001 Aacrive—The person in charge of this matter is absent.

00002 Aadunct—Cannot explain his absence.

The above code words, although closely resembling the names of Pullman cars, are not thrown carelessly together by the compiler of the code book.

The International Telegraph Office is located at Berne, Switzerland. Here all the rules and regulations are issued governing the handling of international telegrams. Under order of the International Telegraph Conference the Berne office recently issued what is known as the Official Vocabulary, embraced in four volumes containing about 1,400,000 words without phrases.

These words commence with Aabam and end with Zyzommes. Nearly all the prominent code books have their code words selected from the Official Vocabulary.

The use of the Official Vocabulary would put a stop to the growing system of doubling up of words which is practiced to such a great extent to defraud the companies out of their legitimate tolls.

In cable messages written in plain language such as words, found in the eight principal dictionaries of the world, up to fifteen letters long, can be used. In messages containing arbitrary code words, such as K Z N J X, five letters to the word is the limit. Five figures are also reckoned as one word.

It will be noticed in the preceding illustration of the arrangement of a code book that each code word and phrase is numbered. All code books are numbered in this fashion. Taking advantage of this system of numbering, various schemes were worked

out by professional code makers for expressing two or more code phrases by one ten-letter cipher word.

Say, for instance, that a man wished to cable the two following phrases:

06120 Duncifrot—Your letter of the 26th inst. duly received. Answer is "Yes."

07543 Evenzi—Do not take any action in the matter until you receive my letter on the subject.

The sender of this message grouped the code numbers of the two phrases thus:

0612007543.

He also has a table something on the following order, a copy of which is in the hands of all his correspondents:

0—a	5—f
1—b	6—g
2—c	7—h
3—d	8—i
4—e	9—j

With the help of the above table he converts his group of figures 0612007543 into this interesting combination: Agbcaahfd—a word apparently portending lunacy, but not a bad word as code words go.

The correspondent who gets this cabalistic word proceeds to work the arrangement backward and soon deciphers the message intended to be sent.

Considering that by this manipulation twenty-seven words have been boiled down to one word, the economy of cable codes and doubling up arrangements will be readily appreciated. In fact it is the favorite argument of cable sharps who have goods to sell that the outlay will more than save its cost in the first message.

The Official Vocabulary was intended to be a compilation of all legitimate words of not more than ten letters each such as are to be found in standard vocabularies of the eight admitted languages. Users of the cable complained that confining them to these words was too narrow a restriction, yet it was clearly apparent that the real objection was that it curtailed opportunities to transform figures into letters in such a manner as to enable them to express ten figures by the use of ten letters, which is practically transmitting two words at the cost of one word, only. The argument is that any ten figures can be signalled and handled by the operators as easily as ten letters proving, they claim, the combination of two groups of figures represented by ten letters to be a legitimate word. Such an argument, of course, is fallacious.

Insulating Material

The manufacture of a cheap and effective insulating material for electrical purposes is still a promising subject for chemical research, remarks the "Electrical World." The difficulties involved in the solution of this problem were recently pointed out by Dr. M. von Recklinghausen in an American Electrochemical Society paper in which he defined the desirable and undesirable properties and gave some indications as to the direction in which researches should progress in future. The number of patented insulating materials has recently been increased by a new one of compara-

tively simple composition, the invention of F. Basenan and A. Cohen, of Amsterdam, Netherlands, and consists mainly of asphalt and petroleum. Of prime importance is the purification of the asphalt, by which all malodorous constituents, especially the volatile sulphur compounds, are removed. For this purpose the asphalt is maintained for some days at a temperature, exceeding its melting point, with the exclusion of air. It is then mixed with a smaller or larger quantity of petroleum, according to the desired flexibility and hardness of the final material. While the petroleum which has been raised to the same temperature is mixed with the melted asphalt, a solution of alumina hydrate in acetic acid is added under constant stirring, and finally some colophony or other suitable resin and alkali is added. These additions cause a violent frothing of the whole mass, whereby an intimate mixture of the materials is produced. The addition of aluminium acetate imparts to the material great toughness, while the addition of resin and alkali renders the petroleum semi-solid or gelatinous. The mass is maintained in a decidedly liquid condition by heat under continuous stirring and is subsequently allowed to cool. For the jet black product, thus obtained, the following claims are made: It softens at a moderate temperature, about 70° C., and hardens again rapidly on cooling; it is very flexible, possesses a very high electrical resistance, and is not attacked by strong hydrochloric or acetic acid, dilute nitric or sulphuric acid, ammonia, alkalies and ordinary or salt water.

New Galvanic Batteries.

Oliver J. D. Hughes, Consul-General of the United States at Coburg, writes to the Department of State as follows: "A new German patent relating to galvanic batteries of the class which is composed of a series of plurality of separate dry cells has been issued. The improvements cover the production of a battery which is capable of being kept in store, of being transported in an absolutely dry condition, and of being rendered fit for use at a moment's notice by the introduction of a suitable liquid or electrolyte into the separate cells constituting the battery. The object aimed at appears to have been secured by certain novel features of construction and combinations of parts.

"The dry cells consist each of a zinc or other metallic cylindrical electrode, and of a carbon electrode having a cylindrical or prismatic cross-sectional area placed within the metallic cylinder. The space between the two electrodes is filled up with blotting paper or other suitable material capable of absorbing the electrolyte. A plurality of these cells is arranged within a suitable socket or frame-shaped casing, the cells being separated from each other and the surrounding casing by asphalt or other insulating material. When required for use the covers are removed from the cells and filled up with the blotting paper soaked with any convenient electrolyte, such as ammo-

niac solution, etc. The covers are then replaced and the battery is ready for use. Insulating rings at the open ends of the cells or zinc cylinders prevent short circuiting of the cells by any overflowing electrolyte."

Another "Phantom Circuit" Being Tested.

A new telegraph device, termed the telegraphplex, is being given a trial in the office of Chief Dispatcher H. M. Tompkins at the Chicago, Burlington and Quincy Railroad depot, Galesburg, Ill. By its use messages can be sent to intermediate points over a through wire without interfering in the least with the other messages which are being sent over the same wire. E. L. Vivion, the wire chief of the dispatcher's office, has been conducting a series of tests with the new device and he pronounces it satisfactory. Over the Chicago and Omaha through wire, Mr. Vivion sent and received messages to and from Aurora, where there is a similar apparatus.

The device consists of a nine-cell battery, an alternator, an instrument fitted with a diaphragm similar to that in a telephone receiver and a local sounder. Fitted close to the diaphragm of the instrument is an adjustable armature. With the battery and alternator in operation, the vibrations of the diaphragm are so rapid, caused by the passing of the current between the positive and negative poles, that the armature records the signals on the sounder, as the current is broken.

The inventor of the apparatus is Harry O. Rugh, of Chicago. Mr. Rugh is an expert electrician, but has no practical knowledge of telegraphy and is not familiar with the Morse code. However, he is also an expert in telephone matters, and, as will be seen at a glance from the description of his invention, the apparatus is in some respects similar to a telephone. With a nine-cell battery at each end, messages can be sent and received, it is said, just as satisfactorily as could be done with the regulation apparatus and current. The new invention was tried several days ago on the wires between Aurora and Chicago and worked satisfactorily. The distance between Aurora and Chicago affords the most severe test yet put upon the apparatus.

The device has been called the "phantom circuit," deriving this name from the fact that with only a light current, despatches may be sent over any line without anyone, except the two operators provided with the instruments, being the wiser.

Subsidizing Canadian News Service.

That the Canadian news service may not be "tainted" with "Americanism" and "annexation propaganda," the House of Commons at Ottawa has adopted a resolution to subsidize a purely Canadian telegraph and cable news service, both from America and from Great Britain. This fear that news passing through the States is colored is all a trick of the imagination, and the agitation is the work of the ultra Canadian America-phobes. A censorship of this kind never prospers, whether in 903 or 1903.

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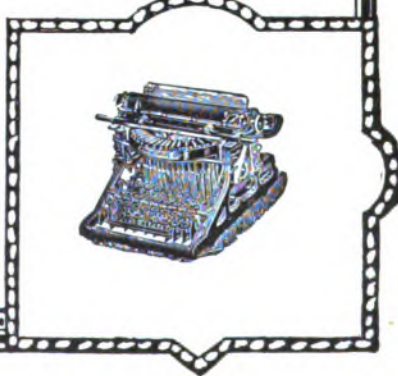
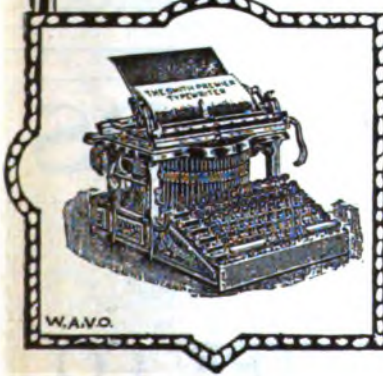
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NEW YORK, September 1, 1903.

The amount of information contained in each issue of TELEGRAPH AGE of the utmost practical value to the progressive operator who is ambitious to succeed, to acquire a more thorough knowledge of his profession, and not only to better qualify himself for the position he now occupies, and consequently for advancement, should prompt many to send in their subscriptions to this journal without delay. The first article in each issue, contributed by Willis H. Jones, under the standing heading of "Some Points on Electricity," contains more positive instruction concerning the telegraph, than can be found anywhere else, and worth more to the operator than many times the cost of the paper itself. Subscriptions should be sent direct to this office, or to any of our agents who may be found with both the Western Union and Postal companies in nearly every large centre in the United States.

We are prepared to furnish a limited number of bound volumes of TELEGRAPH AGE, which embraces 536 reading pages, besides the index, for the year 1902, at the uniform rate of \$3 a volume. The binding is substantial and the lettering is done in gilt. The volume furnishes a complete record for the year named of the telegraph, the cable, wireless telegraphy and other allied interests, the whole constituting an interesting work of reference of the highest worth to all telegraphers, libraries, etc., to which the carefully prepared cross-index lends additional value. Single copies of the index for volume XIX, covering the year 1902, may be had at ten cents apiece. Our friends who require copies of the bound volume, or of the index alone, should send in their orders promptly so that they may be filled while the supply lasts.

We are in almost daily receipt of inquiries from managers and others, in all sections of the country asking for information relative to cable codes, and whether the same can be supplied through this office. In answer to this oft-repeated query we desire in a general way to state that TELEGRAPH AGE is headquarters for all standard cable codes and that we are prepared to promptly fill orders for such works, or furnish any information that may be required relative to their contents. It should be remembered, however, that these books cannot be sent out for examination. In all cases the price of the code desired must accompany the order. Remittances should be made preferably by post office or express money order, made payable to J. B. Taltavall.

The Municipal Electricians.

The International Association of Municipal Electricians during the few years of existence with its present scope of inter-country membership, has served a most commendable purpose, inasmuch as it has been the means of welding together the city electricians into a more homogeneous, compact and influential body. The annual conventions of the association have brought together increasing numbers of intelligent, earnest and representative men in the profession, whose exchange of practical ideas and deliberations on important subjects, mainly affecting the police and fire alarm telegraph systems of their respective municipalities, have been productive of elevating this service the country over. This is shown in many ways, and especially in the growing tendency among cities, as an outcome of the influences exerted among the allied electricians, to adopt such general rules governing their several electrical departments as far as they may be locally applicable. This particular subject will come prominently before the convention at Atlantic City, N. J., whose sessions will open on Wednesday, September 2, and as members have been urged to come prepared to speak on the question, which will first be taken up in a paper by A. S. Hatch, of Detroit, Mich., its discussion bids fair to largely engross the attention of those present.

The Old Timers' Reunion.

As the time approaches for the joint reunion of the Old Time Telegraphers' and Historical Association and the United States Military Telegraph Corps at Milwaukee, the interest in the event appears to be on the increase. These yearly assemblings which serve to keep "the boys" in close touch with each other, either through personal attendance or by the subsequent perusal of the very full reports published in TELEGRAPH AGE of the proceedings, carry with them so much in the character of good fellowship, that their annual occurrence at various points in the country, are eagerly looked forward to by thousands. As previously announced, the meeting will occur at

the St. Charles Hotel, Milwaukee, on the 23d, 24th and 25th of this month. As the committee membership, and the outline plan of the affair have already been published and must, therefore, be familiar to all interested, it only remains at this time to add that so appropriate an occasion for meeting old friends and for having a good time generally, should not be neglected. Present indications are that it will not be. In TELEGRAPH AGE of September 16 the complete plan and programme, together with illustrations of the coming event will be published.

An Important Labor Ruling.

Judge Rogers in the United States Circuit Court at St. Louis, Mo., on August 7, handed down an opinion sustaining the demurrer of the Western Union Telegraph Company in the labor injunction case of A. L. Boyer et al against that company. In the written opinion Judge Rogers sustains every point urged by Attorney Elenious Smith, representing the defendant company, holding that the company has the absolute right to dismiss employes because they belong to the union, or for any other reason; that there can be no conspiracy to do a lawful act; that the so-called blacklist may be maintained, and given out for the use of others.

The case resulted from a bill filed by telegraph operator Arthur L. Boyer and others, alleging they were members of the Commercial Telegraphers' Union of America, Local Lodge No. 3 of St. Louis, and that they had been discharged from the service of the Western Union Telegraph Company solely because they belonged to the union; that it was the intention of the Western Union to discharge other employes solely because they belonged to the union, and that a conspiracy existed between the St. Louis officers of the Western Union Company to discharge all employes belonging to the union and to break it up; that the Western Union maintains a list, called a "blacklist," on which has been placed the names of the members of the union discharged, and that this is furnished to others, and thereby those blacklisted have been prevented from obtaining other employment.

The bill sought to prevent the Western Union Company from discharging any employe because of his being a member of the union, and the St. Louis officers of the Western Union from conspiring to that end, and to prevent interference of any kind with the union, and to prevent the Western Union Company from maintaining a blacklist, and placing thereon the names of those who might be discharged because of being members of the union.

The Western Union Company demurred to the bill, and this demurrer was sustained by Judge Rogers, sitting in the United States Circuit Court, at St. Louis, on August 18. Judge Rogers, besides holding that the Western Union Company had the absolute right to discharge employes not under contractual relations with the company,

for any cause or without cause, held that a like right exists on the part of the employe to sever his relations with the company for any cause, or without cause, and that if a contract of employment is violated the recourse of the employe is at law and not by a bill in equity, such as was brought in this case.

He also held that there could be no conspiracy to commit a lawful act, such as he held to be the discharge of the company's employes because of being members of a union; that the company had the right to maintain a list on which might be placed the name of a discharged employe and the cause of discharge, and this list might be given to others, provided its contents were truthful and its circulation honest; that as the bill alleged the union was formed for moral and proper purposes there should exist no objection upon the part of an employe to have his discharge based upon the mere fact that he was a member of such an order.

Western Union and Pennsylvania Railroad.

In the United States Circuit Court at Wilmington, Del., on August 21, Judge Bradford issued an order temporarily restraining the Philadelphia, Baltimore and Washington Railroad Company, the Delaware Railroad Company and the Delaware, Maryland and Virginia Railroad Company from interfering with the property of the Western Union Telegraph Company on the right of way of these railroad companies. The order of Judge Bradford will remain in force until the question has been finally decided by the United States Supreme Court, or until the local court makes a further order.

The Western Union vs. Butte Messenger Boys.

Special master in chancery Judge H. N. Blake, of Butte, Mont., has reported to the Federal court his findings in the hearing of the Western Union Telegraph Company against the American Labor Union and other labor unions of Butte for an injunction to restrain the labor organizations from interfering with the business of the telegraph company. The latter had been declared unfair in a strike of messenger boys. Judge Blake recommended that a permanent injunction be granted the Western Union Company.

Simplex System of Telegraphy and Telephony.

Editor TELEGRAPH AGE:

In your issue of August 16 I read with much interest an article by E. M. Fisher describing a method of telephony on two telegraph wires, but Mr. Fisher did not explain how to overcome the heavy noise which would be found on such a line of any length. A telephone circuit in order to be quiet must be perfectly balanced; that is, both wires should be of the same resistance from one receiver to the other, and when the line runs parallel to other wires for any distance they must be transposed or the signals on the other wires will

be plainly heard in the telephone. It is difficult to telephone and telegraph at the same time on lines built for telegraphing, but it is very easy to telegraph on lines built for telephoning, and the telephone companies have been doing it all the time. All long distance telephone lines now are of two No. 12 (or larger) copper wires and perfectly clear of grounds.

Two coils of 500 ohms are bridged across the telephone line of the split retardation pattern, and their effect in interfering with the talking even on a very long line is but little. The telegraph wire at each end of the line is connected to the center of the retardation coil. The resistance from this point on a line of two copper wires two hundred miles in length, each measuring six ohms per mile to the center of the retardation coil at the other end of the line, meaning the joint resistance of both sides of the line, would be 850 ohms.

With such a line perfectly clear of grounds a quad, and possibly a wheatstone should work perfectly. The reason there is no sound of the telegraph in the telephone receiver is because there is no circuit from the telegraph battery through it. The same polarity of the battery is applied to both sides of the line, and if the line is of the same resistance on both sides, as it should be, there is no flow of current through the receiver.

A Boston Reader.

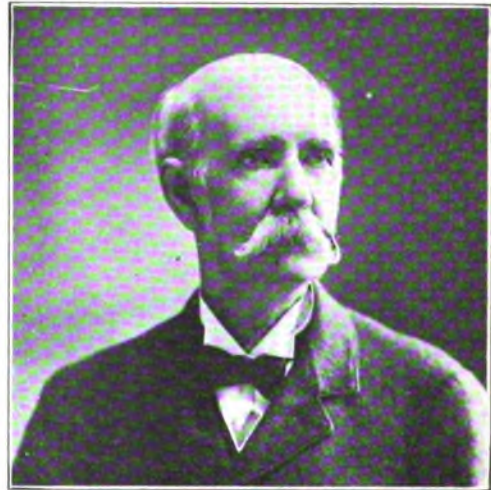
Boston, August 22.

[The method described here by our Boston correspondent is what is known among long distance telephone people as the simplex telegraph telephone system. It consists of a metallic circuit for telephone purposes over which one Morse telegraph circuit is obtained. What is known as the composite system is where a metallic circuit is used for telephone purposes and where two separate telegraph circuits are also maintained over the same wires. Simultaneous telegraphy and telephony is a term applied to the introduction of a telegraph circuit on a wire ordinarily constructed and used for telegraph purposes.—Editor].

The Retirement of Mr. Tree.

Mr. J. B. Tree, of Richmond, Va., who has recently been retired as a superintendent of the Western Union Telegraph Company, at that point, is an old timer whose identity with the telegraph dates back to the very earliest days of the profession, covering, indeed, a period of more than fifty-five years. Naturally a career so extended and devoted to a single line of business, long antedating the Civil War, beginning when Prof. Morse and those associated with him in the development of the telegraph, were in the zenith of their fame, has brought an experience and a fund of information to the ex-superintendent such as is vouchsafed to but few. His mind is a veritable storehouse of telegraphic lore, and his reminiscences of men whom he has known and events in which he has mingled, would fill a volume. Mr. Tree was taught telegraphy by Alfred Vail at Washington, D. C., in 1847, on the origi-

nal copper wire extending from Washington to Baltimore, strung to test the Morse invention under an appropriation of Congress. His first appointment as a manager was in 1848, when he was placed in charge of the office at Petersburg, Va., of the Washington and New Orleans line. After various transfers he was, in 1852, placed at the head of the Washington office of the Magnetic and of the Washington and New Orleans Telegraph Company, a position he held for two years, when he became superintendent of the Lynchburg and Abingdon Telegraph Company, and built the line from Richmond to Lynchburg. Going to North Carolina and thence back again to Washington, in 1857 he was appointed superintendent of the Norfolk and Petersburg Telegraph Company, a capacity in which he served through the war period, and until 1865. During the war he acted as treasurer of the Norfolk and Petersburg Railroad Company, and as general superintendent of the Southern Telegraph Company, al-



J. B. TREE, OF RICHMOND, VA.

Who has lately been retired as a Superintendent of the Western Union Telegraph Company.

so aiding in the supervision of the military telegraph on the Atlantic Seaboard for the Confederate States. In 1865 he came to New York to accept the appointment of clerk in the engineer's office of the American Telegraph Company, at 145 Broadway, and in 1871 was sent to Corinth, Miss., as superintendent of the Western Union Company. The following year the headquarters were removed to Louisville, Ky., and thence to Nashville, Tenn., in 1875. Mr. Tree was transferred to Richmond, Va., in 1882.

Mr. Tree is still a hale and hearty man and in January next will be seventy-six years of age. As a boy of seventeen he came very near enlisting as a volunteer in the Mexican War. In the war between the States he was offered and accepted the position of Brigade Ordinance Officer in the Confederate army, with rank of Major, but his telegraph and railroad friends convinced

the War Department he was doing a more important service in handling telegrams, and forwarding as railroad agent, commissary and quartermaster's supplies to the armies in the field.

In a recent letter received from Mr. Tree he indulges in reminiscence, and in a vein so delightful, recalling many incidents of his early life and the initial period of the telegraph, that we gladly publish what he says:

My start as a telegrapher at Washington was made in the second story of a row of two-story and attic brick houses on the west side of 7th street, between E and F streets, which had been purchased by the Post Office Department as a future site for the erection of a larger building to replace its old offices, destroyed by fire in 1837. The ground floor partitions of these buildings were removed, throwing all the rooms into one large apartment, which was used for the reception and distribution of the mail. Several rooms in the second story of this improvised Post Office Building were turned over to the Magnetic and the Washington and New Orleans Telegraph companies. Hon Amos Kendall and Prof. Morse occupied one room; George Wood, secretary of the Washington and New Orleans Company, another. The two telegraph companies used another room jointly. The battery room was located in the attic.

The office was approached from the street by a long flight of wooden steps, guarded by three white pine boards six inches wide, in lieu of banisters, to prevent customers from falling to the brick pavement below. A window in the second story was lengthened to make a door, which opened into a hall; the door of the telegraph office also opened into the hall, and to save space a plank about fourteen inches wide was hinged to one side of the door frame, serving, when elevated in position, as a desk upon which customers wrote their messages. Thus the hall answered the purpose of a reception room for the public. My associates were Messrs. Bailey, Linton, Clarke and Thomas. Mr. Linton and myself worked the Washington and New Orleans circuits; the Magnetic circuits being worked by Bailey, Clarke and Thomas. I recall Jack Whitman and Mr. Menzies, of Baltimore; Jim Morrow, of Wilmington; Beatty and Zantzinger, of Philadelphia; Beech, of New York; Dowell and Cudge Caldwell, of Petersburg; Howell, of Richmond, and Cameron, of Fayetteville, N. C.

I was first attracted to the telegraphic service by hearing Mr. Lawrenson, a Baltimore "Sun" reporter, reading bulletins of the war with Mexico to a large crowd from the top of the wooden steps of the telegraph office, in 1846.

The two offices became separated in 1847, according to my recollection, the Magnetic moving to the northeast corner of 6th street and Pennsylvania avenue, the Washington and New Orleans to the northeast corner of 7th and D streets.

Just after the separation of the offices, probably in 1849, Charles F. Wood, who subsequently be-

came the superintendent of the Boston district, was taught telegraphy in the Magnetic office. At this time his penmanship was considered excellent, and the messages received by him were greatly admired.

Finally the Magnetic and the Washington and New Orleans companies were consolidated, and by means of the Bulkley open circuit repeaters, a constant and direct service was inaugurated between New York and New Orleans.

The Morse and O'Reilly litigation as to infringements of the Morse patents occurred about this date. I recall my appearance before the Supreme Court of the United States in the role of an operator to handle the Washington office of a miniature telegraph line. A young lawyer from Philadelphia, the son of the editor of an important newspaper published in that city, was employed by the Morse interests. He was an earnest and intelligent man, and had Mr. Clark, of Philadelphia, the instrument maker, get up a miniature telegraph device covering the route from Washington to New York. It was absolutely a complete thing, with poles and line wire strung thereon, instruments and batteries, with Baltimore, Wilmington and Philadelphia as intermediate stations.

The line, placed on a nice walnut base, was extended below the bench of the justices, and was just as long as the bench itself, so that the august court could view, without inconvenience, the operations of a real telegraph line.

There is no doubt this practical exhibit enabled the court, with a few explanations from the young lawyer, to understand the exact points of the patent under discussion.

In July, 1882, the district under my supervision covered sixteen thousand miles of wire and about four hundred offices. On July 1, 1903, it covered, by absorption from adjacent districts and construction of additional lines, about sixty thousand miles of wire, and one thousand and fifty-two offices.

In 1850 the Washington and New Orleans route south of the Potomac River, extending through Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi and Louisiana, worked only two wires. The sagacious combinations introduced by the telegraphic interests, and now extending throughout the States, has increased the lines to quite a million wire mileage. The expansion is still going on in spite of the conversion of many miles of wire into quadruplex and duplex circuits; for it is found that as long as business is prosperous, the wire mileage should be increased to handle messages promptly.

Inquisitiveness by Telephone.

A Western newspaper states that a lineman inspecting a rural telephone line in Adams County, Ill., entered the house of a subscriber and found a woman knitting in a rocking chair with her telephone receiver tied to her ear. She was listening to every conversation that passed over the wire.

AT ATLANTIC CITY.**Convention of the International Association of Municipal Electricians.**

The selection of Atlantic City, N. J., as the point for holding the eighth annual convention of the International Association of Municipal Electricians, appears to have been happily chosen, inasmuch as this famous City-by-the-Sea offers many attractions to the visiting stranger at this season of the year. Hence it is that an unusual



WILLIAM H. THOMPSON, OF RICHMOND, VA.,
President of the International Association of Municipal Electricians.

number of members and their friends will, it is believed, be in attendance. The date of assembling is on Wednesday, September 2, the place of meeting being at the Hotel Rudolf, one of the largest and best of hostelrys, on the New Jersey Coast. The proceedings will be opened at half past nine o'clock in the morning with William H. Thompson, of Richmond, Va., the president, in the chair. The sessions will be continued for three days terminating on Friday, September 4. Members from New York and the East who contemplate going will find it to their advantage to first communicate with Frank C. Mason, who is the chairman of the Transportation Committee, 16 Smith street, Brooklyn, N. Y., and state the number who are expected to constitute their party. Atlantic City may be reached from New York by either the Pennsylvania Railroad or the Central Railroad of New Jersey. It is probable that the 3.40 train Monday afternoon on the latter road from the foot of Liberty street will carry a large number of delegates. The fare this way from New York for the round trip, tickets good for fourteen days, is \$4.75. Ample provision has been made for a display of exhibits by manufacturers and sales agents, of electrical apparatus of interest to the electricians. The sessional programme

will include a lecture on wireless telegraphy, to be delivered by A. Frederick Collins, of New York, and a demonstration of the Cooper-Hewitt mercury vapor lamp and static converter, by M. von Recklinghausen, Ph. D., given jointly with Percy Thomas, E. E.

The Western Union and Postal Telegraph companies, as well as the Long Distance Telephone Company, will grant the usual free use of their facilities to the electricians as is customary on like occasions.

The secretary, Frank P. Foster, with whom all delegates are requested to register, and from whom they will receive souvenir badges and the full programme of the entertainment provided during their stay, will be early in attendance at the Hotel Rudolf. A meeting of the executive committee will no doubt be held on Tuesday evening before which any business that may require attention prior to the convention may be brought.

Austin S. Hatch, of Detroit, assistant superintendent of the public lighting commission, that city, who preceded Mr. Thompson as president of the association, and who is one of the brightest men in municipal electrical service in this country, will read a somewhat lengthy paper entitled "Records and Reports," an important subject and one which he handles in a very thorough and comprehensive manner. As this paper is intended to stimulate discussion among the members of the convention along the line of the topic treated, we extract therefrom, and publish, a



FRANK P. FOSTER, OF CORNING, N. Y.,
Secretary of the International Association of Municipal Electricians.

copy of the rules covering the conditions of wiring in the City of Detroit, which Mr. Hatch offers as a basis, at least, for adoption by other municipalities. It is urged that all city electricians attending the convention go prepared to bring before that body the best ideas embodied in rules gov-

erning local electrical conditions, in order that comparisons may be intelligently made, with a view of evolving a compilation of rules that might be in its general features, applicable to all municipalities.



HOTEL RUDOLF, ATLANTIC CITY, N. J.,

Where the Convention of the International Association of Municipal Electricians will be held.

The extract from Mr. Hatch's paper is as follows:

In my paper last year, I called attention to the regulation of common carriers and one sentence reads as follows: "One common law of carriers is to so construct and maintain improvements that will expedite their own service. . . . It must not hinder other carriers nor mar the beauty and improvement of a highway." This one regulation, although the least thought of by the city fathers, is the most important one and needs the most careful consideration by the city electrician. He should seek to establish a code of rules and get the necessary ordinances passed to enable him to enforce them, which will give equal rights to all and at the same time protect city rights and property.

Wires are divided into two classes: First, those for telegraph, telephone and signalling purposes; and second, those for electric light and power purposes. These are again classified as overhead and underground.

The following rules may be used as a guide in establishing one for any municipality:

1. Two pole lines bearing the same class of wires shall not be erected in the same street, avenue or alley, nor shall two pole lines of either class be erected on the same side of any street, avenue or alley. Whenever possible, all pole lines shall be built in alleys.

2. Poles shall be set near to and within the curb and not nearer than ten feet from any hydrant. They must be at least five feet in the ground for a thirty foot pole, and not less than one-seventh of their length for longer poles. Where pole lines intersect, there must be a pole used in common, when so required, unless otherwise specified in the permit.

3. All poles now standing, or hereafter erected, shall be branded or stamped with the name or initials of the company owning them. Each group of cross arms, or where necessary the support of a single wire of different ownership must be dis-

tinguished by some characteristic mark or fastening, otherwise the owner of the pole will be held responsible.

4. All poles erected in conspicuous places must be of such weight and dimensions and be painted such a color as may be approved by the Public Lighting Commission.

5. Each line of poles must run on one side of the street only unless special permission is given to cross.

6. Cross arms must be at least twenty-four inches apart, strengthened by braces and designated by some characteristic mark if belonging to a company other than the one owning the poles. In class 1, pins must be at least twelve inches apart, and inside pins twenty-eight inches; in class 2, inside pins thirty inches, all others fourteen inches. Where wires under class 2 are taken from the main line at any angle, the outside pins must be steel or cored, or an iron guard placed between the outside pin and the end of the arm.

7. All wires must be fastened upon poles or other fixtures with glass, porcelain or other insulators approved by the Commission stretched properly and fastened with a tie of the same kind of wire or other fastening approved by the Commission. Lines of wires at intersections must not pass through each other, but must be either above or below, preferably class 2 above those of class 1. Upon all poles the lowest point in the wires suspended from them shall not be less than twenty-five feet from the ground.

8. All wires which would naturally pass within four inches of any pole, building or other object must be attached to the same and insulated therefrom. All wires strung on house tops must be at least seven feet from flat and one foot from the ridge of pitched roofs. The permit must be countersigned by the occupant on whose building it is desired to fasten the wires.

9. Where wires of class 2 are trained on the same poles as class 1 the different potentials must be at least four feet apart. If only one arm is needed, the two classes should be separated, one on each side of the pole. No wire can be trained on brackets or knobs. Guys must be in proportion to the strain and not smaller than No. 8 Birmingham wire gauge, and all angles must be guyed, the guys insulated, and where there are more than four wires in the line, head guys must be used.

10. Every line, pole or fixture must be kept in thorough order and repair, in conformity with these rules and regulations in every case, where possible, under the general permit for repairs, (rule 16) upon penalty of forfeiture of all permits not acted upon and a refusal to grant new permits until the rule is complied with, but no additional poles or wires can be erected under cover of repairs nor shall any route or location be changed without a permit.

11. All wires, or current carrying conductors, poles, guys or apparatus belonging to any person, firm or corporation that may be found dangerous to life or property or intruding on the rights of

citizens or other corporations must be remedied by the owners thereof when notified. This applies to any damage to sewers, conduits, cables, gas or waterpipes by electrolysis or otherwise.

12. All wires of class 2 must be secured to insulating fastenings and covered with an insulation not easily abraded and waterproof and approved by the Commission. Whenever the insulation becomes impaired it must be renewed immediately.

13. All connections with pole lines for service in either class must be made at right angles to the line where possible, and connections to buildings shall run straight across to buildings, where possible, and then down and the insulation must be preserved throughout the entire circuit.

14. No electrical conductor shall be erected, maintained or placed overhead or underground without a permit in writing therefor being first obtained from the Public Lighting Commission, and before such permit is issued the person, corporation or company wishing to place or maintain said wires shall make application to said Commission in writing stating the size of said wire, the purpose for which it is intended and the character of the current it is intended to convey, also a plan or description showing the position to be occupied and general arrangement.

15. All owners are authorized and directed to make necessary repairs to their lines of conductors, and permits for such repairs will be granted by the Commission upon application. In case of emergency repairs may be made without permit, but a report of such repairs is to be forwarded within twenty-four hours after the making of the repairs and a regular permit taken out at that time.

16. Where notice has been given of underground accommodations and the notice of time required by law has elapsed, companies owning or operating overhead lines are not authorized to make any repairs or connections, or to go upon the poles bearing such wires for any purpose whatever except to remove said lines in conformity with the direction of said Commission.

17. The amount of wire allowed for service connection from a pole to a building shall not exceed 130 feet between supports, except by special permit.

18. The person, firm or corporation owning or controlling poles in any street, alley or public place must allow the same to be used by other persons, firms or corporations operating wires, cables or conductors for electrical service when authorized to do so by the Commission on tender of proper compensation to be determined by agreement between the parties interested. If the present capacity is not sufficient for both lines and unless otherwise agreed upon between them the party desiring accommodation may rebuild the line of poles and rent contracts to the owners of the previously existing lines at terms to be agreed upon between the parties. In default of any agreement between the parties interested, the

matter may be referred to the Public Lighting Commission for arbitration and their decision is to be final.

19. Any person, firm or corporation in accepting any permit from the Public Lighting Commission hereby binds himself or themselves to the acceptance of any provisions specified in any rule established or to be established by the Commission, unless it is specifically excepted in the permit. The Public Lighting Commission reserves the right to alter or add to these rules as they may desire at any time.

20. It shall be the duty of the Public Lighting Commission to turn all money received under this ordinance into the Public Lighting fund.

21. No person, firm or corporation shall train wires, erect poles, build conduits, manholes, hand-holes or make any alterations whatever in electric line equipment without first notifying this Commission in writing giving a description with diagram of the proposed work, allowing ample opportunity for inspection, and receiving from said Commission a written permit to do the work described. All such work, equipment, alteration or addition shall be done under the supervision of and subject to the inspection of said Commission and upon finding the work to be done according to such rules and regulations, the Commission shall so certify and place the record thereof on its books, maps, cards or diagrams; but no such equipment shall be used by anyone until such certificate shall have been given by said Commission in conformity therewith.

22. Any firm or corporation who shall make contact to poles or other property of the Public Lighting Commission, Police or Fire Commissions without having obtained a permit for the same from the Public Lighting Commission shall pay a fine of three dollars for each such unauthorized contact and no further permits shall be granted to said person, firm or corporation until the aforesaid fine or fines are paid.

23. Owners of lines of poles or of buildings shall remove therefrom all dead wire or wires fastened thereto in violation of these rules, when notified to do so by the Public Lighting Commission within a reasonable time to be expressed in the notice; on failure to do so the Public Lighting Commission will proceed to remove the same.

Many details can be added to these rules, for instance rule 8 can include a clause forbidding the interference with wires by builders with scaffolding, ladders, etc. Rule 10 could have a clause against intoxicated persons working on lines. Rule 11 might be increased to include repairs to city property such as sidewalks, curbs and pavements, trees, water pipes, etc. Sections could also be inserted defining details of construction, what shall be termed dead wires, space required for city wires trimming of trees, limits of leakage from railway tracks to water pipes and other such subjects.

These rules require two things to make them of any value, first, the laws and ordinances to en-

force them, with the penalties if broken; second, field records to keep track of lines and conduits. These records should show the location of every pole and wire, every duct and man-hole in the city and can be best kept by the card system. I use cards 6x9 inches since it is a convenient size to show the details of a street intersection and a half block each way at a scale of 100 feet to the inch. Different colors are used to designate different companies, whether poles and conduits or the wires of one company on the poles or in the conduits of another. Each pole and man-hole is designated by number. The cross arms are given in their proper places and each pin or duct is made in the color which represents the company using it. The length and kind of wood of poles, the size of man-holes and length between them is given as well as the locations of street lamps, transformers, fire and police boxes. The pins on the poles are numbered from the pole each way, but the ducts in the man-holes are numbered from left to right standing back to the station of the company owning the system. In fact, if the City Electrician and City Engineer work together, the system can be a complete record of everything above or below ground.

The president of the association, Mr. William H. Thompson, of Richmond, Va., has also prepared and will read an interesting paper on "The Importance of the Fire Alarm and Police Telegraph."

Speed of Commercial Telegraphing.

When President Roosevelt sent his famous message (July 4th last) to President Clarence H. Mackay of the Commercial Pacific Cable Company, it required only 12 minutes to encircle the globe. One is apt to think of this message as in a way representing the speed of electricity, or perhaps as the ordinary time taken for a commercial message to make the trip, says the "Western Electrician." As a matter of fact, the President's message did not represent either the commercial rate of telegraphing or the speed at which electricity will travel.

A round-the-world message was sent on July 3 by the journal "Le Temps," from Paris. This dispatch consisted of two words, "Temps, Paris," the total charge being \$1.66 a word. None of the operators knew of this message before it came to him and consequently no preparations were made to facilitate its progress more than is ordinarily done. After encircling the globe the words came back to the starting point in about six hours. This shows how near the record message was to indicating the ordinary speed of telegraphing. As to its indicating the speed of an electrical impulse along the wire, it was as far from the mark the other way. Electrical transmission is comparable in speed to that of light, but is dependent upon the nature of the conductor through which it travels. In free ether light is scarcely faster, but when confined to a current

passing over a wire electric impulses travel at a slower rate. Tizean estimated that electricity will travel 111,600 miles a second in copper wire and 62,000 miles a second in iron wire. These figures will be seen to be far greater than those reached in transoceanic telegraphing, where the velocity falls to a few thousand furlongs in a second, due to the well-recognized KR law.

Some of the foregoing facts were taken from a translation from a French journal by the "Literary Digest."

It is interesting to add, in conclusion, that, President Roosevelt's message around the world was sent through the following sections of historical electric circuits, these sections having been welded into one circuit and interpolated in the circuit of the Postal Telegraph-Cable Company, over which the message was sent: 1. Section of the wire over which Professor Samuel F. B. Morse sent the first message by means of the Morse telegraph. 2. Section of the wire over which audible speech was for the first time transmitted by means of the Bell telephone by Professor Alexander Graham Bell. 3. Section of the Atlantic cable through which the first cable message was sent across the ocean by Cyrus W. Field. 4. Edison plug and section of wire through which was lighted the first incandescent lamp ever lit from an electric-lighting central station. 5. Section of the first trolley circuit put up at the historic Richmond (Va.) electric railroad by F. J. Sprague. 6. Section of the wire through which the current of electricity was sent by President Cleveland when he opened the World's Fair at Chicago. 7. Section of the wire through which the electricity was sent to illuminate the headquarters of the American Institute of Electrical Engineers by Moore's system of vacuum-tube lighting, this being the first room in the world so lighted. 8. Section of the cable through which the first current of electricity was transmitted from Niagara Falls electric power plant, April 16, 1895.

• Telegraphs in Korea.

A despatch from Korea says that an agreement has practically been concluded between Russia and Korea, whereby Russia acquires 200 acres of land at Yongampho, on the Yalu River, on a ninety-nine years' lease. The application of M. Pavloff, the Russian Minister, for permission to erect telegraph and telephone lines to Yongampho has been refused. Previous dispatches said that work on the Russian telegraph line between Au-Tung and Yongampho had been abandoned in consequence of Korean remonstrances. Thereupon M. Pavloff objected to the Japanese telegraph line from Seoul to Fusan, which was constructed prior to the Russian line. The Korean Government asked the Japanese Minister to have the line removed, but the minister declined to do so.

Subscribe for TELEGRAPH AGE, \$1.50 a year.

Ellis Eugene Dildine of the Northern Pacific.

Ellis Eugene Dildine, assistant superintendent of telegraph of the Northern Pacific Railway Company, at St. Paul, Minn., is one of the most successful railroad telegraphers in the Northwest. Born at Hawtre, Ont., in 1868, he entered the telegraph service as an operator in the employ of the Flint and Pere Marquette Railway Company. Retaining this position for two years, he afterwards passed a year with the Michigan Central Railroad. On June 1, 1886, he first began his service with the Northern Pacific Railway Company, and for four years thereafter worked as operator and wire chief at different points along the line of that road. He then spent a year with the Western Union Telegraph Company at Chicago, but on August 29, 1892, returned to the Northern Pacific to accept the position of wire chief in the St. Paul telegraph office. This place



ELLIS E. DILDINE, OF ST. PAUL, MINN.

Assistant Superintendent of Telegraph, Northern Pacific Railway Company.

he continued to fill with ability and marked acceptance for nearly eight years, during which time he gained a wide practical acquaintance with the telegraphic requirements of the line. Promotion came to him in January, 1901, when he received his appointment as assistant superintendent of telegraph, with headquarters at Tacoma, Wash. At this point he was stationed for a year, when he was transferred in the same capacity to the company's main office in St. Paul, where he now is.

Mr. Dildine has been closely identified with the up-building of the Northern Pacific telegraph system, which is to-day one of the most efficient railroad telegraph systems in America, it being common practice for the officials at St. Paul to file messages for the Pacific Coast and receive replies within a few minutes. A quadruplex wire is worked the entire distance. The electric light, power and signal department of the Northern Pacific Railway Company have grown to such proportions during the past few years that matters pertaining thereto demand nearly all of Mr. Dildine's attention.

Train Orders Before the Use of the Telegraph.

Few persons in these days of mile-a-minute traveling realize the immense changes which have taken place in railroad traveling in the past half century. In the old days, especially before the use of telegraph train orders, the fastest passenger trains traveled at a pace which would make even a Brooklyn trolley car blush to-day. The superintendent of one of the great trunk lines running out of New York recently ran across a copy of one of the first train orders ever issued on his line. It reads:

"Freight trains will in all cases wait for passenger trains and for milk trains, and be kept entirely out of their way, never leaving the station on the time of a passenger train, unless on positive information received from it. The rate of speed is fourteen miles per hour for freight trains, and engine men of freight trains are not at liberty to make up for delays by increasing the speed beyond this rate.

"The freight train which is behind time will move at a walk when it approaches the road time of a coming freight train and until the train has been passed. Although the parties in charge of both trains will be responsible for any kind of neglect or want of caution, it will be more particularly the duty of the train which is behind time to be on the lookout, from twenty minutes before the time and point where it should meet the approaching freight train, unless it passes it, and to keep a man then ahead with a red flag or a red lantern, as the case may be, some distance before approaching curves, until the approaching freight train has been met.

"Where trains happen to meet between stations, the train which is the most behind time will back to the next station, unless it shall have already passed over two-thirds of the distance between stations, in which case the other train will back up. The decision of the conductor of the train which is nearest to the time will rule where there is a difference of opinion. When both trains are equally behind time, train nearest the turnout will back up.

"Conductors will act promptly and in a forbearing spirit when they differ under such circumstances, never detaining the trains on the road. When one party insists, the other will give way and report afterward the circumstances of the case."

Imagine giving such orders to the conductors and engineers of the Empire State Express or the Pennsylvania Limited!

Completion of Telegraph to St. Michaels.

A special from Dawson, Alaska, says that Capt. Nesmith, who is in charge of Fort Egbert, announces that the last link connecting Seattle and St. Michaels by telegraph is complete. Messages are now forwarded to Nome by mail. This marks the completion of the American Government's great Alaskan land system.

A Test of Telepathy.

From positive evidence that I have at hand I have to make without qualification the statement that the transmission of long distance messages by direct mental vibration—i. e., telepathy—is an accomplished fact, says William T. Stead in a special cable despatch from London to the "New York American and Journal."

To myself and a committee of other gentlemen the seemingly improbable feat of mental telepathy at great distances was shown to be absolutely possible. Indeed, it was positively proved. It has been demonstrated in a manner that has left none present with the shadow of a doubt in his mind. Every precaution was taken to prevent imposition. Imposition was impossible.

From London to Nottingham is a distance of 125 miles. In Nottingham was Mr. Franks, a telepathist, stationed. In London was another telepathist, Dr. Richardson, who is an American and New Yorker, and who had undertaken to receive from Mr. Franks the telegraphic messages.

From the hour of 5 o'clock on Thursday afternoon, July 16, Dr. Richardson was kept under observation. It was left to the committee to choose three messages, or more, for that matter, that were to be transmitted by means of telepathy between the men.

At the time that Dr. Richardson was put under observation (5 o'clock in the afternoon) the committee of which I was a member telegraphed to Mr. Franks, and absolutely without Dr. Richardson's cognizance, the three messages that he was to send telepathically to Dr. Richardson.

Following are the messages: The word "Scotland," the number "579," the hour "7.20 P. M."

Between 7 and 8 o'clock, after Dr. Richardson had spent the time in serene mental contemplation, he received faultlessly the three messages telepathed to him by Mr. Franks. I repeat that there existed absolutely no chance of his learning what the two numbers and the word were in any other manner than by telepathy.

Experiments were made afterward with three other messages telepathed by Dr. Richardson to Mr. Franks, and two of these three were correctly transmitted. At the third a certain mental weariness had come over Dr. Richardson, which was only natural under the circumstances, and further exertions were postponed.

This is but the beginning of wireless telegraphy without electricity or electrical machines.

Here let me avoid the personal and add to what I have said the story of what took place, as related by an unprejudiced observer:

"The most astonishing experiments in thought transference were made in the offices of Mr. William T. Stead at the "Review of Reviews." A committee of six distinguished men, that included Mr. Stead himself and the noted Dr. Wallace, had the matter in charge, and none who witnessed the experiments doubts in the least that what he witnessed was a genuine psychological accomplishment, too marvelous to credit though it might at first have seemed.

"Telepathic messages were successfully transmitted between Nottingham and the 'Review of Reviews' office instantaneously. Nottingham is 125 or more miles from London. Franks was stationed at Nottingham, and was told to expect the messages from the committee by telegraph that he was to transmit back to Richardson telepathically.

"The eminence of the men who formed the committee makes the thought that there was any collusion in the wonderful results subsequently attained absurd. Besides Dr. Richardson, the American, was closely guarded in his room after 5 o'clock. There was no opportunity for a confederate to pass to him what went on in the committee room. As for Franks at Nottingham, he had no possible way of sending information other than the manner in which he did—telepathically.

"The first test was a telepathic transmission from Dr. Richardson to Franks at Nottingham. The committee gave him the number '579'. At 6.34 Dr. Richardson went into an adjoining room. This was done for the purpose of allowing him the solitude necessary for the concentration of his mind.

"Even had he wished to do so there was no possibility of his establishing any normal means of communication with Franks from this room. At 20 minutes of 7 o'clock the committee got an answering telegram from Franks. It read '579.'

"Then Mr. Stead's secretary sent by telegraph to Franks three messages—a time, a number, a name. In the course of an hour Richardson received three telepathic messages from Franks. The first was that of a time, '7.20'; the second was that of a number, '777', and the third was the name 'Scotland'.

"These were the identical things that Mr. Stead's secretary had telegraphed earlier to Franks at Nottingham. The telepathic communications were instantaneous.

"When the test had ended there was not one who had been privileged to witness the extraordinary demonstration who felt himself assailed by the least doubt as to its genuineness."

The New Western Union Office at Boston.

The Western Union Telegraph Company has opened its altered premises at 109 State street, Boston, Mass., for business. The alterations which have been in progress for some months past having proceeded far enough to admit of the work being resumed there. The whole interior of the building has been changed, and those who were familiar with the old quarters will hardly recognize the new ones, so complete has been the transformation.

Two immense plate glass windows, with the blue and white sign of the company overhead, front on State street, while the interior location of the various departments has undergone a complete change. Instead of the semicircular counter at which the business was formerly transacted, a

straight counter similar to those in use in banks runs across the entire front of the building. Behind this counter the clerks have their places, while a space of about twelve feet along the front of the building is devoted to the patrons of the company.

In this space two large hexagon desks, each capable of accommodating six persons at a time have been placed. The divisions between the compartments on the desks are in thick glass, about twelve inches high, so that nobody standing up at a desk and writing a message can read what the person at the adjoining compartment may be writing. In the interior, hidden from view, is a large waste basket space, into which poorly written or otherwise defective messages can be cast.

The flooring is the standard style now adopted by the company all over the country, of blue and white tiling with "W. U. T. Co." in the centre. Inside the counter the receiving, delivery and managing departments are situated.

An innovation which will be appreciated by patrons is that which does away with the necessity for the messenger boys passing through the main office on the way to their quarters in the rear of the building. A passage by a side door leads to the boys' quarters, which have also been brightened up and new furniture placed therein.

The walls throughout are colored in a light green tint, the ceilings being of metal, painted white, and the lighting of the most approved modern pattern of arc lights. There is a central telephone connection between all the departments of the building, and an improvement which will bring joy to the hearts of the old-time telegraph operators, who have formerly been compelled to climb four flights of stairs to the fifth floor, is a new elevator, which will go to the top of the building.

J. F. Nathan, local manager of the company, said that the equipment of the new building will surpass anything of its kind in the east. In addition to the offices of the Western Union Company, the offices of the Mutual District Messenger Company and the Gold and Stock Telegraph Company, all of which have recently been consolidated, will also be in the building.

The quarters of the superintendent are on the third floor, and the bookkeepers on the fourth floor. On the fifth floor, where the operating department is located, the company will occupy the entire floor space from 101 to 109 State street. The Commercial and Financial press company will also be located on the fourth floor.

All the interior woodwork is in quartered oak, making a very beautiful appearance, the variation in tints between the light green coloring of the walls and the furnishings being most artistic.

Mr. Nathan says the sanitary arrangements are of the most approved modern character, and vastly different from those which existed in the old building.

Confessions of a Telegrapher.

Being a telegraph operator myself I may appear somewhat partial to the calling. But the public knows well enough that the man at the key cannot be a saphead or a tattler. He is superior to a great many people on this earth and he does learn many valuable lessons by instinct, as it were.

The operator learns to be reticent, for he realizes that he is intrusted with the world's tenderest secrets. He does not need to be told that these messages of triumph, of despair, of hope and of ruin must not be prattled about on all street corners. If he is a telegrapher he knows that as a part of his business.

The story of the telegraph is a "strenuous" one indeed. It deals with life and death in a direct, familiar manner. It is often brutal in its terse frankness.

If it does not make the announcement of your having come into the world, or if it does not render you a good, bad or indifferent, though inevitable service during your earthly career, your demise will certainly be food for the wires, for the world at large would, with abated breath, await the announcement of the departure from this life of such an odd human being.

The chapter devoted to the hypocrisy of humanity as disclosed by the telegraph could be made a very lengthy one, and be of interest, too, for herein is abundant and additional proof of the supreme faith in the trustworthiness of the telegraph operator, for with what little effort could he not blight the domestic and social relations of not only aspiring individuals, but those who have reached their goal of success, and while this opportunity is afforded the telephone girl, the druggist, the physician, lawyer, etc., their chance is but a local affair, while the scope of the commercial telegrapher is practically world wide.

But why dwell upon this condition of humanity that will never be so? Then, too, this is not all the interest the world contains even though a great number so think. In the business world opportunities are offered the operator to learn of the sacred "business interest" that is a little short of astounding and well confirms the claim of a well known business man at a conference of his kind on the Pacific Coast, a few years ago, when he claimed, "That if the secret workings of the business men were made known to the public, there would be such a howl of disapproval go up that would literally shake the earth." This is evident to the telegrapher in the manipulations of the market of various commodities and the pulling off of big deals.

For instance, a message is sent a certain "prominent" individual to "wire me so and so, as I have a prospective purchaser," and then follows an expressed desire to take 1,000,000 shares more, or a purchase of more of wheat is to be sold, with a splendid extolling of the merits of the prospective purchase. Some of those "fixed" deals are so flagrant that the signing of prominent men's

names in prospectuses as presidents, directors, etc., for the purpose of disposing of white elephants to the "dear" public, are pigmies in comparison.

The working of the political world in dots and dashes is such a queer story that really the operator, who looks ahead to reform for humanity, is in a quandary as to how reform could ever come. For instance bills are introduced into our legislative halls that cannot but work good to the public should they be passed, and along will come messages galore from this or that corporation or individual, to their faithful lobbyist to prevent the enactment of this legislation, and invariably the story is ended right there. It was the writer's experience to handle messages leading up to the repeal of the purchasing clause of the Sherman act in 1893. Practically the bankers in every hamlet were advised from an influential source to consult with business men and others prominent in their localities, and request them to wire and petition their representatives at Washington to vote yea on that repeal, and furthermore they wired to threaten with a prospect of no new renewals of paper, etc., should they not do so. The result of this is history, as every telegrapher of that time knows, and representatives of that time will vouch for the fact that not only was every desk covered yellow with telegrams, but that every representative, sick or well, was present, and the "yeas" had it because the "pubanker" desired it.—Omaha Herald.

To Share the Profits.

Frederick S. Dickson, president of the Cuyahoga Telephone Company, of Cleveland, Ohio, should secure not only the esteem, but the willing and earnest services of the employees of his company; for in a recent communication addressed to them he makes such a generous and manly proposal effecting their welfare, in discussing mutual interests, that only the best of results should follow. The ideas expressed apply with equal force to the telegraph service, as to that of the telephone. Mr. Dickson says:

"I am not quite satisfied with your work. I do not think it is very bad, but I am sure it is not as good as it could be, and therefore it is not as good as it ought to be. You are doing pretty well, but you are not doing your very best.

"You know this business was started so that it might earn money for those who invested money in it.

"Now, money can be made out of this business if good service is rendered to our customers, but the character of our service will depend upon the character of your work. If your work is good, the service will be good. If you are patient, polite, prompt and skillful, you can give very good service with second rate equipment, but if you are petulant, rude, dilatory and careless, the service will be poor, even if we have the best equipment in the world. A good woodsman can build a safe

and comfortable house in a few hours with no tool but his axe.

"I am not talking to the operators alone, but to every man and woman, boy and girl in the company. Politeness, promptness, patience and skill are just as necessary for the office boy, the collector and the lineman as they are for the operator. There is no excuse for impatience in any official, high or low, who tries to serve the public. If there were excuse for any, it would be for the operator, but those who are most tried must be most on their guard."

After stating that it is his wish that every employee should feel that he has a real interest in the success of the company Mr. Dickson continues:

"Remember, if we have careless employees, it will reduce our profits. If we have any employees who shirk their full duty, it will reduce our profits. If calls are not answered promptly, our subscribers will leave us and there will be no profits. If our solicitors are not active, we cannot increase our business. If our collectors are negligent, or show want of tact, we will not get paid even for the service we have rendered. We are bound close together, whether we like it or not, and the failure of one to do his full duty renders worthless the honest labor of others. Whether we make good profits, or none at all, will depend upon the way your work is done; therefore, I feel that if you honestly help us to earn money, you should honestly share in the money earned, just as you have shared in the labor. Now this is what I propose:

"Beginning on July 1, after paying all expenses, taxes and the interest on our bonds, we will set aside one-fifth of the surplus remaining, and, during January next, we will distribute this among all of you who are in the employ of the company on December 31, 1903, in proportion to the salary of each. Any one who leaves our employ before December 31 will have no share in this fund. Any one going on a strike shall forfeit his share. Any one who comes with us at a later date will only receive his fair proportion. In other words, the distribution will be based upon the total amount of salary paid between July 1, 1903, and January 1, 1904. Now, what can you do for yourself and for us on such a basis? If you do not earn a surplus for the company of \$5,000 a month during the rest of this year, I will be both disappointed and surprised. If the surplus averages \$5,000 a month, it will make a total of \$30,000 for the half year. One-fifth of this would be \$6,000. In June, 1903, we paid out a total of \$11,739.52 in salaries. Distributing such a sum on such a basis would give every one of you an interest in the profits equal to more than half a month's salary. Is this worth striving for? Are you willing to do the best there is in you to get six and a half months' pay for six months' work? Don't you think, if you try, you could even earn seven months' pay

for six months' work? I think so. If I did not I would not make this offer to you."

President Dickson concludes this unusual but praiseworthy letter as follows:

"Remember, the easiest way to make money is not to spend it. Do you realize that all of you are spending money for us? If you injure any part of our apparatus, you have spent the money it costs to repair it. If you cut wire to waste, you have spent the difference in value between good copper wire and junk. If you use a good sheet of paper to figure on, where the back of an old envelope would serve as well, you have added to the cost of operating this plant.

"Understand clearly, this is an experiment, and its success or failure depends wholly upon you. If you are not able to increase our surplus by more than the sum we pay you, the experiment will be a failure, and will not, of course, be repeated.

"Let us make it a success. We can do it by doing the best we can and saving all we can."

The Presidential Telegraph Office at Oyster Bay.

President Roosevelt, at Sagamore Hill, Oyster Bay, Long Island, is in touch with all the world by means of the telegraph through the executive offices in Moore's block. The Oyster Bay end of the telegraph system, which is now the central point of interest, is under the direction of Henry S. Pearce, one of the chief operators of the Western Union Telegraph Company, New York, a telegrapher of wide experience and ability. He has been assigned to Oyster Bay for a number of years, whenever the President is staying there. Messages of the most vital and far-reaching importance pass through his hands daily. The utility and necessity of the telegraph system in connection with the smooth running of the Government service are made more manifest every day, when it is taken into consideration the vast area of the country now added by insular possessions.

The office at Oyster Bay, is situated in a commodious structure, near the railroad station, convenient to the wires, which are brought into it by a long twenty-wire cable. The Government executive offices are connected by direct wires to the White House, Washington, also to New York, and incidentally to all the world. To illustrate the perfection of the service, the death of his Holiness, Pope Leo, was given to President Roosevelt five minutes after it occurred in Rome, by cable to New York, telegraph to the executive offices, and telephone to Sagamore Hill, the President's residence.

The telegraph plant consists of a quadruplex and half a dozen single wires, adequate to handle almost anything in the way of press matter, or other business that could be offered. More than a million words of press matter were sent from this office last summer during the President's stay there, in addition to thousands of messages, without a single error, or complaint of any kind, and probably as much will be done this year.

The Telephone on the Elevated Railroad.

The Manhattan Railroad Company, New York, has completed the private inter-station telephone system. A "central" station has been established in Ninety-ninth street, to which each of the circuits, from the different stations leads. The circuits, the longest of which is about nine and one-half miles, are carried to the central office by lead covered cables suspended from the structure of the road. Underground cables have been laid in Fifty-third street from Third to Sixth avenues, and through One hundred and tenth street, from Third to Ninth avenues. At the Second avenue bridge submarine cables have been used to connect with the company's service in The Bronx.

The system was perfected by N. H. Kinlock, now the manager of the exchange. Though the company has at present only 300 telephones in use, the switchboards have been made to accommodate double that number. At present upward of 1,500 connections are made each day. Although each station is equipped with a telephone, only employees of the company are allowed to use it. There are no outside connections.

The company has in mind the substitution of this private telephone system for the telegraph. Even at present the telephones are used for despatching trains and for the transmission of all sorts of official communications and it is asserted that in the next few months the telegraph system will be entirely done away with.

Are Operators so Mechanical as This?

Thomas A. Edison, according to a newspaper story, believes there is no work so mechanical as that performed by the telegraph operator. In an argument over this point with a couple of friends the other day, it is reported, he told the following story:

"One night, when I was a 'cub' operator in Cincinnati, I noticed an immense crowd gathering in the street outside a newspaper office. I called the attention of other operators to the crowd and we sent a messenger boy out to find the cause of the excitement. He returned in a few minutes and shouted out:

"' Lincoln's shot!'

"Instinctively the operators looked from one face to the other to see which man had received the news. All the faces were blank, and every man said he had not taken a word about the shooting.

"'Look over your file,' said the chief to the man handling press stuff.

"For a few moments we waited in suspense, and then the man held up a sheet of paper containing a short account of the attack on the President. The operator had worked so mechanically that he had handled the news without the slightest knowledge of its significance."

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LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.

The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should constitute the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.]

WINSTON-SALEM, N. C., POSTAL.

Mr. Lloyd B. Beazley, our manager, is exceedingly proud of that fact that his office has been equipped with an up-to-date messenger call-bell system. The apparatus shines like a new cent, making a very attractive addition to our already neat and commodious quarters.

We are doing a splendid business here.

QUEBEC, QUE., GREAT NORTH WESTERN.

Business with the summer offices has slackened off lately, and an early closing of these offices is predicted.

The following new operators have been added to the already large list: Messrs. John Alexander, Ernest Derouin, Charles Mountain, Samuel Marquis, Miss Gertie Murphy and Misses J. and E. L. Jessup.

Miss L. Smollett is relieving Miss M. G. Boulet, who is recuperating at Little-Metis.

Mr. R. G. Moreau has been assigned to Levis, vice Miss J. Jessup, resigned.

Resigned: J. D. McAneeny, T. J. Walsh, Mr. Power and R. G. Moreau.

MONTREAL, QUE., GREAT NORTH WESTERN.

J. W. Ross has resigned.

V. Bannerman is a new arrival.

PORTLAND, ORE., POSTAL.

Departures: Mr. Collins to the Santa Fe at Barstow, Calif; Stephen O'Donnell to the Postal, San Francisco.

Arrivals: G. C. Farrell, from the Western Union, Dallas, Tex.; F. W. Wegner, from the Western Union, South Dakota; J. W. Walsh, from the City Messenger and Delivery Company, this city.

Mr. D. E. Ross has been away on a month's

vacation, Mr. Farrell taking his place, and Mr. Neimyer, recently from San Francisco, doing extra.

Mr. Fred Cook has been doing the vacation work at The Associated Press for the past month.

CHICAGO, ILL.

Typewriters of all kinds; very easy payments; we handle everything a Telegrapher needs; write us for catalogue: "Mills" shipped all over the United States. Telegraphers Typewriter Company, O. T. Anderson, Manager, Member C. T. U. and O. R. T., 405 Monon Building, Chicago, Ills.

WESTERN UNION.

Saturday, August 8, the Board of Trade force presented their retiring chief operator, Henry Jahn, with a beautiful diamond ring, Division Chief Frank Crittenden making the presentation speech. The larger portion of the Board of Trade boys were present to testify to their esteem for Mr. Jahn.

Traffic Chief Frank Richardson, has taken the agency of the Telegraphers' Mutual Benefit Association. Mr. Geo. Dunning, night chief operator, having relinquished in favor of Mr. Richardson, we wish him success. Mr. Richardson can prove the importance of a good insurance policy for telegraphers.

B. F. McKee, who has been helping on the loops for some months, has been reappointed to the chiefship of the St. Louis division, a position he formerly held.

Mr. John Cordin, formerly of Cincinnati, Ohio, has been assigned here lately. Mr. Cordin is among the latest subscribers to TELEGRAPH AGE.

Mr. John Foster, of the St. Paul division, was called away to his home in Carlton, Toronto, on account of the illness of his mother.

Division Chief Charles Case, was also called home suddenly on account of the dangerous illness of his mother.

Sympathy is extended to J. R. Barclay of the Commercial News Department, whose sister suddenly died from an operation, while at Iron Mountain, Mich.

Thomas Dalton returned from a vacation spent in Michigan.

Assistant Night Chief Operator A. B. Cowan, has returned from a short vacation much benefited.

Business has taken a sudden start this month and every one is kept busy handling it; the extra force is not complaining and it looks as though things would keep lively for some months to come.

BOSTON, MASS., WESTERN UNION.

Frank A. Carney, assistant superintendent of the American District Telegraph Company for New England, has resigned and returned to Iowa. It is rumored that he will be succeeded by A. R. Lingerfeldt, of Chicago.

Daniel A. Lamont, chief bookkeeper for several

A New Mechanical Wonder in Telegraphy

THE TRANSMITTING TYPEWRITER

TWO MACHINES IN ONE

The Nerve-Destroying Slavery of Hand-Sending Forever Done Away With

A SPLENDID TYPEWRITER built expressly for telegraphwork, and a wonderful device for transmitting **Morse Signals**. Either part of the machine may be used separately and independently, or both may be used together to secure a mechanically correct copy of the matter transmitted. The writing machine with its "Keyboard Idea" has worked wonders for penman. **The Transmitting Typewriter** for the first time makes application of this same principle to the transmission of Morse signals and performs a *veritable miracle* for telegraph operators. **The Transmitting Typewriter** is the only typewriter worth a moment's consideration for telegraph work.

THE TRANSMITTING TYPEWRITER copies train orders beautifully. It does vastly more than that. It **transmits them** beautifully and **repeats them back** beautifully.

THE SALIENT FEATURE of the typewriter part of the **Transmitting Typewriter** is the perfect visibility of its work. Every letter, every word, and every line is in plain sight of the operator from the instant it is written until the printed sheet has been removed from the machine. To read the work done by this typewriter there is no time wasted lifting the carriage, no peering behind obscuring typebar guides, no changing of the focus of the eyes to make them reach into some dark hole in the typewriter mechanism, no pushing of the carriage to bring the printed matter into view, no stretching of the neck to look over intervening barriers, no rolling of the cylinder to bring into view written lines, but a simple easy glance is all that is necessary to discover to the operator the work which has been done.

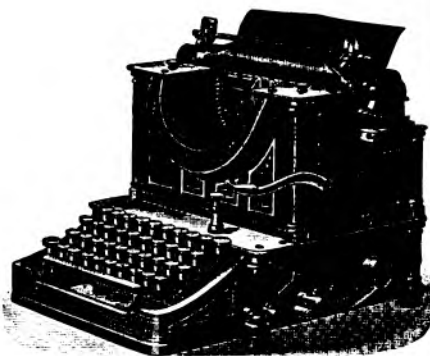
THIS IS THE ONLY TYPEWRITER now on the market in which the pointer, the divisions on the scale, and the printed letter are in plain sight at the same time. The value of this feature for making corrections quickly in telegraph work cannot be over-estimated. Other up-to-date features are: perfect ball-bearing typebars, quick carriage return, automatic line spacing, automatic ribbon reverse, and many other features valuable for telegraph work and never before incorporated in a typewriter. We do not hesitate to say that **the Transmitting Typewriter** excels all others in speed, ease and uniformity of touch, permanence of alignment, manifold and durability.

THE TRANSMITTING PART of the **Transmitting Typewriter**, like the typewriter portion of the machine, is operated by the keyboard. Simple unskilled strokes upon the keys produce absolutely perfect Morse signals. Every intelligent operator may become an expert sender. The work of this device upon a wire increases its capacity and accomplishes, at the same time, an enormous saving of nervous and physical strain to both sender and receiver.

TELEGRAPH SUPERINTENDENTS: Get **Transmitting Typewriters** Increase the capacity of your wires, and cut down the number of errors. Do it now.

TELEGRAPH OPERATORS: Get **Transmitting Typewriters**. Be expert senders as well as expert receivers. Make a quick, bold dash for the jobs with the big salaries. Don't wait a minute.

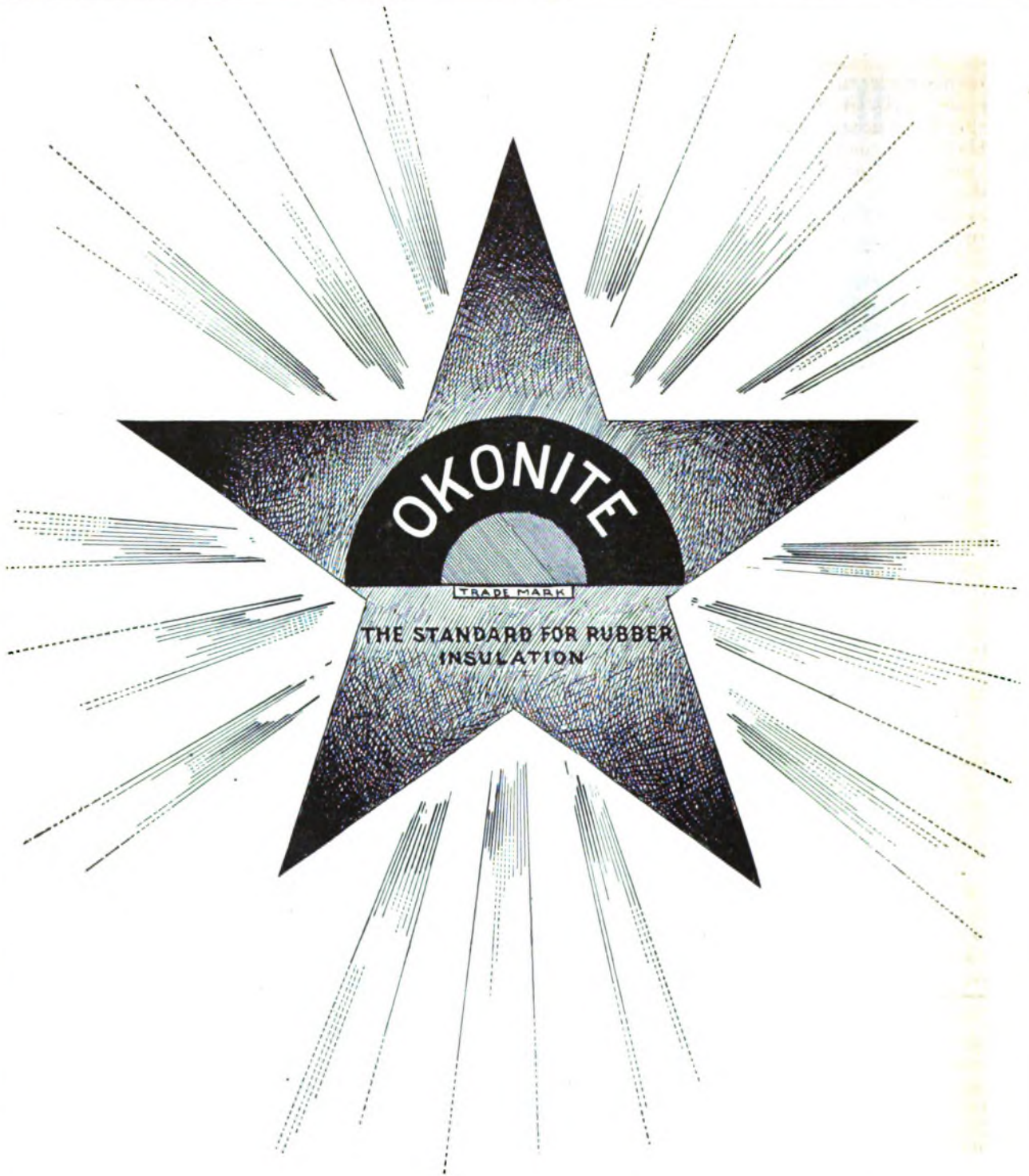
THE TRANSMITTING TYPEWRITER has been subjected to the severest possible tests during the last three years and has been for more than a year in actual daily service on the heaviest, fastest and longest circuits in this country. Telegraph officials and Electricians of National reputation, as well as the most expert telegraphers give their unqualified endorsement as to **its usefulness, superiority and reliability** under all conditions.



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years, has also resigned and Miss Cleary has been placed in charge of that department.

Mr. W. A. Holub, of Chicago, has been appointed cashier and transfer agent at Boston, vice Mr. A. B. Clark resigned.

Ellis Gordon who has worked "A" New York, nights, for a number of years, has resigned, having purchased an interest in an established sole leather house at Brockton, Mass., which will continue business under the new name of Stone and Gordon. Gordon came to this country when a half-grown lad and when he first appeared at 109 his acquaintance with the English language was very limited. He began as check clerk and his energy and perseverance soon overcame this handicap, and he gradually rose through the various grades until he became one of the most reliable operators in the Boston office.

CEDAR RAPIDS, IA., WESTERN UNION.

The Supple Brothers are at their respective places again after a ten days' vacation.

Major Doctor Anderson is shaking hands with friends after a two months' sojourn in Omaha and Denver.

E. J. Mahoney, our new day chief, has become acquainted with the lay of the wires and is making a success of his office.

Foreman Cook, of the American District Telegraph system, has been on the sick list, but is able to be on duty again. Mr. Mowry attended to the duties during Mr. Cook's illness.

Manager W. H. Davis is contemplating taking his vacation in the near future.

PHILADELPHIA, PA.

WATCH THIS SPACE for the announcement of the typewriter which Harry V. Emanuel, the champion of all champions in the "message receiving" class will use in the coming great American Telegraphers' Tournament. Send for booklet on new and remodeled typewriters. All makes rented \$3.00 per month; sold on easy monthly payment plan; D. A. Mahoney, Western Union Telegraph Company, Philadelphia.

POSTAL.

Mrs. Joseph Dolphin is with us again due to a demand on her services by the vacationists who look to her annually as a reliable and willing "sub."

Night Traffic Chief Elmer H. Locke, accompanied by his chum, Wm. B. Bowers, enjoyed a profitable vacation at Atlantic City, N. J. Mr. M. Auerbach, of the city department, was also at the same place for two weeks.

Mrs. Ella J. Matthews is now with the vacation absentees enjoying a well-earned rest.

While en route to Atlantic City, Mr. C. S. Rindfleisch, the night manager at Cleveland, did not fail to stop in and see the night force at this place.

KANSAS CITY, MO., POSTAL.

Chief Operator Rommell has returned from a

three-weeks' visit to Chicago and the northern lakes.

Manager Harry Morlan of the Board of Trade office has returned from a ten days' visit to Chicago. During his absence M. H. McConaha, of the Board of Trade Chicago bonus wire, officiated as manager at the Board.

Joseph Ingram has been appointed manager for this company at Swift and Co., vice Asher Baumgartner, who returns to the main office.

Washington Summers has succeeded G. S. Palmer as "rider" on the Overland and Pacific cable wires. Thomas Ingram is "rider" on the Logan leased wires.

[A "rider," it may be well to explain to those not familiar with the term, is a person who devotes his entire time to a repeater. They are usually employed on long and very important circuits which demands constant attention.]

E. B. Boyden, of the "Times", is now acting traffic chief at the main office, vice Summers. R. E. Stover is filling in at the "Times."

The St. Louis bonus wire is manned by Clyde Edwards and N. Warren; Board of Trade, Chicago, bonus, by John Hall and M. H. McConaha.

Business is good and has been all summer.

ST. LOUIS, MO., WESTERN UNION.

Miss Ricketts, formerly located at the Laclede Hotel, has been transferred to the main office.

Mr. Fred Brownold is absent in Michigan on a six weeks' vacation.

Mr. Frank McBride, of West Baden, Ind., was a recent visitor.

William Powers, one of our bright check boys, has gone to Hannibal, Mo., to take a position as an operator.

Miss Agnes Bauer and Mr. Earl Morgan were married recently.

Mr. McHugh has become the father of a promising son.

Mr. Beutelle, of the city department, who has been ill for a month, is on duty again.

Mr. Smolik has returned from the East.

Mr. J. Canavan is back again from a vacation much improved in health.

NEW YORK CITY.

"My Old Virginia Home Upon the Farm," "Utopian Waltzes," and all popular music, 18c. each. Pianos sold \$1 per week. B. L. Brannan, 195 B'way, N. Y.

WESTERN UNION.

Mr. Charles C. Lever, a wire chief at the western switch, has been assigned to duty in the general superintendent's office to assist Mr. W. N. Flashbaugh, the superintendent of the leased wire service. Mr. Lever's place has been filled by the appointment of J. F. McGuire, whose position at the southern switch has been filled by the advancement of W. E. Rath; H. C. Worthen, formerly a night traffic chief, succeeds Mr. Rath.

Mr. D. B. Mitchell, of the race bureau, has returned from a trip to Maine, where he spent a week.

Mr. W. N. Fashbaugh, superintendent of the leased wire service, has been promoted to be electrician of the Eastern Division in addition to his duties as superintendent of leased wires.

Mr. W. A. Schudt has been appointed chief operator of the Produce Exchange office, vice G. W. Bange, promoted to be manager of the Cotton Exchange office, as announced in the previous issue.

Mr. R. L. Bamford, superintendent of telegraph of the New York Stock Exchange, during the absence of the president of the Exchange, opens and closes that body each day. This is the first time in the history of the Exchange that an outsider has performed this duty. Mr. Bamford is an expert operator, and was a member of the Western Union force for many years.

E. A. Beardslee, manager of the Los Angeles, Cal., office, was a recent visitor.

Conrad A. Meyers, of the eastern switch, has become a grandfather.

POSTAL.

Mr. Thomas E. Fleming, special agent of the company is absent from the city on a vacation.

Mr. Willis Chandler, son of Col. A. B. Chandler, chairman of the board of directors has been ill with typhoid fever, but is now improving.

Mr. J. G. Good, assistant city chief, has resigned to accept a position with a broker. Mr. P. L. Reilly takes his place.

J. B. Roleson has also resigned to go with a broker. Mr. E. B. Coleman succeeds him at the leased wire board.

T. V. Flynn has been assigned as relief chief.

The following named have returned from their vacations:

Manager Charles Shirley; night manager, J. J. Whalon and Chiefs Charles McCarthy, E. A. Coney and C. B. Obst.

The yacht races have made it very lively here in addition to heavy regular business and the "wolves" have had more "extra" than they cared for.

The Telegraph Tournament.

The last monthly meeting of the General Committee of the American Telegraphers' Tournament Association held at Philadelphia, brought together a number of prominent members. The principal business transacted was the devising of additional means of raising money to provide for the payment of prizes in the coming contest. This is a matter of much moment, and it is earnestly desired that a sufficient amount may quickly be pledged, as an early announcement that a fund has been created guaranteeing that the plans in this respect will be fully carried out would undoubtedly be the means of attracting many competitors that otherwise might not be willing to make an entry. The receipt of small amounts at this time will be appreciated, and it is urged by the management that operators and others in and about Philadelphia, including points as distant as New York, who intend to become members, to do so now.

This may be accomplished by the payment of one dollar, which entitles the member to two tickets of admission.

A letter received from our South African correspondent at Johannesburg, states that readers of TELEGRAPH AGE in that far off country are much interested in the coming telegraph tournament and await the results with much eagerness.

Mr. F. M. McClintic, of Dallas, Tex., the winner of the Carnegie medal at the Atlantic tournament, held in March, 1902, writes under a recent date to Mr. C. A. Stimpson, of Philadelphia, the chairman of the Executive Committee of the American Telegraphers' Tournament Association, as follows:

"Although I have not been officially notified, I learn on good authority that your committee has decided to change the conditions of competition for the World's telegraph championship, this year, and that you expect me to present the Carnegie Medal at the Philadelphia Tournament for that purpose. As the holder of this medal, I would respectfully ask that you give consideration to the fact that if you change these conditions and make this year's championship for sending straight Morse and receiving messages, as proposed, you will thereby place not only the writer, but all other press operators at a big disadvantage, in that some of us, myself for instance, have not received a commercial message in years, although, had we been given a year's notice that the conditions were to be changed, we would have practiced on that branch of work, and perhaps been as capable to compete as the regular commercial men. If you will pardon the exception, I will say with all due respect to your committee, that the change of conditions without notification of at least the time intervening from one tournament to another, is an injustice to a class of telegraphers who are conceded the world over to be in the front rank, not only in press, but commercial work. In the latter line, however, after a press operator has followed that profession for years he needs at least a year to shake the rust off and get back into form as a commercial man, and I am sure that a committee composed of such broad-minded men as that of which you are chairman, will concede the point for which I contend. I do not dispute the fact that a man, to be the world's champion telegrapher, should be the best in all branches, but the notice of three months or less is too short for everybody in the press department, therefore I would thank the committee to allow the same rules which governed last year's tournament to prevail in this year's contest, and then change them to what you consider is proper. This will give us all an equal chance and do no one any injury.

"Kindly write me as soon as convenient what consideration this request will receive, so that I may govern myself accordingly.

"Yours truly,

"F. M. McCLINTIC."

Mr. Stimpson sent the following reply to Mr. McClintic's communications:

"Referring to your letter of August 8, I am

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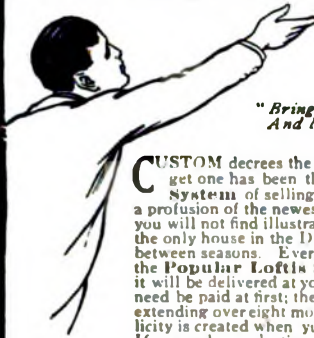
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And lay incessant battery to her heart!"
—SPENCER.

CUSTOM decrees the Solitaire Diamond Ring to be the fitting pledge of love. How to get one has been the young man's problem—now happily solved by the Loftis System of selling on easy payments. Our New Summer Catalogue shows a profusion of the newest goods in Diamonds, Watches and Jewelry; goods that you will not find illustrated in the catalogues of other houses until next fall, for we are the only house in the Diamond and Jewelry business which issues a complete catalogue between seasons. Everything illustrated is quoted at exceptional low prices and sold on the Popular Loftis System of easy payments. Select any article that you like and it will be delivered at your door with all express charges paid. Only one-fifth of the price need be paid at first; the balance being arranged in a series of small monthly payments extending over eight months. No security is required; no interest is charged and no publicity is created when you buy on our Confidential Charge Account System. If you make a selection it will be upon the distinct understanding that your money will be promptly returned in case you decide not to purchase. We are the largest concern in the business and sell only the finest genuine goods, and at prices ranging from ten to twenty per cent below those of other houses. Every Diamond is sold under a written guarantee of quality and value and may be exchanged at any time in the future for other goods or a larger stone at the full original price. Our Confidential Credit System is open to all honest persons without regard to their financial worth; but if you prefer to buy for spot cash we make the most startling and liberal offer ever made. It is no less than guaranteeing the return of all money paid at any time within one year—less ten per cent, the reasonable cost of doing business. We are one of the oldest houses in the trade (Est. 1858.) We refer to any bank in America—for instance, ask your local banker to consult his Dun or Bradstreet book of commercial ratings and he will tell you that we stand at the top in credit, reliability and promptness. We have a number of attractive booklets that we will be glad to send you if you write promptly for our New Summer Catalogue.

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containing over 25,000 words. This work gives the correct orthography and definition of all the words in common use. The illustration gives a fair idea of the shape of the work being especially made to fit the pocket and bound in a style which makes it durable and elegant. This Speller and definer is not reprint, but has been carefully prepared by competent hands to meet the general want for a book of this kind, and for the space it occupies has no superior in the publishing world; containing 820 pages, double column, it weighs 2¼ ounces, size 5 x 2¼ inches, bound in elegant American Russia leather and indexed.

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OUR FREE STOVE CATALOGUE pictures, describes and prices every kind of stove we make, explains our liberal pay after received terms, our 30 days' free trial offer, our safe delivery guarantee, our quality and durability guarantee, and also carries with it THE MOST ASTONISHINGLY LIBERAL OFFER EVER MADE OF.

Just to give you a little idea of the wonderful values we are offering we show two popular stoves taken at random from our big assortment as shown in our free stove catalogue.

\$3.98 Buy this handsome NEW 1904 MODEL OAK HEATER. Burns WOOD

OR COAL and is one of the handsomest oak heaters made, beautiful rocco cast iron base, top and front, best sheet steel body, very elaborate nickel plated ornamentations and trimmings including side rails, bands, top, handsome urn, medallions, checks, drafts, etc.

OUR FREE STOVE CATALOGUE shows a very large picture of this and an endless variety of other direct draft and double heater WOOD AND COAL HEATING STOVES.

\$4.85 Buy this handsome COOK STOVE, latest 904 model,

one of the latest and best cook stoves made; highest grade casting, large oven shelf, oven door kicker, nickel medallions and trimmings, heavy covers and centers.

Our free stove catalogue shows a very large picture of this and an endless variety of other cast iron cook stoves and cast and steel ranges AT CORRESPONDINGLY LOW PRICES.

Our big \$11.98 nickel trimmed steel range is the greatest steel range value ever offered. Our \$13.95 reservoir nickel trimmed steel cook stove and our big 800-pound reservoir high shelf range, which we sell at \$18.95 are the equal of ranges that sell elsewhere at double the price.

Our free stove catalogue shows large pictures and complete descriptions of all the stoves we make, explains our liberal terms, 30 days' free trial proposition, our guarantee, etc., and carries with it the most liberal stove offer ever named. Don't buy a stove anywhere until you see our free stove catalogue. Simply write us a letter or on a postal card say "send me your free stove catalogue," and it will go to you by return mail, postpaid, free.

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Never mind about the claims of rival machines,
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The No. 2 Hammond Typewriter



which has Perfect Alignment, Uniform
Impression, soft, elastic Touch, speed of
over 200 words a minute, and is durable
and is easily portable, can take the lead
among Writing Machines 

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REPRESENTATIVES EVERYWHERE

directed by the Executive Committee of the Telegraphers' Tournament Association to inform you that the conditions of the contest for the best all around telegrapher, to be decided at the coming tournament in October, will be as follows: Ten-minute trials in sending and receiving straight press, and ten-minute trials in sending and receiving straight commercial messages; new matter to be used in all branches and not placed before the contestant until the time of the contest.

"Your exceptions to the conditions were fully considered, and it was the unanimous opinion of the committee that a contest for the best all around operator must include message work, as well as press, the contestant having the highest average to be declared the winner.

"It was noted by the committee that a strictly press operator without practice on receiving messages on typewriter, might be at a disadvantage in this particular branch of the contest, due to changing of blanks. It was also demonstrated that a strictly message man, without practice on press work would be equally handicapped in that particular branch of the contest. Therefore, taking it all in all, we feel that the conditions will be equally fair to all, based as they are, on the highest average plan.

"The committee on contest rules will complete their work as early as possible, and a copy will be mailed to every contestant.

"We trust that you will favor this committee with the loan of the Carnegie medal as soon as you please, that we may be able to exhibit it in one of our prominent store windows, with a proper inscription, giving due credit to the present holder.

"Yours truly,

"CLARENCE A. STIMPSON, Chairman."

Philadelphia, August 20.

The Hammond Typewriter.

On another page the Hammond Typewriter Company call attention to the merits of their well known machine. The announcement there made should be read carefully. The Hammond long ago proved its worth and made its reputation, which has placed it in the front rank of writing machines. Its adaptability to telegraphic work in all particulars has won for it the confidence of operators, and a generous sale in telegraph offices covering a period of years has been the result. As one well known operator lately remarked: "You can always depend upon it." The company, however, desires this coming season to bring their machine more particularly to the attention of the operators, and invites early correspondence with members of the fraternity who may be contemplating the purchase of a machine.

As has been remarked before in these columns, the essentials of a telegrapher's typewriter are good manifolding, the minimum of noise, perfect alignment, durability and speed. These are qualities possessed by the Hammond. It will be remembered that the Hammond is made with two different styles of keyboard, one, the "Ideal," semi-circular in shape, and permitting perhaps a greater degree of speed in manipulation, and

the other, the "Universal," of a style similar to those in general use in typebar machines. The latter, of course, obviates the necessity on the part of users of learning a new keyboard when changing to the Hammond. In the Hammond the work is always in sight. Then the fact that from twelve to fifteen telegraph blanks may be placed in the carriage at one time, practically operating on the self-feeding principle, the withdrawal of the written message paper being followed by the remaining blanks dropping into position merely by the pressing of a lever, constitutes a feature much in favor. For specials and presswork the Hammond is also distinctly recommended. The executive offices and works are at Sixty-ninth and Seventieth streets, East River, New York, where all correspondence should be sent.

An Electrical House of the Pacific Coast.

The John M. Klein Electrical Works, of San Francisco, Cal., announce that on October 1 they will remove to the four story building, 40x125 feet in size, located at 107 Battery street, one block from Market street, in the center of the wholesale district, that city. The growing needs of this concern, compel the change. It is the oldest supply and electrical construction company on the Pacific Coast, yet the president, Mr. John M. Klein, is still a young man. He began his career as a telegrapher in New York with the Western Union Telegraph Company, in 1869. In 1879 he established the electrical works bearing his name, his entire outfit being a chest of tools supplemented by courage and ambition and a manly determination to make his undertaking a success. By incessant industry and careful management early hopes have been realized, and Mr. Klein now presides over one of the largest and most successful electrical works west of Chicago. The personnel of the force in the Klein works is of a high order. Many employed there are college men who began their business career with Mr. Klein and who have gained their electrical knowledge under his direction. The result has been that a spirit of esprit de corps pervades the establishment, insuring harmony of action and excellence of the output.

General Mention.

Mr. George E. Reily, a well known old time telegrapher, now in the Government pension service, has been transferred from Kingman, Kan. to Indianapolis, Ind.

Mr. F. Arnberger, of the Postal Telegraph-Cable Company, San Francisco, Cal., and representative of TELEGRAPH AGE at that point, has recovered from typhoid fever after an illness of two months.

In the article entitled "The New York Fire Alarm Telegraph Service," appearing in TELEGRAPH AGE, of August 16, the name of P. Beggin was inadvertently omitted from among the list of telegraph operators at fire headquarters, No. 167 East 57th street.

Mr. W. W. Umsted, manager of the Western Union Telegraph Company, Omaha, Neb., accompanied by his wife and son, is spending a vacation at Detroit, Michigan, and Toledo, Sandusky, and other cities in Ohio.

Mr. Edgar A. Beardsley, manager of the Western Union Telegraph Company, Los Angeles, Cal., is in Norwalk, Conn., visiting his mother. Mr. Beardsley is a New Englander by birth but has been a resident of California for many years.

Mr. W. E. Conrad, chief clerk to Superintendent H. S. Brooks of the Long Distance Telephone Company, New York, has returned from a vacation spent in Virginia. Mr. Conrad was formerly chief operator of the Postal Telegraph office at Norfolk, Va.

Mr. Martin D. Wood, formerly manager of the Western Union Telegraph Company at Kansas City, Mo., who retired from that office two months ago, was stricken with paralysis on August 20. While his condition is serious, hopes are entertained for his recovery.

"There is not an issue of TELEGRAPH AGE that is not worth a year's subscription, or that does not in some way inspire to higher aim, ambition and success," writes W. J. Dealy, superintendent of the Commercial News Department, Western Union Telegraph Company, New York, in renewing his subscription.

Mr. C. M. Oliver, of the Canadian Pacific Telegraph Company, Rossland, B. C., who has been in New York for the past two weeks spending his vacation, accompanied by his wife and daughter, has returned to the West. Mr. Oliver is an old Associated Press operator and is well known in the East. While in New York he purchased a Yetman Transmitter, which he has taken home with him in order that Rossland may be kept abreast with the times telegraphically.

Mr. P. H. Fall, the veteran and ex-confederate telegrapher of Houston, Texas, who is favorably known as the Father of the Texas Telegraphers, writes to Mr. John Brant, the secretary of the Old Time Telegraphers' and Historical Association as follows:

"Should our good Lord spare me I must go to Milwaukee to see the boys of 'auld lang syne.' Many of them are friends of over thirty years ago. Some of them were members of the United States Military Telegraph Corps, and when they swooped down upon Texas, during the war, they took my office (Houston) from me. We imagined we were enemies then, but time has taught us that we are all Americans, and of one family. I learned to love those old boys before they left Texas, and I hope to see some of them once again, ere we cross the river to the eternal shore. I hope to tell them something of our life during the long interval that has changed us from the prime of manhood to gray headed, and in many cases, infirm old men."

[Advertising will be accepted to appear in this column at the rate of three cents a word.]

A new and enlarged edition of Maver's "American Telegraphy and Encyclopedia of the Telegraph" will be issued about October 1 next. Over 80 pages of new matter (about 60,000 words) and 60 diagrams have been added to the work in this edition, including new sections on Wireless Telegraphy, Loaded Conductors, Buckingham Printer, Inductance, Impedance, etc., etc. The price of the enlarged work will be \$4. Advance orders from readers of TELEGRAPH AGE, sent direct to the undersigned publishers, will be accepted up to October 1st, 1903, at \$3 per copy, express paid. Maver Publishing Co., 120 Liberty street, New York.

Wanted by his sister, the present address of W. H. Ames, an operator in New Orleans about seven years ago. Address, Mrs. Alice A. Dewey, care Hardiman and Woolworth, Watertown, New York.

Wanted.—A new or second hand copy of the story book, Wired Love. Name price desired. Address, "Wired Love," care of TELEGRAPH AGE, 253 Broadway, New York.

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No. 2 Smith Premier Typewriter, \$55.

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First-class No. 2 Remington Typewriters, in perfect working order, \$30, cash with order; \$35 c. o. d. with trial; \$40, \$10 cash, \$5 per month. 100,000 of these machines in daily use. High speed, small compact keyboard, durable.

Oliver Typewriter, \$50.

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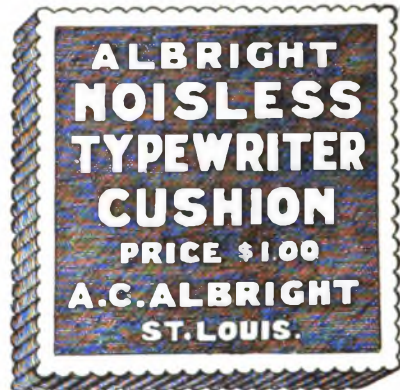
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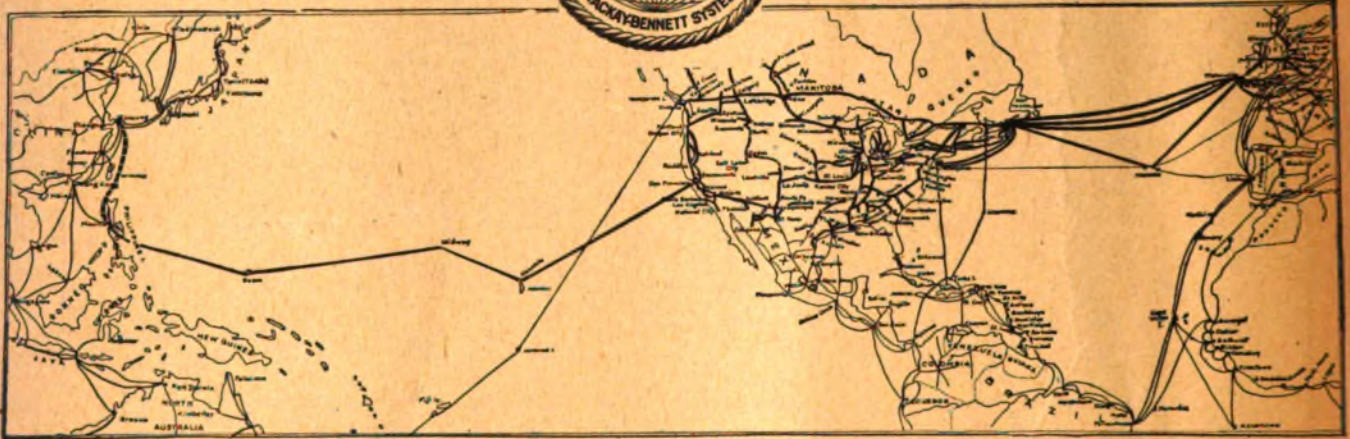
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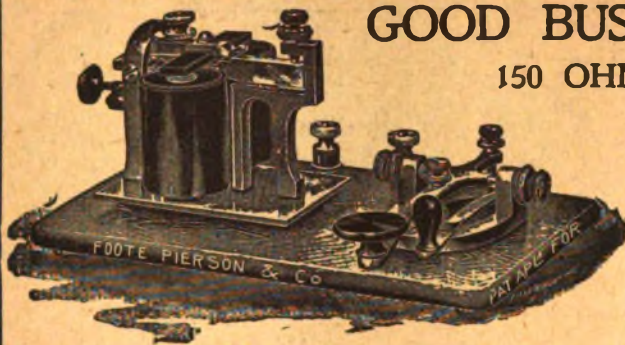
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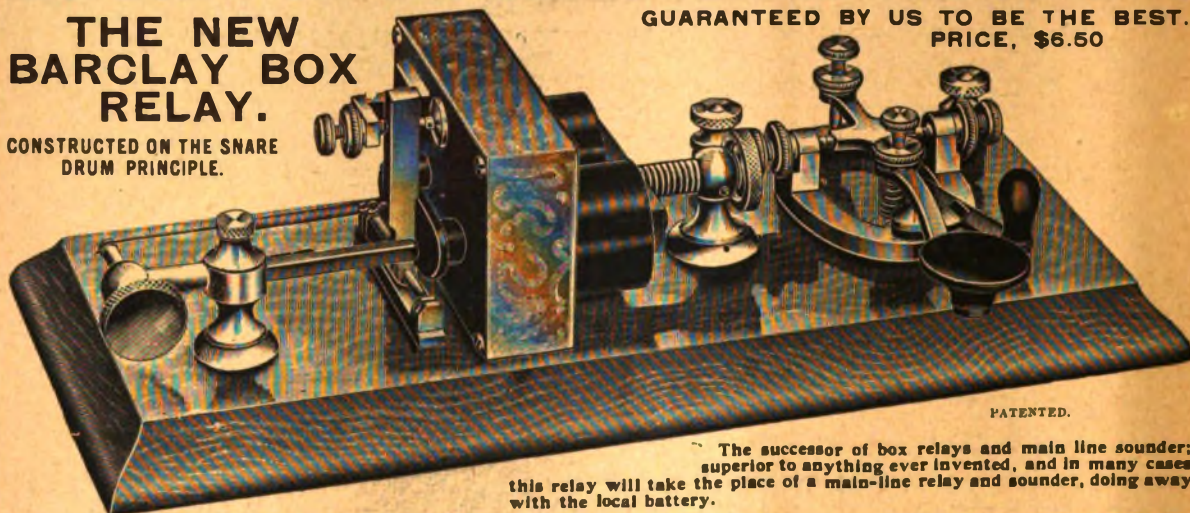
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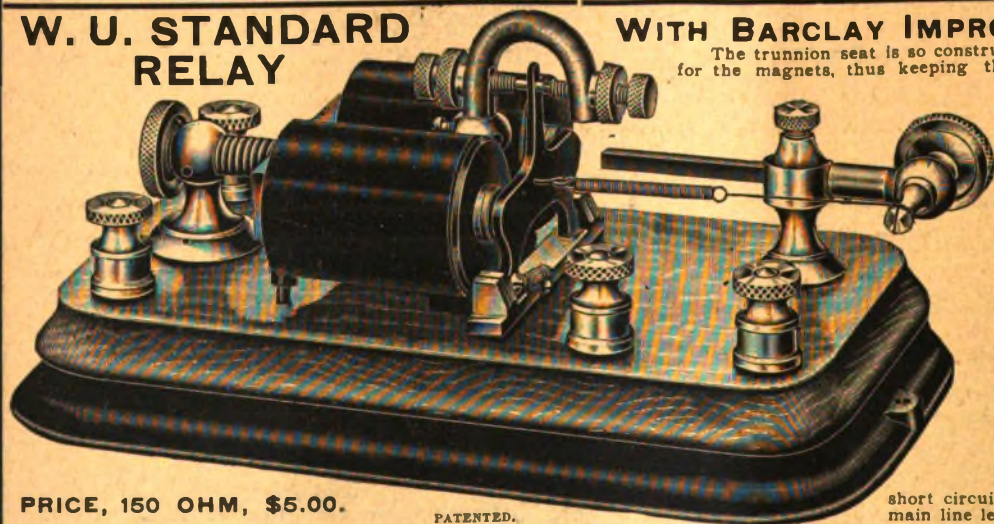


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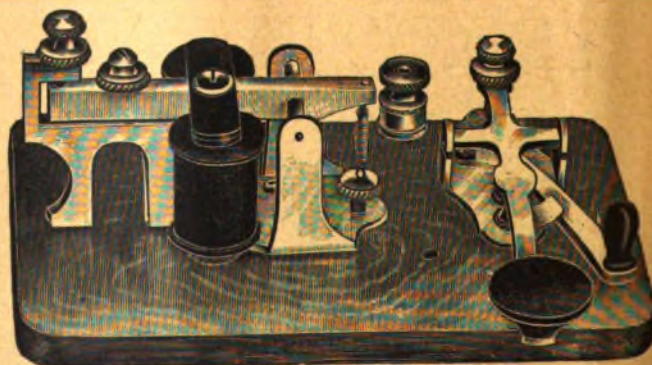
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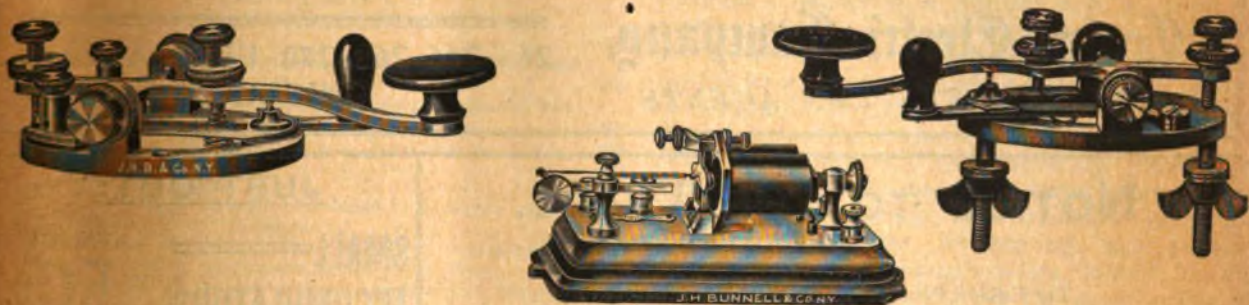
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No. 18.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

A Few Words Concerning Batteries.

The following questions from a correspondent concerning batteries comprise the gist of so many inquiries on that subject that a few words regarding them may be interesting as well as instructive to others also:

"Is there any rule or guide by which I can tell just which type of battery will prove most suitable for a given purpose? Advertisements are frequently very deceptive. Each manufacturer claims to possess the best cell, but as he extolls its virtues and omits to mention its weakness, we poor laymen are unable to choose for ourselves. Will you also please inform me how to judge by appearance when a gravity battery is in good condition?"

In reply to the first question we would say that the only safe rule to follow in order to form a proper judgment is to acquaint oneself thoroughly with the individual action and characteristics of the various batteries, or at least of the principal types in use. It is not absolutely neces-

sary to know the ingredients or the chemical formula comprising a battery cell in order to make a choice. But it is quite essential that one should know how it is going to act when connected to a conductor; what quantity of current it is capable of yielding; whether the latter will flow constant, and the probable life of the cell. All these points may be learned by reading the description of such batteries under their respective names in almost any standard work on electricity available. At first one may be perplexed by various characteristics claimed for different types of batteries, but the descriptions all point to one common factor in them all, the one that should be the guiding factor in the selection of a battery for a given purpose, namely, the internal resistance of the cell, or its equivalent—polarization. Every type of battery which possesses a high internal resistance is incapable of yielding any great quantity of current at one time, hence it follows that such batteries are useless for electric lighting or apparatus arranged in multiple. Batteries which become "polarized" quickly after being put to work yield currents which gradually grow weaker and weaker and finally die out altogether if the circuit remains closed any considerable length of time, but recover their power rapidly when the circuit is left open for a short time.

It is evident, therefore, that the latter type of battery is not suitable for closed conductors, such as telegraph wires or circuits which are in constant use. At the same time it is clear that a battery of this type may be used to advantage where the work is intermittent, such as for the purpose of ringing door bells, annunciators, call boxes and other "open circuit" arrangements. So-called "dry" batteries are the most popular type of cells which yield inconstant values of current, and as they are cheap, portable, and convenient to handle, they are ideal batteries for the purpose mentioned.

POLARIZATION.

The reason this class of batteries become useless after being used for a short time is, that they become polarized. By that it is meant that a conflict between the liberated elements of a cell takes place within the jar almost as soon as chemical action begins. It occurs in this manner:

In the first place the bubbles of hydrogen gas which are liberated settles on one of the electrodes with the result that the latter present a reduced amount of exposed surface for the acid to act upon. This creates a high resistance within the cell which the electromotive force of the cell must first overcome before devoting its rem-

nant pressure in a useful direction. To make matters worse, the hydrogen gas bubbles themselves act as a separate battery within the jar and set up an electromotive force of their own in opposition to that of the cell itself. Between the two enemies, the resistance and the counter electromotive force, the normal E M F of the cell soon becomes overpowered and remains helpless until the circuit is left open long enough for the bubbles to disappear, which they will do as soon as the chemical action is temporarily suspended. A large majority of the batteries in common use belong to the inconstant type just described.

For telegraphic use the Daniel two-fluid and blue-stone gravity battery are the most economical and reliable types employed. Edison's Lelande battery is also an excellent type, as it is constant and capable of furnishing great quantities of current. On account of its almost negligible internal resistance it may be used for almost every purpose accomplished by a dynamo or a storage battery. Were it not for the fact that the cell gives an electromotive force of but .7 of a volt, and the poisonous character of its solution, this battery would, no doubt, be more extensively employed.

The Fuller battery is another type which could be used for telegraph circuits, and, in fact, is quite extensively used for that purpose in England and other countries using the "open circuit" method. In this country the telephone companies use it almost exclusively. The Fuller cell also possesses the objectionable feature of the Lelande in the character of its solution, but it yields an electromotive force of two volts and maintains that pressure under a considerable strain for quite a while, and requires but little attention.

In conclusion we would say that our correspondent should now be able to see for himself that the selection of a suitable battery for a given purpose does not lie altogether in a choice between certain wares of manufacturers, but rather in their fitness for the uses to which they are put. He must, therefore, first ascertain what will be required of a battery and then, bearing in mind the diversified characteristics of the same, select one that will best do the work desired.

In answer to the second question it may be said that a blue-stone battery should be in its best condition when the color of the water in the jar is of a bright blue and which gradually fades to that of clear water at the surface. A muddy appearance indicates a poor condition of the cell requiring a partial or entire removal of the solution and refilling with new.

Recent Telegraph Patents.

No. 737,203; Automatic Printing Telegraph; Charles L. Buckingham, New York.

Patents for a lightning arrester and a fuse have been granted to Mr. J. C. Barclay, assistant general manager of the Western Union Telegraph Company, New York. They have been assigned to the Western Union Telegraph Company.

No. 736,483, telegraphic transmitting and receiving apparatus; Georg F. R. Blochmann, Keil, Germany.

No. 736,933; Automatic Printing Telegraph; Charles L. Buckingham, New York, and Emil Germann, Brooklyn, N. Y.

No. 12,148, (re-issue), method of determining the direction of space telegraph signals; John S. Stone, Boston, Mass. The direction whence the received waves come is determined by receiving the waves in a number of conductors or parts of conductors, in conveying the oscillations produced therein to a translating device and in changing the positions of the conductors relatively to the direction of motion of the waves till a position is found in which the combined effect upon the translating device of the several oscillations is zero.

Business Notices.

Mr. E. S. Russell, the general agent at 253 Broadway, New York, for the Twentieth Century Telegraph Key, the use of which is becoming so generally accepted by operators as a cure and preventive of loss of grip, reports increasing sales in all parts of the country of this ingenious device. Mr. Russell solicits correspondence from operators, to whom he is desirous to send his booklet, illustrated and explanatory of the key.

THE POSTAL TYPEWRITER.

Elsewhere in this issue our readers will observe the advertisement of the Postal typewriter. It is a low-priced machine and should meet the demand for an instrument of this kind, inasmuch as it is well constructed and capable of doing good work. It is desired to bring this typewriter to the special attention of telegraph operators, for it is believed by the manufacturers to measure well up to the requirements of speedy telegraph work.

In the Postal the typewheel is stopped at the proper letter by an arm geared to the typewheel striking a pin lifted in the path of the arm by the key lever depressed by the operator. This arm, made for the sake of lightness and strength, of fine tempered tool steel, carries a switch, also made of tempered steel. This switch is connected by the simplest kind of mechanism to the printing escapement and unlocks the escapement when the arm strikes the raised pin. Thus one adjustment of this switch and printing escapement does away with separate adjustments for each of the 28 key levers and saves in labor besides reducing the liability of wearing out of adjustment. The printing is done by the typewheel striking down on the paper platen, like a typebar movement, and this gives a great manifold power, something not considered possible in wheel machines.

Mr. P. V. DeGraw, of Washington, D. C., a well known old time telegrapher, represented the Salt Lake "Tribune and Telegram" at the annual meeting of The Associated Press held at the Hotel Waldorf-Astoria on September 16.

Mr. S. D. Field, expert electrician, Stockbridge, Mass.

Mr. H. Sommers, an old time telegrapher, now superintendent of the Rocky Mountain Bell Telephone Company, Helena, Mont.

Mr. G. H. Corse, of Ogden, Utah. Mr. Corse was president of the Old Time Telegraphers' and Historical Association for 1901-02. He was accompanied by his wife.

Personal Mention.

During the absence from the city of Mr. Charles P. Bruch, assistant general manager of the Postal Telegraph-Cable Company, New York, his place is being filled by Mr. Thomas E. Fleming, special agent of the company.

Mr. J. E. Garvin has been appointed western manager of the Edison interests at Chicago, Ill., to succeed Mr. W. S. Logue, who was transferred to New York some two months ago as general sales agent of the Edison companies.

Col. R. C. Clowry, president and general manager of the Western Union Telegraph Company, accompanied by F. J. Scherrer, his private secretary, spent a few days recently at Bar Harbor, Me., while on a tour of inspection in New England.

Postal cards have been received in London and Boston from Mr. C. J. Glidden as to the arctic automobile trip of this daring old time telegrapher and his wife. One of the most recent, dated Sundsvall, Norway, August 10, says he reached there the second day out from Stockholm, going north. He had done 190 miles in eight hours without any delays, and got a great reception on the roads from people who had never seen an automobile before, but some were very much frightened and ran away on the approach of the machine.

Resignations and Appointments.

Mr. L. A. Tatum has been appointed manager of the Postal Telegraph-Cable Company, at Tuscaloosa, Ala.

Mr. F. B. Norfleet, formerly of the Western Union office, Atlanta, Ga., is now located with the same interests at Winston-Salem, N. C.

Mr. S. W. Harvey, has been appointed night chief operator of the Western Union Telegraph Company at Little Rock, Ark., vice W. D. Bard, resigned.

Mr. L. B. Stewart, manager of the Postal Telegraph-Cable Company, at Chattanooga, Tenn., has resigned to engage in the electrical supply business.

Mr. J. B. Cooley, formerly manager of the Western Union Telegraph Company at Bath, New York, is now employed in a broker office at Corning, New York.

Mr. E. R. Roper of Jackson, Tenn., has been appointed manager of the Western Union office at Paducah, Ky., succeeding Samuel Quissenberry, transferred to Memphis.

Mr. E. J. O'Meara, of the Western Union Telegraph Company, Duluth, Minn., has resigned to accept a position with the Creyer Creamery Company, Storm Lake, Iowa.

Mr. W. A. Logan, for many years manager of the Postal Telegraph-Cable Company, at Paris, Tex., has been transferred to San Antonio, Tex., where he will take charge of the same interests.

Mr. S. G. Bentley, of Chicago, has been appointed manager of the Postal Telegraph-Cable Company, Chattanooga, Tenn. Mr. Bentley represented the same interests at Lexington, Ky., until a year ago when he resigned to enter the railroad service.

General Mention.

In 1902 Germany had 24,471 telegraph offices with 36,000 telegraph instruments.

The annual meeting of the Telegraphers' Mutual Benefit Association will be held at 105 Broadway, New York at four o'clock on the afternoon of November 18.

Our San Francisco agent states in a communication just at hand that he heard many of the operators declare that the August 1 issue of TELEGRAPH AGE was simply "great."

"You really don't know how TELEGRAPH AGE has entwined itself in my life, and none of us know how much we owe it," writes a subscriber in renewing his subscription for the paper for another year.

Mr. W. A. Hazelboom, has recently returned to his duties as telegrapher and stenographer in the banking house of Brown Brothers & Company, Boston, Mass., after an absence of six months, due to a fractured knee-cap, the result of a fall on the street in January last.

Mr. F. C. Hackett, of Pittsburg, Pa., in a recent letter remitting to cover his subscription writes: "I look for the paper every two weeks with pleasure and profit. You certainly deserve credit for the impartial way in which you handle subjects in dispute. If more operators would read the 'AGE' they would certainly be uplifted in their profession."

In these days when the "get-together" spirit is so strikingly and frequently manifested it is not surprising that the makers of cross-arms, pins and brackets used in electrical line construction should deem it wise to form an association to promote the large industry which they represent and to standardize the product. With these objects an organization was formed by the manufacturers, the first meeting being held on July 29 and 30 at Indianapolis, Ind.

Municipal Electricians.

Allentown, Pa., has a new police patrol and telegraph system.

A patent, No. 736,755, for an electric fire alarm has been granted to George B. Martin, Zanesville,

Ohio. The heat of a conflagration melts a fuse plug and permits a weight to fall into a pan on one end of a balanced lever, which then swings and closes an alarm circuit.

The City of Cleveland, O., has contracted with the Municipal Signal Company, of Chicago, for a complete equipment of police telephone signal system. Two hundred street patrol boxes will be used. These boxes contain a complete telephone equipment for giving regular reporting and other signals.

The Borough of Manhattan is installing a police signal system which it is expected will be in operation in October. The equipment will consist at first of 661 telephones which are to be placed in iron boxes. As far as possible, it is the intention of the department to place the boxes, with the consent of the owners, on the walls of buildings. The boxes will measure about 15 by 18 inches, and will be painted a grayish color. The system is to be entirely independent of the existing telephone plant operated by the department.

The Cable.

Mr. H. R. Waterbury, formerly of South Norwalk, Conn., has been appointed manager of the United States Cable office at Juneau, Alaska.

A movement is on foot in London tending to the formation of an Anglo-Canadian cable company, with a tariff of twelve cents a word for ordinary cablegrams, and six cents a word for press messages.

The Canadian Pacific telegraph has laid about forty-five miles of cable from the Bamfield creek cable station, Vancouver Island, to Alberni, B. C. This cable will be used in connection with the all-British transpacific cable.

Mr. C. H. Reynolds, of London, Eng., manager for the Pacific Cable Board, after inspecting the British Pacific Cable station at Bamfield Creek, B. C., sailed to inspect the Fanning Island, Suva and other stations on the Pacific Ocean.

According to recent statistics on the telegraph lines of the world, published in Berne, Germany owns 10,220 miles of telegraph cable, or one-twenty-fourth of the entire system of the world, while Great Britain owns two-thirds of the total mileage.

The new telegraph and telephone cable to Block Island, R. I., which spans the Block Island Sound between Sandy Point, Block Island, and Matunuck Beach, R. I., was laid on September 4. The cable, which is the largest ever laid across the Sound, is 11 miles in length and is the property of the United States Weather Bureau, to be used jointly by the Bureau for its telegraph service and the Providence Telephone Company for long distance service to Block Island. The cable was manufactured by the Okonite Company of New York.

CABLE-LAYING NAVIGATION.

In the current issue of the "Proceedings" of the United States Naval Institute, Lieut.-Commander John B. Blish, U. S. N., formerly in technical charge of naval electrical work, gives an interesting account of the refinements in navigation practiced on board cable-laying ships. Aboard the cable-laying steamer Faraday, in which Mr. Blish took a trip, no less than nine experienced navigators took sights from early dawn until dark, and half-hourly azimuths. All sights were worked out with seven-place logarithms, and a mean of the various positions was accepted after throwing out any which differed a mile from the mean. Among the navigating appliances was a "distance wire," consisting of a deep-sea sounding wire (No. 20 B. W. G.), which was paid out continuously under a carefully regulated strain, and passing over a measuring wheel recorded the run with an accuracy comparable to that of measuring distances in land survey. Dead reckoning was computed from distance wire records. Notwithstanding the skill of the navigating staff, the exact position of the ship was at times in doubt, owing to uncertainty as to the actual dip of the horizon. This experience led to the invention by Mr. Blish of a navigator's prism, which is described in detail in the paper here referred to. By means of this device the dip of the horizon can be determined with great accuracy, thus eliminating a treacherous element of uncertainty in observation at sea.—Electrical World.

The Railroad.

An interesting illustrated article, covering nearly seven pages, entitled "Automatic Block Signals for Railroads," by Ralph Scott, appears in the current issue of the "American Electrician."

The Grand Trunk Railway, under the supervision of W. W. Ashald, has installed a system of telegraphing and telephoning over the same wire on its line at Brockville, Ont., and which is to be extended to Montreal.

Mr. Percy Hewitt, assistant superintendent of telegraph of the Southern Pacific system, at New Orleans, La., has been promoted to be superintendent of telegraph of the Southern Pacific lines in Texas, with headquarters at Houston, Texas.

The New York Central & Hudson River Railroad Company, operators at the Grand Central depot, New York, are taking scientific training preparatory to using the Yetman Transmitting typewriter in that office. The Long Island Railway Company are also giving it a trial.

Mr. E. P. Griffith, of New York, superintendent of telegraph on the Erie railroad, has recently been experimenting with a telephone and telegraph system. The tests made so far have proved thoroughly satisfactory, and conversations were easily held and voices clearly distinguished. The system is to be an auxiliary to the telegraph department.

Mr. N. D. Ballantine, superintendent of telegraph of the Kansas City Southern Railway Company, Kansas City, Mo., has been promoted to be superintendent of transportation with headquarters at the same point, vice F. S. Rawlins, resigned. The vacancy caused by Mr. Ballantine's advancement has been filled by the appointment of Mr. R. L. Logan.

Mr. D. B. Hubbard, manager of the office at the Consolidated Railroad Depot in New Haven, Conn., has been appointed manager of the telegraph department of the general office of the road at the same point. Mr. J. C. Kelly succeeds Mr. Hubbard as manager at the depot. Mr. S. A. Libby has been appointed chief clerk to Mr. N. E. Smith the superintendent of telegraph of the Consolidated system.

The printed proceedings of the annual meeting of the Association of Railway Telegraph Superintendents held at New Orleans, La., May 13, 14 and 15, 1903, is now being distributed by Mr. P. W. Drew of Milwaukee, Wis., the secretary of the association. It is a carefully compiled and well-printed pamphlet of 175 pages, and constituting as it does a convenient hand-book for ready reference of a meeting of much interest, its receipt will no doubt be appreciated by the superintendents. The several papers read at the meeting with the discussions of the subjects, treated that followed are given in full, their titles and authors being as follows: "Some New Ideas in Block Signaling," by Wm. Maver, Jr.; "Notes on Mr. U. J. Fry's paper on a Duplex Circuit in Connection with a Quad," by Wm. Maver, Jr.; "Application and Value of Telephone and Telephone Apparatus on Railway Systems," by A. C. Ferguson. The illustrated lecture delivered by Mr. Frank F. Fowle, of New York, entitled "Transposition of Telephone Lines: Cross Talk and Induction," is also included together with a number of diagrams. The report should interest a large circle of readers.

Wireless Telegraphy.

A patent, No. 757,072, for a wireless telegraph system, has been granted to Charles G. Burke, of New York.

Despatched from the steamer City of Milwaukee, twenty-five miles from shore, from Chicago, Ill., the first wireless telegram from Lake Michigan was received at the Montgomery Ward Building, that city, two hours before the steamer reached port, August 29. The City of Chicago, bound for St. Joseph, met the City of Milwaukee and conversed at a distance of five miles.

In a recent patent Hermon W. Ladd describes a means for using Hertzian waves in obtaining bearings at sea when the objects owing to a fog or storm are invisible. This consists of a coherer circuit electrically connected with an upright conductor so shielded that waves are only received from a transmitter on another vessel or at a shore station when a lateral opening of the

shield is in proper range radially with the vessel or station. The shield is movable and at its lower end has a pointer moving over a compass card. When the coherer in circuit gives a signal, the range is determined.

Professor Slaby, inventor of a system of wireless telegraph was recently awarded a subsidy of 200,000 marks to continue his experiments, by the German Government. The professor gives an account of the success of his latest experiments. In this statement he says in part:

"It was until recently an open question whether the earth played any part in wireless telegraphy. To solve the question I had the floor in my laboratory covered with zinc, thereby making an artificial ground circuit, and have succeeded in proving that waves are transmitted not only through the air but through the earth as well. I have besides this been occupied in trying to simplify the instruments so that even a person without any scientific knowledge may measure the length of the waves transmitted and have succeeded in constructing a dozen different types which are all of great practical value."

There seems to have entered the electrical field, along with wireless transmission, a new element—that of unnecessary, and perhaps vicious, interference with a competitor's service, says the "Electrical Review." The ease with which electric waves can be sent off into air space and neutralize or render unintelligible legitimate messages sent out by a rival in the same vicinity, apparently has been a temptation too great to be withstood, and during the recent yacht races, on one or two days, wireless transmission to land from boats was a failure. On other occasions, particularly the first and last days, the news was promptly sent out and received. We hope that for the proper advancement of the art, as well as for the honor of the profession, the wireless telegraph companies will reach a better understanding, and that if there have really been any of these dog-in-the-manger tactics, they will instantly cease. They are not at all creditable.

THE EARTH AS A CONDENSER.

Editorial mention is made in the "Electrical World," of August 15, to an article appearing in the Digest of that paper, by Koepsel discussing the role of the earth in wireless telegraphy, in which two interesting points are brought into prominence. One of these is the small electrical capacity of the earth, and, therefore, the improbability of its playing any part, as has been suggested, in the transmission of large quantities of electrical energy by utilizing it as an element in a resonant circuit. The author calculates a special case, assuming conditions that might be approximated in practice—though a vertical conductor extending 2,700 yards in the air is scarcely a practical assumption: with resonance established, the maximum current rush would then not exceed 15 amperes, and the total flow of current would be only .0009 coulomb. An important con-

clusion of the investigation is, however, that in wireless telegraphy the capacity of the earth may be utilized to great advantage. If the premises of the author are correct, the conditions of resonance can be satisfactorily met without great difficulty by proper design of apparatus, in which case sending signals half around the earth could be as readily accomplished as sending them over short distances. In the past ideas relating to the earth as an electrical factor have been extremely vague, and not infrequently it has been assigned electrical properties solely to bolster up a personal speculation or to conceal limitation of knowledge. In resonance the earth can only enter as a capacity, and this determined, the limit of its role in any given case is subject to definite calculation. The line of study indicated is one which we hope will be continued by others.

THE WIRELESS PROTOCOL.

The final protocol of the international wireless telegraph conference, held in Berlin last month, was made public on September 3, at the State Department. Brigadier General A. W. Greely, U. S. A., was chairman of the American commission. This commission had no authority to make any agreement for the United States, but the protocol embodies in most of the essential features the views expressed by the American commissioners. Another conference will be held, and if all delegates have full powers the protocol no doubt will be embodied in a treaty for the Government of international wireless telegraph communication. The following is the text of the protocol:

ARTICLE I.

The exchange of correspondence between vessels at sea and wireless coast stations open to the general telegraphic service is subject to the following conditions:

First—Any fixed station, whose field of action extends to the sea, is styled coast station.

Second—Coast stations are bound to receive and transmit telegrams originating from or intended for vessels at sea without any distinction of wireless telegraph system used by the latter.

Third—The contracting parties shall publish any technical information likely to facilitate or expedite communications between coast stations and ships at sea. However, each one of the contracting Governments may authorize the stations established on its territory, under such conditions as it may see fit, to make use of several installations or special arrangements.

Fourth—The contracting parties state and declare they adopt for the fixing of tariffs applicable to telegraphic traffic exchange between vessels at sea and the international telegraphic system the following basis:

The total tax to collect for such traffic is fixed by the word it includes (a) the tax appertaining to the traffic of the line of the telegraphic system, the amount of which is that fixed by the international telegraphic regulations now in existence appended to the St. Petersburg convention; (b) the tax appertaining to the maritime course.

The latter is, as the first one, fixed according to the number of words, and such number of words being reckoned in accordance with the international telegraphic regulations mentioned in paragraph A, above. It includes:

First, a tax styled "coast tax," which belongs to the said station; second, a tax called "vessel tax," which belongs to the post established on the ship. A coast station tax is subject to the approval of the State on whose territory the station is established, and a vessel tax to the approval of the States whose flag is borne by the vessel. Each one of these two taxes is to be fixed on the basis of an equitable remuneration for the telegraphic work.

ARTICLE II.

Regulations which will be annexed to the convention that is to be perfected will establish the rules applicable to the exchange of communications between the posts and on board the vessels. The provisions of these regulations may be at any time modified by common understanding between the contracting States.

ARTICLE III.

The provisions of the telegraphic convention of St. Petersburg are applicable to the transmission of wireless telegraphy in so far as they do not conflict with those of the future conventions.

ARTICLE IV.

The wireless stations must, unless there should be absolute impossibility, accept in preference requests for help that may come from vessels.

ARTICLE V.

The service of wireless telegraph stations must be organized, so far as practicable, so as not to interfere with the service of other stations.

ARTICLE VI.

The contracting Governments reserve the right to make separate arrangements for the purpose of compelling the contractors working within their territory wireless telegraph stations to obey only through other stations the modifications of the future convention.

ARTICLE VII.

The provisions of the future convention are not applicable to wireless telegraph stations that are not open to general telegraphic service, except in regard to the clauses embodied in Articles IV and V.

ARTICLE VIII.

The countries that have not adhered to the future convention may be admitted on their making a request to that effect.

There is no limit to the use that the telephone can be put to. It is said that a Richmond, Ind., lady, wishing to visit a neighbor, the other day, pulled the baby's crib up in front of the 'phone, opened the receiver, and calmly told "Central" that she was going out to a neighbor's, and, if the baby waked up and began to cry, to ring her up at the neighbor's. She ought to get a patent on that baby-tender.

Telegraph Bookkeeping.

Eleventh Article.

BY W. H. DOHERTY.

The charged side of a day's business is usually heavier than the cash side, for the reason that managers find charged accounts much easier to handle. The growing use of the telephone in transmitting messages to the telegraph office is in a large measure responsible for this, as the cash slips that accumulate from business of this nature soon become burdensome, so that when a customer of known responsibility is telegraphing, it is customary to run a monthly bill with him, or her. This question of charged accounts is becoming quite a problem for managers, and a discussion of its merits and drawbacks would be interesting, but it does not come rightfully into this article.

To properly handle the charged side the first thing needed is a good sized set of filing boxes, or pigeon holes, made in one frame. The regulation size is a box six inches wide, and four and a half or five inches high. As the business is taken from the wires, after being sent, it can be sorted alphabetically, according to whom the messages are to be charged, not in states and cities, as when entered in the check ledger, but according to the names of different firms, or individuals. If the message should be called for during its current date, it is just as easily found as if filed under states and cities. At the close of business for the day these charged messages should be taken from the boxes, in alphabetical order, and where there are messages of two or more firms in the same box, care should be exercised to keep each separate. When this work is completed the business is ready to be entered on the bills. The bill forms should be kept in the same order to correspond with the sorted messages so that in making out the bills the proper bill and message will come together. Many of the received collect messages are addressed to persons or firms having charged accounts, and these messages can be sorted into the boxes, just the same as a sent paid message.

When all messages to be charged have been entered for the day the amount in total that has been entered on each bill for that particular day should be drawn off on a slip of paper and a grand total arrived at; this will give the entire amount of business on the charged side for the day. As all persons are liable to make errors, it is well for that reason that the drawing off process should be gone over twice, in order to guard against all mistakes. This, of course, can be done rapidly the second time, and the few minutes consumed in so doing may be considered as profitably spent.

We now have obtained the aggregate figures on both the cash and charged messages for one day, and the sum of the two makes the total receipts for the day.

In the larger towns, where usually there are

several branch offices, it is a good plan to have the branch office managers treat the charged messages in the same manner as the cash business, as described in article ten, in the August 1 issue. In addition to sheeting the messages on the form provided, the name of the firm to whom charged, should be noted opposite the entry, ample room on the sheet for that purpose being provided. A charged message is just as liable to get mislaid or lost as a cash message, and this method provides a skeleton, as mentioned in the previous article published August 16. If this plan could be followed at main offices, it would be well to do so, yet as a rule it would involve a good deal of work, more than a receiver could comfortably accomplish, as it would have to be performed before the message went to the operator. In a branch office, however, this work can readily be done after the message is sent, and at dull moments during the day.

The business can now be sorted for entering in the check ledger, as the total receipts are known, and this action is the next move in the process of booking a day's business.

The process described thus far, is a radical change from a much-practiced system now in vogue by many managers, as the writer is reliably informed. The manner of handling a day's business by the latter is something like the following: First, the business, both cash and charge, is sorted, as is done when getting it ready to enter in the check ledger. Instead of making the entry there, however, a sheet known as form 14 is used to enter it on, a process which necessitates the writing of every place with which messages have been sent or received, the total amount of business being entered with the name of the town. After the whole day's business has been gone through with and placed upon sheets in this manner, the sheets are added up, and the total makes the day's receipts.

The next step is to again re-sort the business into two parts, namely, cash and charge. Then the total amount of cash is found by making a list of the tolls on each message, and adding them up. The charged side is found much the same way as described in the first part of this article, but must be sorted up before entering on the bills. After finding the amount of charged receipts, that is added to the cash and the total, providing no mistakes have been made, will be the same as the total found on form 14 sheets.

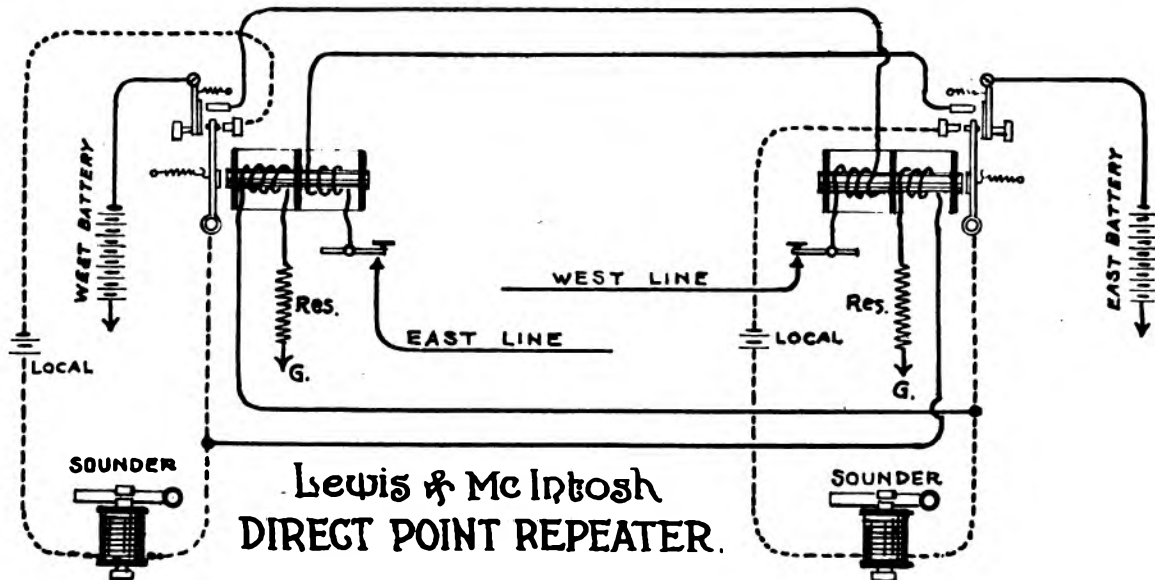
But what an unnecessary amount of labor to arrive at this conclusion! The next move is to re-sort again, and this third sorting only brings matters back into the shape they were in on the first sorting. Up to this point, if a balance is found, the figures on form 14 sheets are copied into the check ledger. If a balance is not found, then the business must be entered into the check ledger from the messages, at the same time checking the form 14 sheets to find the error. This method appears to the writer to be a needless, laborious process, and much of the work involved might well be omitted.

The Lewis-McIntosh Repeater.

A repeater, known as the Lewis-McIntosh, has been designed by C. L. Lewis, superintendent of the Postal Telegraph-Cable Company, at Los Angeles, Cal., who was assisted in its development by L. C. McIntosh, of the same place. While ingenious in its construction, and a creditable production to its designers, at the same time it embodies no novel departures from the general lines established in the old Toye repeater, of which, in fact, it may be said to be a modification. In the Lewis-McIntosh repeater, however, the winding of the relays is double and the points of the relays are arranged to do duty as transmitters. There are, therefore, but two essential instruments in the repeater which requires no locals and which is very easy of adjustment and operation.

The repeater was tested for nine months on the coast circuit of The Associated Press, from

the fiscal year 1904-5, a sum not exceeding \$15,000. For the fiscal year 1905-6, a sum not exceeding \$10,000. For the fiscal year 1906-7, a sum not exceeding \$10,000. For the fiscal year 1907-8, a sum not exceeding \$5,000. The said sums may be paid at such times and in such manner as the Minister of Finance may determine, to any association or committee representing the proprietors of such newspapers as may associate themselves for the purpose of establishing and maintaining such service. Provided, however, that no payment shall be made under authority of this act until the Minister of Finance shall have satisfied himself that the benefits of the service are open, on fair and reasonable terms, to all newspapers published in Canada, and that not less than one-half of the cost of establishing and maintaining such service is paid by the proprietors of the newspapers participating in the benefits thereof.



San Francisco to San Diego, via Los Angeles. It was in service continuously, night and day, during this period, which included the rainy and foggy seasons, with all their vicissitudes, and it stood up well under the prolonged trial, thus proving the value of the device.

Subsidized Press Service in Canada.

The Dominion Finance Minister's resolution, under which Government aid will be granted for the establishment of a cable press service from Great Britain, is as follows:

The Governor-General in council may authorize the payment of the following sums, in the respective fiscal years mentioned, for the purpose of assisting in establishing and maintaining an independent and efficient service of telegraphic news from Great Britain for publication in the Canadian press. For the fiscal year 1903-4, a sum not exceeding \$15,000, or at the rate of \$15,000 per annum, for any period less than a year. For

Derivation of "Telephone."

The word, telephone, as explained in the "American Telephone Journal," is formed from the two Greek words, *tele*, afar, and *phonicin*, to sound, or to speak, and therefore means far speaker. Words derived similarly are telegraph, from *tele*, and *graphcin*, to write, meaning far writer, and telescope, from *tele*, and *skopcin*, to see, meaning far seer. The word, telephone, was used many years before Bell's invention, as early, it is said, as 1820, by Charles Wheatstone, who used it as a name for a device for transmitting the sound of the voice for a considerable distance along a wooden rod.

The paper poles, now used to some extent in Belgium, for telegraph purposes, are said to be lighter and stronger than those of wood, and to be unaffected by sun, rain, dampness or any of the other causes which shorten the life of a wooden pole.

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NEW YORK, September 16, 1903.

The Telegraph Tournament.

The coming telegraph tournament to be held in Philadelphia, on October 30 and 31, especially as it becomes more and more evident that it is to be conducted on a scale likely to bring out the most expert telegraphic skill, is arousing a widespread and unprecedented interest, not only in this country, but abroad as well. The intelligence and energy that is being displayed by the management in pushing this undertaking is most commendable and augers well for its success.

It behooves all telegraphers to lend the enterprise such aid as may be in their power, whether by word or deed; and also by making such contributions of money as may be possible, for it should be remembered that considerable money will be necessary in order to meet expenses and to provide a fund sufficient to cover the amount to be paid out in cash prizes. It is pointed out that intending visitors to the exhibition can aid the project by purchasing their tickets now.

Such contests as this tournament promises to be, are well calculated to promote friendly rivalry and good feeling in the telegraph profession, and to raise the standard of operating excellence. By all means, then, let the tournament receive in advance a guarantee of assistance from all sides that shall not only lessen the burden of those who are entrusted with the management of the affair, but relieve them from all mental anxiety as well. This is a duty that all owe.

And it should not be forgotten that the tournament was undertaken, not as a money making affair, for as a matter of fact those who are carrying out its programme are actuated by high motives—engaging in a labor of love for which they receive no compensation whatever. All the money collected will be paid out in prizes, less legitimate expenses.

State Regulations of Telegraph.

The Georgia Railroad Commission came to a decision recently that will put the Southern Express Company, the Western Union Telegraph Company and the Postal Telegraph-Cable Company as much under its direct supervision as the railroads of that State now are. The action of the commission which has this result was an order passed requiring the foregoing companies to make reports of a general nature in regard to the business of each, just as are now required of the railroads. This was done by the commission of its own motion, and is for the purpose of keeping the supervising official body, such as the commission is, informed along the lines which will enable it to decide whether or not express and telegraph charges in that State are reasonable, just and proper.

It will be remembered that most of the other States in the Union are also endeavoring to do the same thing that Georgia is seeking to accomplish. Should they ever achieve their purpose it will result in seriously hampering the telegraph service of the country. An average sized railroad does not pass through very many States and is therefore not seriously interfered with in the transaction of its business by the idiosyncrasies of the commissions of the States through which it passes, whereas, the telegraph companies whose lines enter every State in the Union, will have a serious problem before them if compelled to comply with arbitrary rulings of commissions who do not understand the intricate nature of the telegraph service.

Liable for Damages From Leaning Poles.

By a decision of the full bench of the Supreme Court of Massachusetts, filed at Boston, September 3, telegraph and telephone companies may be held liable for injuries sustained by persons thrown against poles, provided due care is taken by such persons to avoid accident.

The decision is in the case of Jeremiah Riley against the New England Telephone and Telegraph Company. Riley was injured while driving his wagon through Bridge street, Cambridge, and sought damages. He was obliged to drive close to the curbing in order to permit an ice wagon to pass, and in doing so collided with one of the defendant company's poles and was thrown to the pavement. Evidence showed that the pole leaned toward the centre of the street.

The full court holds that the company was obliged, under the license granted by the Board of Aldermen to erect and maintain poles, to keep the poles "as nearly perpendicular as practicable."

There is a dissenting opinion by Judge Lathrop, who disagrees with the majority of the court's interpretation of the statute, saving in substance that the defendant company should not be held liable in this case any more than if a disobedient automobile or runaway electric car collided with the pole,

The Convention of the International Association of Municipal Electricians, at Atlantic City.

The eighth annual convention of the International Association of Municipal Electricians was called to order at 10 A. M. on September 3, in the convention hall of the Hotel Rudolf, Atlantic City, N. J., by President W. H. Thompson, of Richmond, Va. After prayer by Rev. C. D. Sinkerson, the president introduced Mayor Franklin P. Stoy of Atlantic City, who warmly welcomed the convention in the name of the municipality, and in a short speech tendered to the delegates the freedom of the city.

J. B. Yeakle of Baltimore, responded to the Mayor on behalf of the association. He thanked the chief magistrate for his cordial words of welcome and stated that the work of a convention, such as this, was to compare notes between the representatives of different cities so that the general service of municipal life may be made better and safer for all citizens.

President Thompson in his opening address, said in part:

"I congratulate the association on the representation here today on the opening of its eighth annual convention, and I feel that I am expressing the sentiment of every member when I say that our yearly gatherings are of the greatest practical benefit to all.

"When we are sent forth annually by our city fathers, we spend our vacation in the best possible way by meeting together and learning from one another the best means by which we can pursue our callings with a greater degree of efficiency, so that the people of the communities we represent may be benefitted by the better security to life and property which results from improvements in municipal electric service.

"Of course there is some frolic and a good time is enjoyed at all such gatherings as these, but we always carry away with us a very large amount of practical and technical benefit conferred.

"I have been in this beautiful seaside resort only a few hours yet have noticed the marked attention which our delegates have received here, and I wish as the official representative of the Municipal Electricians to convey the assurance that we highly appreciate and accept the evidence of such kindly feeling, and congratulate ourselves that such a happy selection of place was made for our meeting of 1903.

"Thanking the local committees for their elaborate preparations for our comfort and entertainment while here, especially the ladies, and with the belief that this session of our association may be one of the most profitable ever held; and also with the hope that the proceedings will be marked with wisdom and moderation and be a time of improvement for all present, I now declare the convention open for business."

Mr. Jerry Murphy moved a vote of thanks of the convention to Mayor Stoy and the Rev. Mr. Sinkerson for their attendance and for the courtesy of their welcoming words.

Mr. W. W. Petty then read the programme of entertainment.

The courtesies of the Western Union Telegraph Company, the Postal Telegraph-Cable Company, and the local and Long Distance telephone companies were extended to members of the association.

Mr. Petty, chairman of the Executive Committee, read a lengthy report recommending certain changes in the by-laws which were adopted, and all the changes advocated were agreed to. The following new members were then elected:

James F. McElholm, inspector of wires, and M. J. Burns, superintendent of police telegraph, Lowell, Mass.; Frank R. Whitney, superintendent of fire and police telegraph, Lewiston, Me.; Frank M. Sutton, assistant chief and electrician, Lexington, Ky.; Louis Gascoigne, superintendent of fire alarm, Detroit, Mich.; Reuben W. L. Baron, inspector of wires and superintendent of fire alarm, Arlington, Mass.; Timothy C. O'Hearn, city electrician, Cambridge, Mass.; J. S. Dugger, city electrician, Chattanooga, Tenn.; F. A. Cambridge, city electrician, Winnipeg, Man.; George T. Sever, consulting electrical engineer, department of water supply, gas and electricity, New York City; Crouse-Hinds Electrical Company, Syracuse, N. Y.; B. A. Blakely, city electrician, Montgomery, Ala., and Benito Laguerusla, municipal architect, Havana, Cuba.

Letters of regret were read from W. A. Barnes, of Bridgeport, Conn.; M. W. Mead of Pittsburg, Pa., and W. Y. Ellett, of Elmira, N. Y., who were unable to be present. A committee was appointed to draw resolutions of condolence on the death of members occurring during the previous year.

The afternoon session, which was presided over by First Vice-President Murphy, was devoted to the reading and answering of questions found in the question box.

Discussion on the question box queries was animated and was participated in by many of the delegates.

Secretary Foster read a paper written by Captain William Brophy, of Boston, on grounded circuits.

The Thursday morning session, September 3, was opened by Vice-President Murphy when the discussion of the question box was continued. A paper was read by Mr. Murphy on the destruction of cable sheaths and electrolosis.

In the afternoon the first business was the reading by Secretary Foster of the paper written by A. S. Hatch of Detroit, on the duties of the city electricians. This was an interesting and instructive paper, the greater portion of which was published in the September 1 issue of TELEGRAPH AGE. A vote of thanks was tendered to both Mr. Hatch and Captain Brophy for their timely contributions.

Mr. J. B. Yeakle brought up the question of protecting linemen in the discharge of their duties. The subject aroused attention and was discussed at some length. Many instances were given

where linemen showed carelessness by laying aside their means of protection and where they were exposed to the dangers of high tension currents. This was followed by some discussion on the advisability of grounding all cable, whether overhead or underground, at the point of entering buildings.

Mr. Petty, of Rutherford, N. J., said that he had ascertained by experimenting that there was a remarkable similarity of temperature and resistances. He had made a table covering a period of six months which proved that resistance of wires proportionately changed with the temperature.

In the evening Mr. A. Frederick Collins, of New York, gave a demonstration on wireless telegraphy.

At the meeting on Friday morning, September 4, Mr. H. W. Pope of the American Telephone and Telegraph Company, New York, read a paper on the extension and applicability of the telephone, a topic which received considerable discussion. The unanimous thanks of the convention were voted to Mr. Pope for his valuable paper.

During the afternoon the exhibits made by manufacturers received a large share of attention and a number of interesting exhibitions with apparatus were made. Between the hours of four and six o'clock the visitors partook of an old-fashioned clam bake.

The report of the treasurer, Mr. Adam Bosch, showed a balance on hand of \$233.55.

The election of officers for the ensuing year resulted as follows:

A. C. Farrand, Atlantic City, N. J., president; W. W. Petty, Rutherford, N. J., first vice-president; G. F. Macdonald, Ottawa, Ont., second vice-president; F. E. Pierson, Morristown, N. J., third vice-president; F. A. Cambridge, Winnipeg, Man., fourth vice-president; F. P. Foster, Corning, N. Y., secretary, and Adam Bosch, Newark, N. J., treasurer.

Executive Committee:—Jerry Murphy, chairman, Cleveland, O.; J. B. Yeakle, Baltimore, Md.; M. J. Donohue, Niagara Falls, N. Y.; Frank C. Mason, Brooklyn, N. Y.; G. H. Holderman, Indianapolis, Ind.; J. W. Aydon, Wilmington, Del.; W. H. Thompson, Richmond, Va.; William Crane, Erie, Pa., and W. H. Bradt, Troy, N. Y.

Finance Committee.—C. E. Deihl, Harrisburg, Pa.; J. McElholm, Lowell, Mass.; James F. Burns, Schenectady, N. Y., and Louis Gascoigne, Detroit, Mich.

The decision as to the question of time and place of holding the next meeting was left to the Executive Committee.

In the evening a demonstration of the Cooper-Hewitt mercury vapor lamp and static converter was made by M. von Recklinghausen Ph. D., in which Percy Thomas, E. E., assisted.

During the term of the convention the hour between twelve and one, immediately following the close of the business session of each morn-

ing, was devoted to the pleasures of bathing in the ocean. At other leisure times, especially in the evening, the famous board walk of Atlantic City, which extends for miles up and down the ocean front, the great promenade of that resort, afforded no end of attraction, and a source of amusement to the electricians, the rolling chair ride of five miles being a feature. On the afternoon of September 3, the second day of the convention, a delightful sail on the ocean, from four to six o'clock, was enjoyed by a large number of the delegates.

Among those present were:

New York City.—J. Jones, Jr., F. W. Hawkins, F. Pearce and wife, M. J. O'Leary and wife, J. B. Taltavall and wife, G. W. Elliott, Elmer E. Wood, R. Mace, W. C. Banks, C. P. Sharp, A. Frederic Collins and wife, M. F. Waterman, M. von Recklinghausen, Ph. D., and Percy Thomas, E. E.
 Wilmington, Del.—J. W. Aydon.
 Winnipeg, Man.—F. A. Cambridge.
 Richmond, Va.—W. H. Thompson and wife, and Miss Lucille Thompson; P. W. Hessburg.
 Erie, Pa.—W. Crane and D. Zinn.
 Baltimore, Md.—J. B. Yeakle and wife.
 Schenectady, N. Y.—J. F. Burns.
 Decatur, Ill.—L. H. Sullivan.
 Ottawa, Ont.—G. F. Macdonald.
 Lexington, Ky.—F. M. Sutton.
 Cambridge, Mass.—T. C. O'Hearn and J. B. Valley.
 Pittsburg, Pa.—M. Leveen, J. H. Dorrington, C. Hemerhouse, J. H. Hinchman and wife.
 Montgomery, Ala.—B. A. Blakely.
 Syracuse, N. Y.—S. R. VanRaust.
 Allegheny City, Pa.—E. G. Loomis.
 Ashtabula, O.—E. E. Beam and wife.
 Morristown, N. J.—F. E. Pierson.
 Indianapolis, Ind.—G. H. Holderman.
 Charleston, S. C.—Ion Simons.
 Springfield, Mass.—F. E. Coward.
 Atlantic City, N. J.—I. Wiesenthal, C. C. Whippey, C. M. Speidel, J. W. Garey, A. C. Farrand and wife; H. R. Pennypacker and wife.
 Newark, N. J.—Adam Bosch.
 Troy, N. Y.—W. H. Bradt and wife.
 New Haven, Conn.—J. Grant.
 Niagara Falls, N. Y.—M. J. Donohue.
 Boston, Mass.—T. W. Bibber.
 New Rochelle, N. Y.—A. J. Bell.
 Corning, N. Y.—F. P. Foster and wife.
 Rutherford, N. J.—W. M. Petty and wife.
 Watertown, N. Y.—H. C. Bundy.
 New Brunswick, N. J.—C. Greenwald.
 Chattanooga, Tenn.—J. T. Dugger and R. Dugger.
 Washington, Pa.—T. Coyne.
 Lowell, Mass.—J. F. McElholm, W. C. Fednabel, M. J. Burns.
 Rochester, N. Y.—L. W. Miller.
 Brooklyn, N. Y.—H. Hawkins, L. Rosenburg and F. C. Mason.
 Trenton, N. J.—O. M. Schafer and wife.

Harrisburg, Pa.—H. Marks and wife; C. E. Diehl and wife.

Havana, Cuba.—Beniti Lauguerusla and J. de Estrampes.

Philadelphia, Pa.—P. W. Bossart and wife; R. S. Mueller, J. W. Simon, Jr., D. R. Kunkelman, L. J. Strause and E. W. Wilkins.

Detroit, Mich.—L. Gascoigne.

Cleveland, O.—Jerry Murphy and wife.

Galveston, Tex.—H. Sonnentheil.

Altoona, Pa.—C. S. Downs and wife; G. R. Downs.

Reading, Pa.—S. S. Schwenier and wife; C. A. Hofses.

The New President of the International Association of Municipal Electricians.

Albert C. Farrand, who was elected president of the International Association of Municipal Electricians, at the Convention of that body held at Atlantic City, N. J., on September 2, 3 and 4, is the city electrician of that place. He was born in Oshkosh, Wis., on April 24, 1861. He became identified with the fire alarm telegraph at that point, and early in life showed much aptitude for that special calling, in the details of the system of which he became expert. In 1887 he first went to Atlantic City where he built and equipped the fire alarm telegraph system. In 1892 he came



ALBERT C. FARRAND, OF ATLANTIC CITY, N. J.
President of the International Association of Municipal Electricians.

to New York to enter the employment of the Gamewell Fire Alarm Telegraph Company. Here he remained until 1898, with much credit to himself, when he resigned to accept the position of City Electrician at Atlantic City, to which he had been elected, and which he has since held.

An effort made for the happiness of others lifts us above ourselves.—Mrs. L. M. Child.

Cultivation to the mind is as necessary as food is to the body.—Cicero.

A Unique Photograph of a Memorable Occasion.

At a dinner given by the Magnetic Club, of New York, in honor of Col. R. C. Clowry, president and



A SOUVENIR OF THE MAGNETIC CLUB DINNER.

general manager of the Western Union Telegraph Company, in April last, the various tables were indicated by numbers attached to miniature telegraph poles fitted with cross-arms, insulators, etc., a device designed by Mr. T. E. Fleming, of the Postal Telegraph-Cable Company. Mr. Fleming has used this pole design in a novel way having vignettes made of the special guests at the head table. Mr. Fleming has employed his pole design in working out a clever idea in securing a photograph of the same with its top crowned with vignettes of those who sat at the guests' table on the memorable evening. The pictures are excellent, and the pleasing illustration is shown herewith. The portraits, beginning at the top, and running from left to right are:

William H. Baker vice-president and general manager of the Postal Telegraph-Cable Company; Col. Robert C. Clowry, president and general manager, Western Union Telegraph Company; F. W. Jones, president of the Magnetic Club and electrical engineer, Postal Telegraph-Cable Company; George G. Ward, vice-president and general manager, Commercial Cable Company; H. D. Estabrook, solicitor, Western Union Telegraph Company; J. C. Barclay, assistant general manager, Western Union Telegraph Company; Col. A. B. Chandler, chairman board of directors, Postal Telegraph-Cable Company, and Melville E. Stone, general manager, The Associated Press.

The testimony of progressive operators is that TELEGRAPH AGE is so thoroughly comprehensive in character as to make it absolutely indispensable to those who would keep informed. Its technical articles are of high practical value. Write for a free sample copy.

The Rowland Multiplex Printing Telegraph System.

The Rowland Telegraphic System, is a system in which the two features of multiplexing and printing are combined. The multiplex feature is accomplished by the synchronous operation of the instrument at the terminal stations. By this means, each of four operators are given the use of a telegraph wire for one-sixteenth of a second at intervals of one-quarter of a second. In addition, the wire is duplexed by the polar duplex method, so that four transmissions in each direction, or eight in all, are obtained.

The printing is accomplished by a perfectly direct method—that is, no punched or otherwise prepared tape is used at either the sending or receiving station, but is controlled directly from a keyboard, identical with that of a typewriter. The total duration of the operation, from the depression of a key until the character is printed at the receiving station, is less than one-quarter of a second.

All the operations at the receiving stations are controlled by the keys on the keyboard at the sending station. This keyboard is identical with a typewriter keyboard, except in two particulars. One difference is, that on account of the distribution of the line to different operators, the keys are locked and unlocked at intervals of one-quarter of a second. An operator can only depress a key when it is unlocked, the key then remains depressed until the signal for this letter has been transmitted. At the end of a quarter of a second the operator can depress another key and the key first depressed will automatically return to its normal position. The other particular in which the keyboard differs from a typewriter keyboard, is in the addition of three keys, the so-called lining, backing and blanking keys. The lining key is for the purpose of enabling the sending operator to move the paper from line to line on the printer at the distant station, the paper being moved the distance between two consecutive lines each time this key is depressed. The backing key is used for the purpose of returning the carriage at the distant station to the beginning of a new line. The blanking key is used for the purpose of shifting to the proper position for beginning a new message, a telegraph blank on the printer at the distant station. By the use of these keys in conjunction with the other keys, the operator has perfect control over the receiving printer at the distant station. All the operations performed on a typewriter, such as paragraphing, tabulating, etc., can be performed equally well with this keyboard.

At the sending station, in addition to the keyboard, there is a home recorder and signal light for the guidance of the operator.

The home recorder consists of a tape printing arrangement. A narrow paper band passes directly over the keyboard, and directly in front of the operator. On this tape is recorded the character, corresponding to each key depressed. When the

lining, backing and blanking keys are depressed in place of performing these operations, a character is printed on the tape, indicating that these keys have been operated properly. When the backing key is depressed, an arrow is printed on the tape. This arrow, as the tape moves, travels with the tape along a properly graduated scale, and indicates to the operator the position of the character last printed on the page at the receiving station.

In addition to the above means of guiding the sending operator, there is placed beside the keyboard, a small red signal lamp. When the carriage at the receiving station has approached within a certain number of characters of the end of the line, this signal lamp automatically lights, thus preventing the sending operator from piling letters at the end of a line, performing the same function as the bell on a typewriter. When the operator depresses the backing key, this light goes out as soon as the carriage at the distant station has returned to the beginning of a new line. At the receiving station, the messages are automatically printed in page form.

The paper on which the messages are printed is a long band about eight inches wide. On this are printed at the intervals desired the regular telegraph blank form. On these blanks the messages may be printed in any desired form, there being the same flexibility as can be obtained by the use of the typewriter.

The page printer consists of a light carriage, which carries the paper and is capable of being moved in a horizontal direction for purposes of spacing. The paper is carried around a roll, which by rotating places the paper in position for a new line. The paper is carried between a platen and a constantly rotating steel wheel, having the various characters engraved on its rim. When a character to be printed is directly over the platen, the platen throws the paper against the type wheel, which is continually inked by a small felt ink wheel. All the above motions and operation of the platen are produced by electro-magnets under the perfect control of the sending operator.

SPEED OF OPERATION.

The speed of each operator is limited by the number of times per minute the keys are unlocked. One key can be depressed each time it is unlocked except that in certain cases two keys can be pressed at one time; and it is so arranged that these combinations of two keys are those which occur most frequently together, for example: th, an, e and space, d and space, t and space. Without the use of these combinations, the theoretical maximum speed is about 45 words per minute. By the use of these combinations, the speed may be increased about ten per cent., or to about 50 words per minute. On account of the time required for returning the carriage to the beginning of the line, and also due to the fact that the operator does not always take advantage of the unlocking of the keys, when operating for long periods, the speed in actual practice is from 35 to 45 words per minute, depending upon the operator.

However, except on the longest lines (500 miles or more) the speed of operation of the machine may be very materially augmented. Upon the basis of 30 words per message, which is generally accepted as a fair average, this speed is equivalent to a rate, it is said, of from seventy to seventy-five messages per hour, per operator, or 280 to 300 in each direction per hour, per wire, of 560 to 600 per hour per wire for the full octaplex.

EVIDENT ADVANTAGES OF THE ROWLAND.

1, Direct method of operation; 2, large carrying capacity per wire; 3, large capacity per operator; 4, messages printed in page form, ready for immediate delivery; 5, small liability to error; 6, ease of manipulation; 7, flexibility; 8, printed record at sending station.

TELEGRAPHIC CURRENT.

In the Rowland system of telegraphy, the basis is in an alternating current, that is, a current which periodically changes its direction. The current

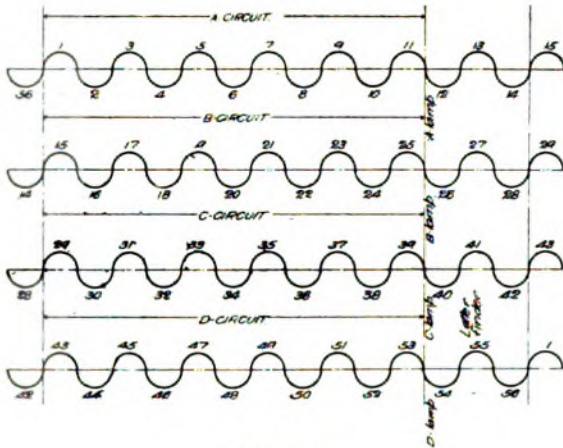


Figure 1.

usually has a period of 100 per second, that is, it reverses its direction 200 times, going 100 times in one direction and 100 times in the other direction in each second, the intervals all being equal, each impulse lasting one two-hundredth of a second. The same current is used for signalling and synchronizing. This alternating current is sent over the line continuously, the signals consisting in reversing certain combinations of waves, as will be described later. Figure 1 represents a block of 56 of the impulses mentioned, those above the line being in one direction and those below in the opposite direction. The impulses are numbered from 1 to 56, after 56 the start is again made with number 1, and so on. This block of 56, which lasts a little more than one-quarter of a second, is divided into four blocks of 14 each, A, B, C and D, each of which is assigned to a different operator, making four transmissions each way by the duplexing mentioned. Each block recurs at intervals of one-quarter of a second. For the purpose of sending the actual printing signals, only 11 impulses are used in each block, the remaining 3 being used for other purposes, such as operating bell or lamp

signals between the stations. The sending of a signal for the printing of a character at the distant end, consists in the reversal of two of the eleven impulses. By variously combining two at a time of the eleven impulses, a sufficient number of signals are obtained for telegraphic purposes, that is, 45 possible different signals, any of which

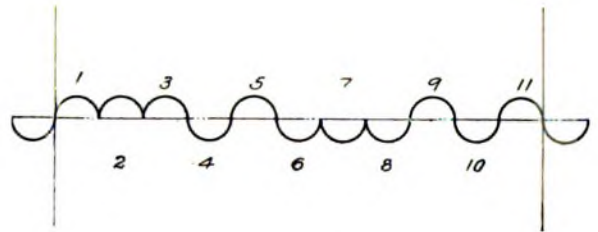


Figure 2.

may be transmitted during a time in which eleven impulses pass over the line. Figure 2 shows a diagram of the current when impulses 2 and 7 have been reversed.

MAIN LINE CONNECTIONS.

The telegraphic current is furnished by a transformer, (see Fig. 3) having two secondary windings, one terminal of each of which is connected to the ground; the other terminals are connected to the contacts T₁ and T₂ of the transmitter T. The tongue 1 is connected to the junction of a differentially wound polarized main line relay. The real and artificial lines being connected as in ordinary duplexing. The two secondaries of the transformer are connected in reverse, so that the tongue 1 makes connection with T₂, and breaks connection with T₁, the alternating current is reversed as long as this is the case. Reversals are obtained by a local current passing through the coil c, which causes T₂ to come in contact with 1 and at

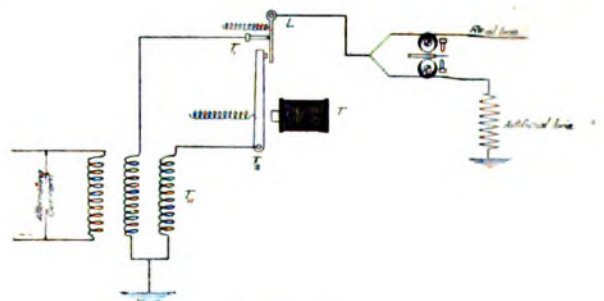


Figure 3.

the same time break the connection between 1 and T₁. The operation of this local circuit will be shown later.

SYNCHRONISM.

The synchronism in this system of telegraphy is what may be called a continuous synchronizing system and not a correcting system, as has been used in many systems of synchronous telegraphy. By a correcting synchronizing system, is meant a system in which the speed of the trailers or brush-

es are kept revolving at approximately a definite speed by purely local means; when they vary from this by a certain amount a correction is introduced, which occurs at definite intervals.

In the present type of Rowland machine, the synchronizer consists simply of a small direct current shunt motor (see Fig. 4). On the same shaft as the armature of this shunt motor, is mounted a crown commutator. (The effect of this rotating crown commutator, is similar to that of a vibrating relay tongue. The brush h is alternately connected to the brushes f and g). R is a polarized main line relay. The tongue c of this relay is kept in continuous vibration by an alternating current, which comes from the distant end of the telegraph line. The contacts d and e are connected respectively to the brushes g and f. In series with the armature of the motor, is connected a resistance of 300 ohms and a rheostat k for regulating the speed of the motor. The tongue c of the relay is connected to the point a and the brush h to the point b. If the tongue c touches the contact d at the same time the brushes h and g are connected by the commutator, the

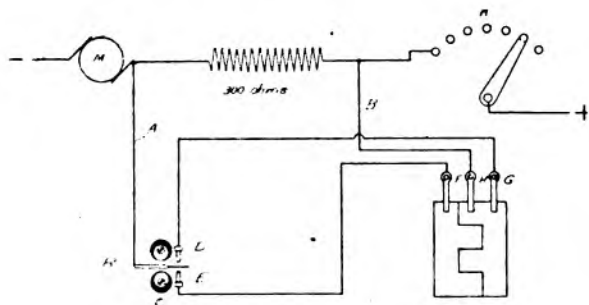


Figure 4.

resistance of 300 ohms is cut out of the armature circuit; if the tongue c touches the contact e at the same time that the brushes f and h are connected by the commutator, the 300 ohms is cut out of the armature circuit. However, if the tongue c touches the contact d at the same time that the brushes f and h are connected by the commutator, the 300 ohms is in circuit. Likewise, if the tongue c touches the contact e at the same time that the brushes h and g are connected by the commutator, the 300 ohms is in circuit. Now, let us assume that the relay tongue c is kept in continuous vibration by an alternating current from the distant station, and that we have regulated the rheostat so that the speed of the commutator is such that the relay tongue c passes from the contact e to the contact d as the brush h breaks connection with f and makes connection with g and when c passes from the contact d to the contact e, h breaks connection with g and makes connection with f. By following this operation through it will be seen that as long as this is the case, the 300 ohms will be out of circuit. Now, let us again assume the speed to be so regulated that as the tongue c passes from the contact e to the con-

tact d, h breaks connection with g and makes connection with f, and when the tongue c passes from the contact d to the contact e, the brush h breaks connection with f and makes connection with g.

By following the connections in this case, it will be seen that as long as this condition is maintained the 300 ohms will be in circuit. By considering the two described cases, it will be seen that the commutator in both cases is rotating at the same speed, the only difference being, that in the one case it is shifted one segment ahead of its position in the other case. While in one case the 300 ohms is in circuit, in the other it is out of circuit. If in both cases the voltage used for the motor is the same, in order to keep the speed the same, the rheostat must have placed 300 ohms more in circuit in the one case than in the other. If, in place of considering the position of the commutator, differing by a whole segment, we take intermediate positions, we will see that the 300 ohms is in circuit part of the time and out part of the time, and is equivalent to some resistance between zero and 300 ohms permanently in circuit. Consequently, for the same speed of the commutator, the rheostat may have a great number of different positions, the only change being a shifting of the commutator ahead or behind. By considering this explanation, it will be seen that any changes in the resistance of the armature circuit, which would ordinarily change the speed of the motor, will, with this arrangement, simply allow the commutator to shift a small amount, with respect to the relay tongue, cutting in or out the 300 ohms a greater or less length of time, just sufficient to compensate for the supposed change of resistance. By further consideration, it will be seen, that a change of load on the motor, change of voltage or a change in the rate of vibration of the tongue of the relay R will be compensated for in a similar manner by a slight shifting of the commutator. So that after the motor has once been regulated by the rheostat to rotate the commutator at the proper speed, it will continue to do so, in spite of any ordinary variations.

In actual practice, it has been found that this arrangement will operate while the rate of vibration of the tongue c of the relay R is changed fifty per cent. It will also operate for corresponding variations at other points. It is also found, that for the ordinary variations occurring in actual practice, that the commutator shifts an exceedingly small part of one segment.

If this arrangement is used when any sudden variations occur, such as that caused by several reversed waves close together, the speed does not change smoothly, but jerks; that is, the synchronism oscillates. To prevent this oscillation, there is placed on the same shaft with the motor, a so-called viscous damper. This usually consists of a steel fly-wheel, having a hollow rim which is almost filled with mercury, so that the steel rim and mercury can rotate independently, but with considerable friction between them on account of

the pressure of the mercury on the rim. This damper has practically the same effect on the oscillation of the synchronism, as would be produced on the vibration of a pendulum, by immersing it in mercury or molasses.

TRANSMISSION OF SIGNALS.

The transmitting keyboard consists of a number of steel levers, pivoted in the middle (see Fig. 5). On one end is the key button *k* and on the other end a brass weight *w*, which when the key is depressed makes electrical contact with the

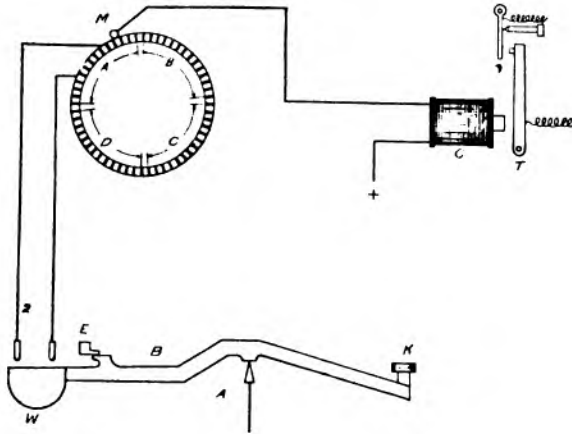


Figure 5.

insulated pins 1 and 2. On one end of the lever is also a lip *b*, above this is a steel blade *e*, which is given an oscillating motion, by means of a cam arrangement. In one position of this blade, the key is free to move up and down; in the other position the key is locked either up or down, depending upon whether the operator has depressed the key when it is free to move. This blade oscillates once every quarter second, thus allowing the operator to depress four keys every second. A, B, C, D, is a commutator, having 56 segments, each segment corresponding to one of the impulses mentioned. The frame of the keyboard is connected to the negative terminal of the direct current main. The insulated pins 1 and 2 are each connected to a segment in one quadrant of the commutator. The two insulated pins from each key being connected to different sets of two, depending on which character the key corresponds to. The brush, or trailer, *m*, is connected to the one terminal of the transmitter coil *c*, the other terminal being connected to the plus terminal of the direct current mains. When a key is depressed, the bar *e* locks it until the trailer *m* has passed over the quadrant belonging to the keyboard upon which this key is situated; and while the trailer *m* is passing over the segments corresponding to the two pins which this key has connected to the keyboard frame, current is sent through the coil *c* of the transmitter, and the line current is reversed as described.

RECEIVING THE SIGNAL.

Before printing, the signals are received on a bank of eleven polarized relays called "selecting" relays.

This is necessitated by the fact that each character is produced by a combination of two line signals, and the first signal must be stored, so to speak, until the second one is received. The method of operating these "selecting" relays is shown in Fig. 6, only two are connected for simplicity, all the others having identically the same connections. A resistance of 600 ohms is connected across the direct current mains; at the points *b* and *d*, 100 ohms from each end, taps are taken off and connected to the contacts *f* and *h* of the main line relay. *Rp* is either a second main line relay, or a second set of contacts on the main line relay used for synchronism. The tongue *g* of the main line relay *Rp* is connected to the trailer *i*, which revolves about a commutator of 56 segments. Each segment of this commutator is connected to one terminal of a "selecting" relay, the remaining terminal of each "selecting" relay is connected to the middle point *c* of the 600 ohm resistance. If the tongue *g* of the main line relay is on the contact *f* it will be nearer the plus terminal than the point *c* and current will enter the local relays from the trailer *i*; if, however, the tongue *g* is on the contact *h*, it will be nearer the minus terminal than the point *c* and current will enter the "selecting" relays through *c*, or, in the reverse direction from the former case. The trailer *i* is kept in rotation (by the method already described) in such a manner that as the tongue *g* of the main line relay, passes from one contact to the other, the trailer *i* always passes from one segment to the next.

When the trailer *i* is rotating synchronously, as described, and at the same time the tongue *g* of the main line relay is vibrating in a regular manner—that is, when no waves are reversed—all the "selecting" relays are connected in such a manner that each relay receives an impulse that pulls it against its back stop, when the trailer *i* passes over its segment. If

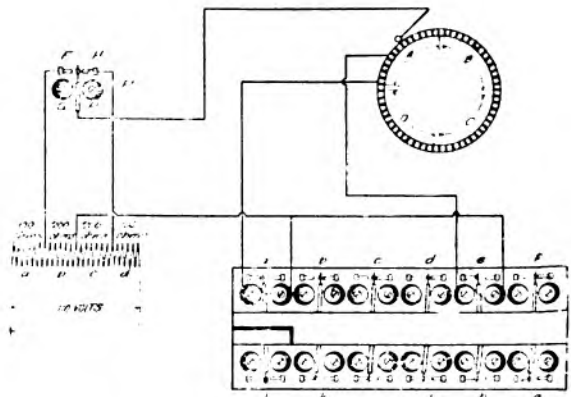


Figure 6.

now, any particular impulse is reversed, the tongue *g* of the main line relay will be on the opposite side to that on which it would be ordinarily when the trailer *i* passes over the segment corresponding to this impulse, and consequently, the corresponding "selecting" relay will receive a reversed impulse and will be thrown against its front contact, making electrical connections between its insulated front

stop and the tongue of this relay and will remain in such position until it receives a back impulse upon the next revolution, or the first succeeding revolution that the corresponding impulse is not reversed. Each "selecting" relay receives an impulse as the trailer passes over the segment, whether this impulse pulls the tongue against its back or front stop, depends upon whether the corresponding impulse is unreversed or reversed.

AUTOMATIC TRANSLATION OF THE RECEIVED SIGNALS INTO PRINTED CHARACTERS.

The page printer by means of which 41 different operations may be performed from the keyboard

a hammer, or platen, which throws the paper up against the lower side of the rim of the type wheel, at the moment when the character to be printed has turned to its proper position above the hammer.

Fifth: a set of five polarized relays, called the "distributing" relays, which serve the purpose of making contacts at proper moments for sending current to the printing magnet to print; to a liner magnet to line the paper; to a spacing magnet to move the paper sideways; to a backing magnet, which allows the carriage to return the paper to the proper position for beginning a new line, and to a so-called blanking relay, to feed out the paper until a new blank is in the proper position for the beginning of a

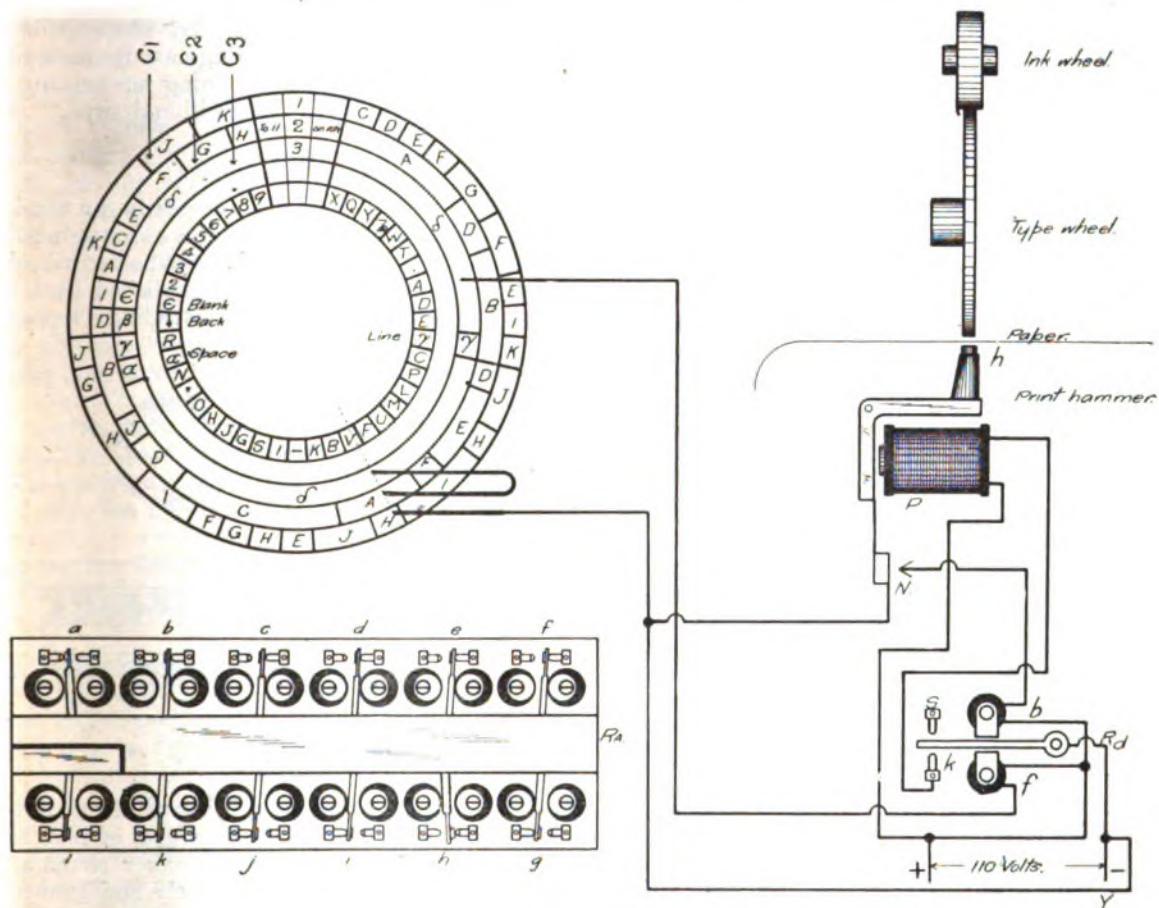


Figure 7.

controlled by the operator at the distant station, involves the following essential features:

First: a solid steel type wheel, about two inches in diameter, on the circumference of which the characters to be printed, are engraved. This type wheel revolves continuously at the end of a horizontal shaft and in synchronism with the trailers.

Second: a light paper carriage, which carries the paper that is fed from a roll underneath the type wheel when new lines are to be made.

Third: device to thrust the paper forward to make the lines, and sideways to space the letters and a back carriage device to return the paper to position where a new line of printing is to start.

Fourth: a small printing magnet, which operates

new message. Each of these operations is controlled by a key on the keyboard at the distant station.

Sixth: a so-called combination commutator, the function of which will appear from the following description: Figure 7 shows diagrammatically the combination commutator, the tongues and contact points of one of the four banks of the "selecting" relays, and also a part of the connections of the page printer. The combination commutator is made up of three parts, or circles, C₁, C₂ and C₃. Each of these circles is divided into segments of different widths, with insulation between them; t₁, t₂ and t₃ are three brushes or trailers which sweep together around the commutator in the same time as the trailers on the sending and receiving commuta-

tors, and being on the same shaft as the type wheel, turn also with it. These trailers as they come to bear on different combinations of segments of the commutator, complete, together with contacts made by the relays of one of the four banks, circuits which actuate magnets which print the character and shift the paper. R_4 is one of the five distributing polarized relays. The current, through its coil b, brings its tongue against the back stop S, and the current, through its coil f, brings its tongue against its contact point k. P is a small printing magnet, which, when energized, causes the hammer or platen h to strike the paper up against the rim of the revolving type wheel. This is done so quickly that the type wheel may continue in constant rotation. X and Y are the positive and negative terminals of a 110 volt direct current circuit. The spacer, liner and back magnet, and the "distributing" relays which actuate them, are for sake of clearness, not shown in the diagram. A letter is now printed as follows:

Two impulses having been reversed in the group of impulses to which the bank of selecting relays R_a belongs, two of these relay tongues are thrown against their contact points where they remain until a reverse impulse returns them to their back stops. Suppose contact is made with the contact points a and h, then after a certain time the trailers t_1 and t_2 will have arrived on segments of the combination commutator which are respectively connected to the contacts a and h and the trailer t_3 will then in this case be on the segment δ . It may be noted that the inside circle C4 shows the position of the letters on the type wheel corresponding to the combinations of segments on the combination commutator. The circuit through the coil f is completed when the trailers reach the position indicated in the diagram as follows: Starting from the plus terminal X, through the coil f, to the segment δ , to the trailer t_3 , to the trailer t_2 , to the segment a, to the contact a, to the frame of the bank of "selecting" relays R_a , to the contact h, to the segment h, to the trailer t_1 , to the negative terminal, thus throwing the tongue of the relay R_4 against its front contact k. (It should be stated that all the relay contacts are connected to all segments of like letter in the combination commutator).

At the instant the contact k is made, the type wheel T has turned into a position so that the letter engraved upon its rim and which corresponds to the combination of segments a, h on the combination commutator is just over the platen h. In the case assumed the letter would be V. The contact at k being closed, the current passes from X through the magnet P to the contact k, to the frame of the relay R_4 , to negative. This energizes the magnet P throwing the paper by means of the platen h against the rim of the type wheel, thus printing the character V. Just as h strikes the type wheel a contact N is made, which sends current through the coil b, which returns the tongue of the relay R_a to its back stop, breaking the contact k and allowing the platen h to return to its normal position. The operation of spacing, lining and backing the carriage are performed in identically the same manner, except that the printing magnet P is replaced, in each case by

a magnet which performs these various mechanical operations. Four combinations g-b, k-b, k-d, and k-i are reserved for spacing, lining, backing and blanking. The segments α , β , γ , and blank are connected to the coils of their respective polarized distributing relays in a manner identical with that of the relay R_4 . The blanking device is an arrangement by means of which, when the "blank" key at the sending station is depressed, operates the blanking "distributing" relay on the page printer, this closes certain circuits which cause the lining mechanism to operate repeatedly at a great speed until a new blank has reached the position for the beginning of a new message, when a contact is automatically made, through perforations in the paper between consecutive blanks, which pulls the tongue of the blanking relay against its back stop, stopping the operation of the lining mechanism and leaving the next blank in the position desired.

HOME RECORDER.

In this system in addition to recording a received message in typewritten form, there is produced at the sending station, a typewritten tape record of all matter sent. This result is accomplished (see Fig. 8) as follows: For each sending keyboard

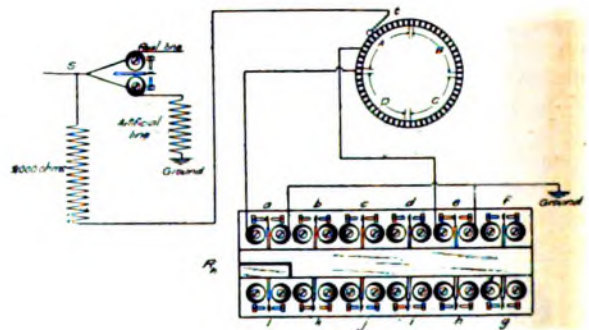


Figure 8.

there is a bank of "selecting" relays identical with those for the page printer, one terminal of each relay is connected to the ground, the other terminal of each relay is brought out separately and connected to the proper segment of a commutator of 56 segments. The trailer t of this commutator is connected through a resistance of about 2,000 ohms to the "split" S of the main line relay. It will be seen that by this arrangement a "leak" from the main signalling current reaches the ground through the various relays, as it is distributed by the commutator. As in the case of the receiving "selecting" relays, they are so connected that when no impulses are reversed, each relay receives a back impulse. However, if any impulse is reversed, the relay corresponding to this impulse, is pulled to its front stop. From this point on, the operation of the home recorder is identical with that of the receiving page printer, except that in the present type, the home record being on a tape, the mechanism for lining, backing and blanking is not required.

OPERATING SIGNALS.

It will be remembered that there were left in each quadrant three impulses unused. One of these impulses is used for the so-called operation of "finding the letter." It is evident that after synchronism has been obtained, that the trailers at the opposite end of the line may not be on the same segment at the same time, for example: The trailer at one end may be on segment 2, while the trailer at the other end is on segment 28. At the sending station, the 55th impulse is reversed every revolution; at the receiving station there is a so-called "letter finding" relay, which is connected to the 55th segment of the receiving commutator. This relay is so connected that if its segment corresponds to an unreversed impulse its tongue remains against the front contact and closes the circuit of a magnetic clutch, having 28 teeth, through a rotating commutator for a sufficient length of time to allow the trailers to drop back one tooth. As long as the tongue of the "letter finding" relay remains front, the trailers drop back one tooth each revolution, but as soon as the reversed 55th impulse falls on the 55th receiving segment, the "letter finding" relay tongue goes to its back stop, the circuit of the magnetic clutch is opened and the trailers retain a position corresponding to those of the sending station indefinitely. One of the remaining impulses in each of the quadrants is used for a so-called "back" signal lamp, the use of which has already been described.

These are the principal signals used at present. The remaining impulses can be used for any signals desired, such as ringing bells, etc.

RESUME OF OPERATION.

Let us follow briefly the operation, from a depression of a key to the printing of a character. The operator depresses a key on the keyboard, thus closing a local circuit which operates the transmitter, reversing the proper impulses and the signal has been started on the line. Thus far the operation is practically the same electrically, as the sending of a Morse signal on a polar duplex and from an operating standpoint much more simple.

At the receiving station, the current operates a duplex polar relay, practically identical with a Morse polar relay. This relay operates the "selecting" relays in practically the same manner as the Morse relay operates the sounder. These relays in connection with the combination commutator, operate the "distributing" relays on the printer, these in turn, operate the magnets which work the printer mechanically, making in all, six operations from the time the key is depressed until the character is printed. It will also be noted that since the four operators are using the line at different times there is no interference whatever of one operator with another. -

Energy the Powder of Success.

[From the Chicago Record-Herald.]

Sir Thomas Foxwell Buxton, one of the most indefatigable and energetic of workers, gave it as his opinion that the pre-eminent difference between men—between the feeble and the powerful, the great and the insignificant—is energy. On every hand we see people failing, their ability going to waste because of a lack of energy. If they could be shaken up to exert their powers, if a spark could be put to the powder that is in them, they might amount to something.

The world's greatest need is resolute, energetic workers. It is well nigh impossible to down vigorous, self-reliant men of action. Blow them this way and that, and they only bend; they never break. Put obstacles in their way, and they surmount them; trip them up, and instantly they are on their feet again; bury them in the mud, and almost immediately they are up and at work again. It is men of this caliber who build cities, establish schools and hospitals, whiten the ocean with sails, and blacken the air with the smoke of their industries.

A great many young men get along all right until they meet opposition; but the moment they strike an obstacle, they stop or try to get around it. They are like a certain old Scottish clergyman, who, when he came to a text which he could not explain, would say to his congregation, "Brethren, this is a difficult text; but do not let us be discouraged by it. Let us look the difficulty boldly in the face, and—pass on." The man of energy, he who possesses the powder of success, instead of passing on, blows the obstacle out of his path.

The moment you establish the reputation of being an energetic man—a man of industry, of firm, prompt decision, who does not waver or wobble—the world will make way for you. If, on the other hand, you acquire the reputation of being easy-going, of lacking energy, life, push, it will go hard with you. If you allow yourself to be pushed to one side, and people see that there is no iron in your blood, that you are made of soft metal, they will crowd you to the wall.

Nothing else, excepting honesty, is so much in demand in these days as "vim." Everybody believes in it. It wins its way everywhere. Ability is worthless without the power to put it into action. Resolutions, however good, are useless without the energy necessary to carry them out. Push clears the track; people get out of the way of an energetic man. Even small ability, with great energy, will accomplish more than the greatest ability without energy. If fired from a gun with sufficient velocity, a tallow candle can be shot through an inch board.

No boosting, no "pulls," no help from the outside, will enable a man to rise, unless he has vim enough to move forward of himself.

So it is all through life, from childhood to manhood. You can never succeed in anything without your own efforts. You must generate the mo-

tive power to run your own engine, or you will never get anywhere, never accomplish anything, never be a complete man.

From Messenger Boy to College Instructor.

Mr. E. B. Pillsbury, superintendent of the Postal Telegraph-Cable Company at Boston, Mass., has every reason to be proud of one of his former messenger boys, Mr. Louis Ross. During his connection with the telegraph young Ross applied himself closely to his studies and graduated from the Boston Latin School while filling a position as night clerk; he entered Harvard University while still holding his clerical position, and graduated with high honors. Mr. Pillsbury pertinently asks, in referring to the case, whether there is another district in the Postal eastern division where messenger boys are turned out college professors?

A recent letter from Mr. Ross addressed to Mr. Pillsbury, tells the story as follows:

"Please allow me a few moments of your time to inform you briefly about myself. A couple of days ago I received my official appointment to an Austin Teaching Fellowship in Applied Mechanics at Harvard University, for the year 1903-1904. My duties will be to teach Analytic Mechanics several hours a week, for which I shall receive a stipend amply sufficient to cover all my expenses for the year. The rest of my time I am to devote to my own more advanced studies in engineering.

"Last Commencement Day I received my A.B. degree, 'cum laude,' and honorable mention (twice) in engineering. By the end of next year I expect to have passed all the requirements for S. B. degree in Civil Engineering.

"This summer I am working for the General Electric Company, at Lynn, in the engineering department as draftsman, computer, etc. Thus, I have been fortunate enough, through a conspiracy of circumstances, to rise from a Postal messenger to the position of instructor at Harvard. And because you, together with Mr. G. H. Yetman, have been important factors in this 'conspiracy,' I take the liberty of writing you this note. With many thanks for your kind interest in me, I remain, sir,

Sincerely yours,
Louis Ross."

Importance of Quick Action.

The escape of Sam Styles from hanging at Cuero, Tex., recently, by a minute or two of time, is due to a combination of fortunate circumstances, as well as promptness and a conscientious devotion to duty on the part of the Houston operator who handled this life and death message. Had he not have been a man of judgment and perceived the importance of quick action the man at Cuero would have been launched into eternity.

On receipt of the telegram from the Governor

at Austin, he did not, like many operators would have done, await the check boy's coming, but he at once stepped over to the Cuero wire, and found the Cuero operator on hand, and forwarded the message to its destination. A minute or two of delay, and the words "too late" would have been the sad refrain.

This incident recalls a similar circumstance which occurred during the Civil War, in which the roll of telegrapher was played by Colonel Philip H. Fall, of Houston, Tex. Two soldiers of Cook's regiment, stationed at Galveston, were condemned to be shot. Colonel Fall, then serving the Confederacy as an operator, was stationed at Anderson, eight miles north of Navasota, with General J. G. Walker. General Kirby Smith, at Shreveport, wired a reprieve, in order to have further investigation of the case. The wire was down between Anderson and Navasota, and the two men were to be shot that evening. Knowing that if he did not act quickly, the murder of these two men would rest upon his neglect, he at once hired a horse and made the trip in short order to Navasota, and immediately sent the telegram to Galveston, fortunately in time to save the men's lives.

The unfortunates had been placed in position and the squad, with loaded muskets, were ready to fire, when the telegram reached the commanding officer.

If either or both of these men are yet living, they can, at this late date, ascertain under what circumstances and difficulty, their anatomies were not punctured and their lives preserved for future usefulness or otherwise.

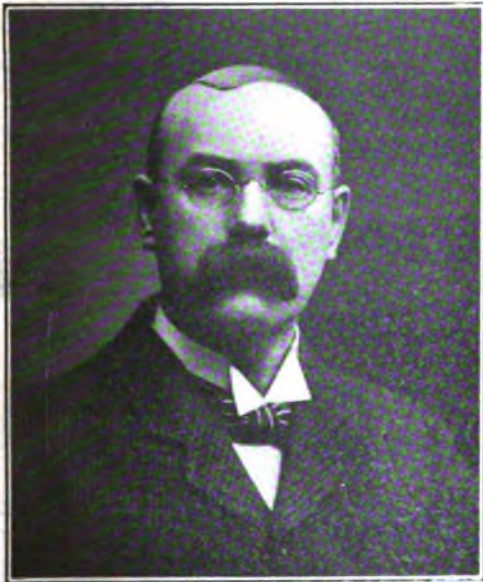
Preserve Your Papers.

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The Old Timers and Military Telegraphers to Meet at Milwaukee.

Although the West holds the record as against the East for furnishing the most numerous places for the joint meetings of the Old Time Telegraphers' and Historical Association and of the Society of the United States Military Telegraph



U. J. FRY, OF MILWAUKEE,
President of the Old-Time Telegraphers' and Historical Association.

Corps, Chicago having three dates to its credit and Omaha two, it remains for Milwaukee, the home of Fry and Drew, and Moffitt, and McGill and

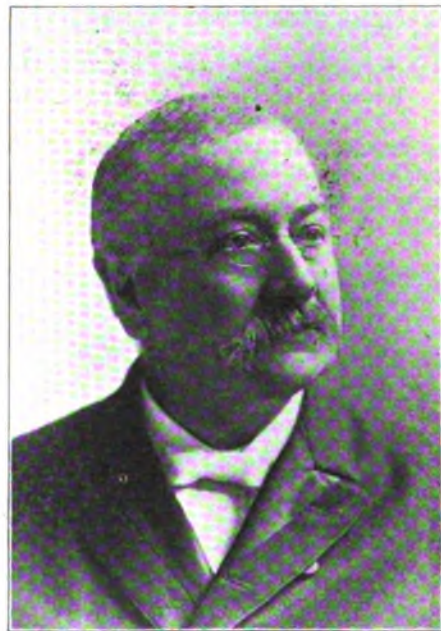


JOHN BRANT, OF NEW YORK,
Secretary-Treasurer of the Old-Time Telegraphers' and Historical Association.

Machette, verily a committee by themselves, to be selected as the place for the twenty-third reunion. This occurs on Wednesday, September

23, the duration of the meeting extending to and including Friday, the 25th inst.

Having long since passed their majority it would naturally be expected that these old and matured societies would, on all occasions, even of extra moment, act in a manner at once conservative, decorous and dignified, befitting their years. Yet not so. For although individual members, it is said, are beginning to show locks whitening with the lapse of time, all are reported to be looking forward to the date of meeting with the unrestrained ardor of school boys anticipating vacation time and a return home. And in these meetings there enters a spirit of home going, a mingling of pathos with jollity, for do they not bring together separated friends, many who, in the past, have had never-to-be-forgotten experiences together, and some who recall the incidents of the battle field! So it is that many are gladly await-



COL. WILLIAM B. WILSON, OF PHILADELPHIA,
President of the United States Military Telegraph Corps.

ing the time which shall once again bring together for a few days of fraternal reunion the friends of the key, whether practicing it now or not. Ask John Brant if he has not been fairly besieged for information regarding the meeting from would-be attendants at the scene of so much expected enjoyment. With imperturbable good nature the secretary-treasurer has responded to all such requests, and when he assures us that a big crowd will certainly assemble at the lake city, entire credence can be placed on the statement.

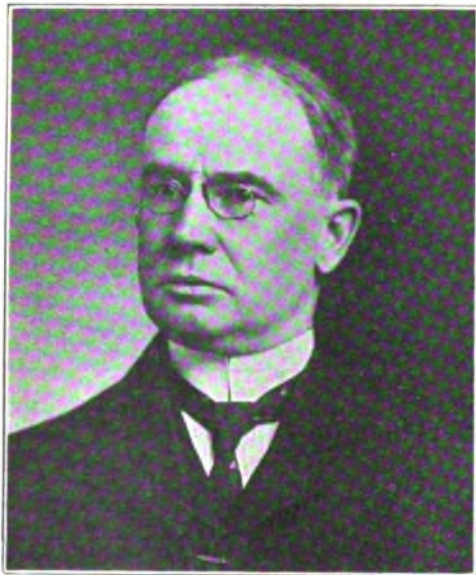
The visiting telegraphers at Milwaukee will make their headquarters at the St. Charles Hotel and the Hotel Pfister. These houses are conducted both on the American and European plans. At the former the rates are per day: American plan \$2.00 to \$3.50; European plan \$1.00 to \$3.00; at the latter, \$3.00 to \$5.00, and \$1.50 to

\$3.50, respectively. Those who propose to attend the convention, if they have not already done



J. E. PETTIT, OF CHICAGO,
Secretary-Treasurer of the United States Military Telegraph Corps.

so, are requested to notify Mr. F. J. Machette, St. Charles Hotel, chairman of the Hotel Committee, who will arrange for rooms and for the banquet.



WILLIAM J. LLOYD, OF CHICAGO,
Member of the General Joint Committee.

As stated in previous issues a delightful programme of entertainment has been arranged. This in full is as follows:

On Wednesday, September 23, at eleven o'clock in the morning a business meeting of the Old Time Telegraphers' and Historical Association, U. J. Fry, president and John Brant, secretary, will be held in the University Building, at Broadway and Mason street. An hour later, at noon, a business meeting of the United States Military Telegraph Corps, William B. Wilson, president

and J. E. Pettit, secretary, will occur in the same place. These formalities constitute the only business to be transacted at the reunion, and when concluded the time of the visitors during the remainder of their stay, will be given over to social amenities. After luncheon, then, starting at half-past two o'clock, a street car ride about the



P. W. DREW, OF MILWAUKEE,
Member of the General Joint Committee.

city will be undertaken. The route selected will enable the guests to stop and inspect the Soldiers' Home and the Marconi Wireless Telegraph station. In the evening a visit is planned to the

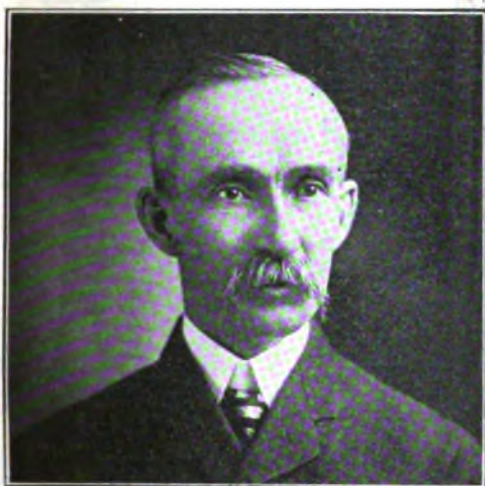


JOSEPH UHRIG, OF CHICAGO,
Member of the General Joint Committee.

Davidson Theatre, where "King Dodo" will be performed. Tickets for this entertainment may

be obtained from Messrs. Joseph Uhrig and F. V. Moffitt, of the Theatre Committee.

On Thursday, September 24, the forenoon will be devoted by the ladies of the party to visiting and shopping. At half-past two in the afternoon a grand excursion by boat on Lake Michigan is announced. In the evening at eight o'clock the banquet will be given at the Hotel Pfister. This will be a subscription affair, the event of the re-



L. C. WHITNEY, OF MILWAUKEE,
Member of the General Joint Committee.

union, for which the price of tickets has been fixed at \$3.00.

On Friday, September 25, the last day, a trolley



F. V. MOFFITT, OF MILWAUKEE,
Member of the General Joint Committee.

ride is projected out to Whitefish Bay, a pleasant suburban resort a few miles north from Milwaukee. At this point a luncheon will be served, and the event will conclude the programme of entertainment provided for the occasion.

The different committees named for the reunion are made up as follows:

Transportation Committee.—John Brant, chairman; H. C. Hope, E. J. Nally and W. J. Lloyd.



H. C. MCGILL, OF MILWAUKEE,
Member of the General Joint Committee.

General Joint Committee.—U. J. Fry, chairman; F. V. Moffitt, treasurer; P. W. Drew, secretary; H. G. McGill, F. J. Machette, L. C. Whitney, W. J. Lloyd and Joseph Uhrig.

Hotel and Banquet Committee.—F. J. Machette, chairman; H. G. McGill and F. V. Moffitt.

Steamboat Committee.—W. J. Lloyd and L. C. Whitney.

Theatre Committee.—Joseph Uhrig, chairman; F. V. Moffitt.

Street Car Committee.—P. W. Drew.

Reception Committee.—H. G. McGill, chairman; F. V. Moffitt, U. W. Boggess, A. Weller, H. B. Earling, G. M. Dugan, J. E. Pettit, O. C.



F. J. MACHETTE, OF MILWAUKEE,
Member of the General Joint Committee.

Greene, Charles Dean, L. C. Whitney, E. B. Duffy, W. J. Lloyd, E. J. Nally, D. S. Anderson, I.

McMichael, P. W. Drew, F. J. Machette, R. J. Nicoud, W. E. Bell, Joseph Uhrig, H. C. Hope and H. A. Tuttle.

Ladies' Reception Committee.—Mrs. F. V. Moffitt, chairman; Mrs. H. G. McGill, Mrs. P. W. Drew, Mrs. U. W. Boggess, Mrs. R. J. Nicoud, Mrs. W. J. Lloyd, Mrs. Joseph Uhrig, Mrs. H. A. Tuttle, Mrs. U. J. Fry, Mrs. L. C. Whitney, Mrs. H. F. Butler, Mrs. H. B. Earling, Mrs. W. E. Bell, Mrs. G. M. Dugan, Mrs. O. C. Greene, Mrs. F. J. Machette, Mrs. Charles Dean, Mrs. E. B. Duffy, Mrs. E. J. Nally, Mrs. D. S. Anderson, Mrs. I. McMichael and Miss Nellie Hope.

The officers of the Old Time Telegraphers' and Historical Association are as follows: U. J. Fry, president, Milwaukee, Wis.; Wm. J. Lloyd, vice-president, Chicago, Ill.; John Brant, secretary-treasurer, New York. Executive Committee: G. H. Corse, Ogden, Utah; L. B. McFarlane, Montreal, Can.; H. C. Hope, St. Paul, Minn.; H. J. Pettengill, Boston, Mass.; P. W. Drew, H. G. McGill and F. V. Moffitt, Milwaukee, Wis., and Joseph Uhrig, Chicago, Ill.

The officers of the United States Military Telegraph Corps are these: Col. Wm. B. Wilson, Holmesburg, Philadelphia, Pa.; Wm. L. Ives, vice-president, New York; J. E. Pettit, secretary and treasurer, Chicago, Ill. Executive Committee: E. Rosewater, chairman, Omaha, Neb.; A. H. Bliss, W. R. Plum, Chicago, Ill.; A. B. Chandler, R. B. Hoover, New York; George C. Maynard, Washington, D. C.; D. Wilmot Smith, Breckinridge, Minn.; L. A. Somers, Cleveland, Ohio, and J. D. Cruise, Kansas City, Kans.

Forty-Niners of the Telegraph.

The following list embraces the names of the oldest living members of the telegraph profession, so far as known those who entered the service during the forties:

Name	When entered the service	Where entered the service.
Adams, Frank	1849	Akron, O.
Allen, George E.	1847	Utica, N. Y.
Allen, William C.	1849	Akron, O.
Balch, G. W.	1848	Detroit.
Barr, M. W.	1847	Wheeling
Barth, Martin	1848	Pittsburg, Pa.
Benedict, G. G.	1849	New York.
Berry, Stephen	1846	Boston.
Bethune, N. W.	1847	Montreal.
Booth, N. M.	1849	Louisville.
Brenner, J. A.	1849	Washington.
Brigham, George F.	1848	Fredonia, N. Y.
Brigham, Henry H.	1849	Warren, Pa.
Bright, Louis A.	1849	Pottsville, Pa.
Brown, John S.	1847	Carmel, N. Y.
Brownson, W. G.	1849	Poughkeepsie, N. Y.
Buell, Madison	1847	Buffalo, N. Y.
Carnegie, Andrew	1848	Pittsburg, Pa.
Clark, James J.	1845	Philadelphia, Pa.
Clark, William H.	1849	Frankfort Ky.
Cleveland, Uriah	1847	Toledo, O.
Clum, William B.	1846	New York.
Cobb, Emory	1848	Fredonia, N. Y.
Compton, J.	1848	Wheeling, W. Va.
Cornell, A. B.	1846	Ithaca, N. Y.
Cutler, Charles S.	1849	Buffalo, N. Y.

David, T. B. A.	1849	Pittsburg, Pa.
Daugherty, A. D.	1848	Coldwater, Mich.
Davis, A. G.	1849	Poughkeepsie, N. Y.
Dewey, Benjamin H.	1849	Maumee City, O.
Dodge, L. C.	1847	Burlington, Vt.
Dunham, J.	1847	Poughkeepsie, N. Y.
Dwight, H. P.	1847	Montreal.
Eason, R. F.	1849	Toronto.
Eckert, General Thomas T.	1848	St. Clairsville, O.
Fairchild, Sidney B.	1847	New Haven, Conn.
Farnsworth, George	1849	Boston.
Frey, George H., Sr.	1849	Springfield, O.
Fuller, William G.	1848	Lowell, Mass.
Gentry, W. D., Dr.	1848	Hopkinsville, Ky.
Guthridge, J. F.	1849	Attica, Ind.
Haskins, Charles H.	1846	Buffalo, N. Y.
Haskins, Clark C.	1846	Buffalo, N. Y.
Haviland, James D.	1847	Detroit.
Hepburn, H. C.	1845	Philadelphia, Pa.
Homans, Benjamin	1848	Baltimore, Md.
Hoyt, Samuel	1848	Milan, O.
Hucker, Nathaniel	1847	Buffalo, N. Y.
Hunt, Thomas	1849	Marrow, O.
Kauffman, S. H.	1848	Wooster, O.
Kissock, David	1847	St. Catharines, Ont.
Larcombe, J. H.	1847	Philadelphia.
Louis, L. A.	1848	Louisville, Ky.
Matthews, Charles P.	1849	Columbus, O.
Merrihew, James	1849	Wilmington, Del.
Melbourne, W. A.	1848	Bardstown, Ky.
Newell, Robert	1848	Buffalo, N. Y.
Porter, E. P.	1846	Geneva, N. Y.
Pitcairn, Robert	1849	Pittsburg.
Reed, Henry A.	1849	Carmel, N. Y.
Ryan, Reuben H.	1848	Milan, O.
Scott, M. A.	1848	Toledo, O.
Stebbins, Charles M.	1848	Milan, O.
Stone, John D.	1846	Rochester, N. Y.
Sutherland, John A.	1849	Buffalo, N. Y.
Talcott, A. B.	1849	Boston.
Titcomb, H. B.	1848	Memphis, Tenn.
Tomlinson, E. M.	1846	Hartford, Conn.
Townsend, John A.	1849	Akron, O.
Trec, J. B.	1847	Washington.
Tubbs, F. H.	1848	Milan, O.
Tyler, Artemus E.	1848	Erie, Pa.
Van Duzer, A. M.	1849	Fredonia, N. Y.
Ward, Henry H.	1848	Springfield, Mass.
Weller, Alfred	1847	Marshall, Mich.
Williams, George T.	1849	Sinclairville, N. Y.
Wood, Orrin S.	1844	Washington.
Wood, Otis E.	1846	Buffalo, N. Y.
Worl, James N.	1848	Philadelphia.
Worl, W. S.	1849	Philadelphia.
Wright, E. P.	1849	Geneva, N. Y.

Military Telegraphers.

The following is a complete list of the living United States Military Telegraphers so far as known:

Anderson, Joseph.	Brush, Samuel T.
Armstrong, S. T.	Buell, Madison.
Armstrong, E. L.	Burch, C. B.
Ash, William M.	Burnett, George A.
Atwell, J. W.	Chandler, Colonel A. B.
Barth, Martin.	Chandler, C. E.
Barwick, Thomas	Childs, A. F.
Bates, D. H.	Clark, J. B.
Baxter, George W.	Clowry, Colonel R. C.
Bender, R. W.	Cochran, C. P.
Benedict, C. H.	Cole, George.
Biggert, W. L.	Connor, Paul D.
Bliss, A. H.	Crittenden, J. N.
Boyd, J. W.	Cruise, J. D.
Boyle, E. C.	Culbertson, C.
Brenneman, A. T.	David, Captain T. B. A.
Bowerman, H.	Davis, Samuel.
Brooks, J. N.	Dealy, W. J.
Bruner, P.	De Bree, N.

Dennis, L. B.
 Dixon, J. R.
 Dougherty, C.
 Dougherty, A. D.
 Doyle, P. C.
 Duncan, F. H.
 Dwyer, Con.
 Eckert, General T. T.
 Eitemiller, George M.
 Elliot, R. H.
 Evans, Frank H.
 Fairchild, S. B.
 Farnham, G. M.
 Ferris, D. V.
 Fish, E. G.
 Fitch, D. H.
 Flagg, J. A.
 Flynn, J. D.
 Fonda, T. H.
 Fuller, Colonel W. G.
 Furr, Robert.
 Gardiner, O. A. A.
 Geiger, J. M.
 Gentry, W. D.
 Gilmore, Colonel J. R.
 Glascott, W. H.
 Golding, George J.
 Gordon, Matthew.
 Greene, E. C.
 Griswold, M. E.
 Gross, Colonel W. L.
 Gulick, C. W.
 Guthridge, J. F.
 Hallam, Isaac W.
 Hammond, C. D.
 Hammond, C. W.
 Hancock, A. G.
 Hansen, Joseph.
 Hatton, O. C.
 Henderson, George.
 Homan, Charles A.
 Hoover, R. B.
 Hotchkiss, Z. P.
 Hull, H. P.
 Hull, A. K. V.
 Huyck, Maynard.
 Ives, W. L.
 Jaques, C. W.
 Kanode, A. H.
 Kerner, M. H.
 Knapp, A. C.
 Knapp, S. B.
 Knittle, Joseph.
 Korty, L. H.
 Laird, T. A.
 Lewis, W. T.
 Logue, W. S.
 Lonergan, John.
 Long, F. C.
 Ludwig, D. J.
 Mackland, Mrs. L. E.
 Martin, H. S.
 Mason, J. Q.
 Matlock, H. H.
 Maynard, George C.
 McCleverty, J. D.
 McClure, James P.
 McKelvey, A. T.
 McKenna, J. A.
 McMichael, I.
 McMurtry, B.
 McReynolds, C. W.
 Meagher, J. R.
 Mixer, Charles H.
 Montayne, C. D.
 Moore, C. W.
 Moreland, T. E.

Morgan, J. B.
 Morrison, Thomas.
 Murray, P. J.
 Naile, G. W.
 Newton, E. C.
 Nichols, I. H.
 Nichols, A. M.
 Nohe, A. W.
 Norris, J. B.
 Nunan, P. H.
 Nye, J. M.
 O'Brien, Dr. J. E.
 O'Brien, Richard.
 Orton, A. W.
 Palmer, C. H.
 Parsons, James K.
 Parsons, J. W.
 Peel, E.
 Perdue, L. Ford.
 Pettit, J. E.
 Phelps, Ransom.
 Plum, W. R.
 Plum, H. W.
 Powers, Richard.
 Prichard, A. Pinkerton.
 Raitlon, G. W.
 Rawlins, T. E.
 Robinson, B. L.
 Robinson, J. H.
 Robinson, Merritt F.
 Robinson, S. L.
 Rose, L. A.
 Rosewater, E.
 Ryan, Crosby J.
 Sanburn, F. A. H.
 Safford, A. G.
 Schnell, Joseph, Jr.
 Schnell, Thaddius.
 Sheldon, Captain. L. F.
 Sheldon, W. A.
 Shepherd, O. M.
 Sholes, C. G.
 Showerman, I. C.
 Shuman, W. A.
 Smith, De Wilmot.
 Snow, H. N.
 Somers, L. A.
 Sprague, H. C.
 Stillman, George.
 Strubbe, W. G.
 Stumm, F. A.
 Talbot, R. M.
 Thomas, John.
 Tinker, Charles A.
 Torrance, J. A.
 Townsend, N. S.
 Trowbridge, H. R.
 Vincent, H. C.
 Volts, J. D.
 Von Eye, E.
 Ward, Edward T.
 Warner, O. L.
 Weir, Colonel L. C.
 Webb, J. G.
 Whelpley, C. L.
 White, W. N.
 Williams, D. A.
 Williams, J. S.
 Wilson, Colonel William B.
 Wilson, Ellis J.
 Winder, A.
 Wintrup, J.
 Wolff, C. C.
 Woodward, B. F.
 Woodring, W. H.
 Wood, William.
 Woodward, W. R.

Our Book Table.

"The Twentieth Century Manual of Railway and Commercial Telegraphy" is an up-to-date work intended for commercial operators desiring an insight on all branches of railroad work, and for railroad operators desiring a better understanding of expert commercial work. It embraces all kinds of practical train orders, up-to-date abbreviations, punctuations and other compilations of vital importance to commercial and railroad operators, covering as it does, a great many branches of railway and commercial telegraphy unknown to the average operator who has not had an opportunity to work on more than one or two roads or wires. The price is one dollar which covers the prepayment of express charges. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York City.

"The Little Woman in the Spout," written by Mary Agnes Byrne, a telegraph operator, is a charming story for girls. The Little Woman in the Spout is supposed to be a fairy-like creature who has taken up her abode in an old-fashioned wooden spout which empties into the street of a small village. Three little girls make this their trysting place and confide to the little woman in the spout their joys and sorrows, and bring her many gifts. The orphan girl is accused of theft, and in her ignorance and fright attempts to run away, but the stolen brooch is produced by the little woman and the three friends united. Cloth bound, 12 mo., profusely illustrated. Price 60 cents, express charges prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

In the coming new edition, the fifth, of Wm. Maver's work, "American Telegraphy," which will bear the enlarged title of "American Telegraphy and Encyclopedia of the Telegraph," the author embodies in his publication considerable additional material. The scope of the book is large, for it treats not only of Morse telegraphy, and of its allied branches, but also of fire-alarm, police and burglar-alarm, and printing telegraphy, railroad block-signaling, the manufacture of telegraph wire, electrical testing, etc. That the book may now conform to its more amplified title, foreign telegraph systems and instruments are considered, wireless telegraphy receives attention, while the subjects of inductance, impedance, Gray's harmonic telegraph, the telautograph, etc., also come in for graphic mention. Many new pages of matter and additional illustrations will be found in this volume, which will soon be ready for delivery. Copies of the work will be sent, express charges prepaid, on receipt of the price, five dollars, by addressing J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

"Pocket Edition of Diagrams," etc., 260 pages and 126 illustrations, published by TELEGRAPH AGE, contains just the information that every telegrapher requires, irrespective of his position.

Subscribe for TELEGRAPH AGE, \$1.50 per year.

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should constitute the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.]

PITTSBURG, PA.

Miss Nettie Agnes Boyd, check and file clerk in the Postal office, daughter of Richard Boyd, also of the Postal, died on September 1, aged 16 years. The employees of the company sent a large and handsome floral wreath as a tribute of affection at the time of the funeral.

Manager A. W. Rinehart, of the Postal office has posted a notice prohibiting the use of code in the transmission of messages.

Mr. M. M. Prescott, formerly traffic chief, Western Union office, who owns an immense tract of timber land at Dorset, Powhatan County, Va., has started operations cutting timber and developing mica mines.

MONTREAL, QUE., GREAT NORTH WESTERN.

Resigned:—Messrs Fenton and Elliott.

Arrivals:—Messrs. Appleton, Anderson and M. Duerstock.

Alexander Caisse has secured a position with Jacob Barry & Son, brokers.

Extra.—A. G. Caisse.

NEW ORLEANS, LA., POSTAL.

There have been a good many changes in the personnel of our force since last reported. The staff is now made up as follows: C. B. Arrington, chief operator; S. W. Gibson, night chief operator; A. H. Shatford, all night chief; W. H. Bush, Jr., traffic chief, together with an energetic complement of operators.

We have just passed through one of the heaviest summer seasons in the history of the office. Several of the old stand-bys have remarked that they worked harder this summer than they did last winter. The main office is being put in shape to handle a large anticipated fall and winter business. New quadruplex, duplex and repeater sets have been installed by Mr. J. Hargrave, electrician of the Southern Division, assisted by Chief Operator C. B. Arrington and Lineman Hale. A great

many of the force have enjoyed vacations, among them Night Chief Operator Gibson, A. G. Gardner, M. Flippin and A. N. Porteous.

At the "Times-Democrat" we have a corps of bright operators in the persons of T. J. Hanrahan, manager, assisted by J. J. Thomson and J. I. Marsh. The business has been exceedingly heavy at that office, the service being strictly first class, and we are repeatedly complimented by the "Times-Democrat" people on the good service rendered. Superintendent W. A. Porteous has recently covered the eastern and western section of his district, which resulted in his straightening out a great many of the offices in few minor details and inspiring additional energy in the managers.

OKLAHOMA CITY, OKLA., WESTERN UNION.

On August 14 this office was moved from its quarters in the Lee Hotel Building to its present spacious, modern and splendidly equipped quarters at No. 19 North Broadway. The task of moving was accomplished with celerity and little interruption to business under the officient direction of General Foreman McKean.

The present office may well be said to be one of the most important of the Southwest and does credit to the young metropolis of the "new country," Oklahoma and the Indian Territory.

The business of the company at this point continues to be of miraculous growth and has reached such proportions that twenty operators, nine clerks and some fifteen messengers are required to handle it.

With the change of location came a change in managership, Mr. H. G. Robinson, from Omaha, succeeding Mr. O. N. Dailey in that position.

There has been no other material change in heads of departments with the exception of the resignation of Mr. A. C. Hendley as relief chief, who has been succeeded by Mr. R. N. Long.

Mr. O. S. Smith has transferred his services to Guthrie, Okla.

CHICAGO, ILL.

Typewriters of all kinds; very easy payments; we handle everything a Telegrapher needs; write us for catalogue. "Mills" shipped all over the United States. Telegraphers Typewriter Company, O. T. Anderson, Manager, Member C. T. U. and O. R. T., 405 Monon Building, Chicago, Ills.

BIRMINGHAM, ALA., POSTAL.

Mr. T. D. Jackson, who for the past six months has been acting manager of this office, resigned on the 10th inst.

Mr. R. L. Wadlington, for the past eight years manager of the Postal at Greenville, Miss., has been made permanent manager.

The employes of the office, on August 31, presented the retiring acting manager with a gold handled umbrella, suitably engraved, as a token of their friendship and esteem. The presentation speech was made by Chief Operator Klein in a

A New Mechanical Wonder in Telegraphy

THE TRANSMITTING TYPEWRITER

TWO MACHINES IN ONE

The Nerve-Destroying Slavery of Hand-Sending Forever Done Away With

A **SPLENDID TYPEWRITER** built expressly for telegraphwork, and a wonderful device for transmitting **Morse Signals**. Either part of the machine may be used separately and independently, or both may be used together to secure a mechanically correct copy of the matter transmitted. The writing machine with its "Keyboard Idea" has worked wonders for penman. **The Transmitting Typewriter** for the first time makes application of this same principle to the transmission of Morse signals and performs a *veritable miracle* for telegraph operators. **The Transmitting Typewriter** is the only typewriter worth a moment's consideration for telegraph work.

THE TRANSMITTING TYPEWRITER copies train orders beautifully. It does vastly more than that. It **transmits them** beautifully and **repeats them back** beautifully.

THE SALIENT FEATURE of the typewriter part of the **Transmitting Typewriter** is the perfect visibility of its work. Every letter, every word, and every line is in plain sight of the operator from the instant it is written until the printed sheet has been removed from the machine. To read the work done by this typewriter there is no time wasted lifting the carriage, no peering behind obscuring typebar guides, no changing of the focus of the eyes to make them reach into some dark hole in the typewriter mechanism, no pushing of the carriage to bring the printed matter into view, no stretching of the neck to look over intervening barriers, no rolling of the cylinder to bring into view written lines, but a simple easy glance is all that is necessary to discover to the operator the work which has been done.

THIS IS THE ONLY TYPEWRITER now on the market in which the pointer, the divisions on the scale, and the printed letter are in plain sight at the same time. The value of this feature for making corrections quickly in telegraph work cannot be over-estimated. Other up-to-date features are: perfect ball-bearing typebars, quick carriage return, automatic line spacing, automatic ribbon reverse, and many other features valuable for telegraph work and never before incorporated in a typewriter. We do not hesitate to say that **the Transmitting Typewriter** excels all others in speed, ease and uniformity of touch, permanence of alignment, manifolding and durability.

THE TRANSMITTING PART of the **Transmitting Typewriter**, like the typewriter portion of the machine, is operated by the keyboard. Simple unskilled strokes upon the keys produce absolutely perfect Morse signals. Every intelligent operator may become an expert sender. The work of this device upon a wire increases its capacity and accomplishes, at the same time, an enormous saving of nervous and physical strain to both sender and receiver.

TELEGRAPH SUPERINTENDENTS: Get **Transmitting Typewriters**. Increase the capacity of your wires, and cut down the number of errors. Do it now.

TELEGRAPH OPERATORS: Get **Transmitting Typewriters**. Be expert senders as well as expert receivers. Make a quick, bold dash for the jobs with the big salaries. Don't wait a minute.

THE TRANSMITTING TYPEWRITER has been subjected to the severest possible tests during the last three years and has been for more than a year in actual daily service on the heaviest, fastest and longest circuits in this country. Telegraph officials and Electricians of National reputation, as well as the most expert telegraphers give their unqualified endorsement as to **its usefulness, superiority and reliability** under all conditions.



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The Gamewell Fire Alarm Telegraphy Company

Manufacturers and Contractors for over 45 years of Special Apparatus for

FIRE AND POLICE TELEGRAPH SIGNAL SYSTEMS

OVER 1,000 Plants in actual service in the United States and Canada. Also plants established in Cuba, Hawaii, Philippine Islands, West Indies, South America, England, Germany and Norway.

Special attention paid to the introduction of our **STORAGE BATTERY PLANT** for operating telegraph systems

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ONLY AWARD AT THE WORLD'S FAIR

Gold Medal Awarded September, 1901, at Berlin, Germany, Exposition of Appliances for Fire Prevention and Fire Extinguishment.

IF OPERATORS would avoid and cure that dreaded affliction.



Telegraphers' and Writers' Cramp

They should use



Barclay's Paralysis Exerciser

It will strengthen the relaxed cords of the hand, wrist and arm, will arrest and cure all cases of paralysis and cramp of years standing; also stiff joints caused by accident.

No Telegrapher Should be without One.

This simple and durable device is the only one that is reliable and trustworthy, and has always done all that has been claimed for it. There are no complicated parts to get out of order, and with ordinary usage it will last a lifetime.

The directions for use are easily followed:—Place the Exerciser on the hand as shown in cut. Press the bulb for 10 or 15 minutes at a time or until the hand becomes tired. In cases where the paralysis is of long standing the Exerciser can be kept on the hand. This keeps the fingers in position and prevents them from cramping while writing. In case of feeling the paralysis coming on, use the Exerciser for 10 or 15 minutes and it will relieve the bad feeling.

THE PRICE OF THESE EXERCISERS IS \$3.00.

Address: J. B. TALTAVALL, Telegraph Age, 253 Broadway, New York City, N. Y.

few well chosen words, conveying to Mr. Jackson the sentiments of the office.

PHILADELPHIA, PA.

MY MOTTO—HONORABLE DEALING.

"EMANUEL," "JEFFRIES," "RELIANCE."

Above are the names of two men and a boat; all three are world beaters—in other words they are in a class **absolutely by themselves**. But operators, and others, please bear in mind Emanuel is a two-times world champion "message receiver", **solely** because he uses the **Fay-Sholes No. 6** Typewriter which is conceded by all who have investigated its merits to be the best machine for all-around telegraph work (message particularly) ever offered to the craft.

Booklet, special telegrapher's club price, and easy monthly payment plan, upon application to me. All makes sold and rented; easy monthly payment.—D. A. Mahoney, Western Union Telegraph Company, Philadelphia, Pa.

WESTERN UNION.

D. K. Teeters, aged fifty-four years, manager of the branch office at Front and Chestnut streets, for the past twenty years, died rather suddenly, after a short illness, at his home at Palmyra, N. J., on September 3.

Chief Clerk Wobensmith is confined to his home with a severe attack of typhoid fever.

Charles Saunders, of the Stock Exchange office, took a two weeks' vacation recently, Harry Hehl, of this office filling in.

District Electrician W. N. Fashbaugh, of New York, was a recent visitor.

C. H. McGurrin, champion speed typewriter, paid us a visit recently and incidentally met champion message receiver, Harry Emanuel. The two champions held a brief but animated conversation relative to the coming Tournament, which by the way promises to outshine anything of the kind ever held in this or any other country.

Judging from recent practice performance by Miss Lou McKenna, we feel assured that she will land one of the Tournament prizes.

Wm. S. Stokely, who committed suicide in Fairmount Park recently, was well known here, having worked among us for several years as check boy and clerk.

J. H. Abdill, who went to Butler, Pa., to try his hand as manager there, has again returned to this office, Butler not being to his liking.

Miss Annie Dennis will be absent for a month's vacation visiting friends in Minneapolis, Minn.

L. N. Hall, of the Broad and Chestnut street office, has resigned to accept a position with the Carnegie Steel Company.

M. J. Carroll, from the American District Telegraph Company, has been appointed manager of the Broad and Columbia street office, vice Geo. Silvers.

D. A. Mahoney, who has devoted two weeks of his own time and at his own expense toward se-

curing subscriptions for the coming Tournament, reports having met with unprecedented success and predicts great things. Everybody is growing enthusiastic.

POSTAL.

Due to the failure of a commission broker, Mr. Wm. Burt, Jr., has secured re-employment in this office.

After filling in time for Mrs. Hock, during her vacation trip, Mr. R. C. Makin has been permanently assigned to duty on the night staff.

The erstwhile beaming countenance of Manager D. R. Dowdle, of the dry goods district office, has been considerably emphasized since the advent of a handsome son into his family circle. Congratulations are in order.

After an enjoyable vacation tour to Nantucket Island and then to Washington, D. C., Manager Charles E. Stump, of the fish district office, has resumed his official duties.

KANSAS CITY, MO., WESTERN UNION.

We are pleased to note the following promotions in our office: Chas. R. Fisher, appointed assistant chief operator; John J. Shelley, day quad chief, and Joseph T. Heydon, night wire chief. All three of these men began as check boys and have gradually worked their way up to the positions which they now hold.

Mr. George Sharp, foreman of our linemen, has been promoted to the position of General Foreman, with headquarters at Chicago, and is succeeded at this office by Mr. L. W. Alexander.

Mr. M. D. Wood, our former manager, who suffered two paralytic strokes some four weeks since, is slowly improving.

Mr. Ed. G. Ervin has returned to work after two months' of prospecting in the Western gold fields.

Miss Berta Goff has taken a month off expecting during that time to visit New York, Boston and several other Eastern cities.

Miss Lucy Wigton, after a pleasant visit with her parents in Iowa, is again in her accustomed place.

Others away on leave of absence are: Miss J. B. Best, Mrs. Ida Phillips and her daughter, Miss Fay; Mr. W. Norman and Mr. Samuel Knight.

Mr. Paul Juvet, night way chief, has a new assistant, regulation weight, etc.

It may be of some interest to many of the craft who have been familiar with Kansas City in by-gone days, to know that during the recent flood the water stood six feet and six inches deep in the Union Depot.

Mrs. E. A. Dyer has left us for an indefinite stay in California.

Miss A. E. McVicar and Miss Martha Depew, two of our efficient operators, have accepted positions in Chicago with the Western Union.

WOODS HOLE, MASS., MARTHA'S VINEYARD TELEGRAPH COMPANY.

Mr. F. B. Travis, chief operator of the Postal Telegraph-Cable Company, Boston, accompanied

by his wife, spent his vacation at the home of General Manager Haddon, of this company. They were much benefitted by the bathing and excellent fishing, and also visited the Marconi Wireless Station at Siasconset, before returning to Boston.

Mr. E. B. Pillsbury, superintendent of the Postal Telegraph-Cable Company, Boston, dropped in for a few minutes on his way to Nantucket and Siasconset to visit the wireless station there. Mr. Pillsbury enjoyed his trip to the old whaling village.

Mr. Charles E. Stump of the Postal, Philadelphia, who looks after the "wharf" there, spent his usual five days here and also looked up some of the fish firms whose business he hustles. He had a day with the hook and line and hit it up to the tune of 150 pounds of sea-bass and scup, as a result.

Business is letting go now and our rush is about over. It has been a fairly good year, but not quite up to last.

LOS ANGELES, CAL. POSTAL.

Mr. F. B. Cox, has been appointed assistant manager vice Charles L. Lewis, recently promoted to the newly created position of superintendent of Southern California and New Mexico.

We all regret to learn of the sad bereavement of Chief Electrician Swain, whose father died at Santa Barbara, Cal., August 18.

The operators at the Southern California Grain and Stock Exchange were treated to a pleasant surprise recently in the form of an increase in salary of from \$20 to \$22.50 per week. The application list of the company is lengthening out rapidly, some of the best talent in the city are seeking the coveted positions.

Loraine B. Allen, manager of the Riverside office, has just returned from a pleasant vacation at Coronado.

Chief Electrician Swain has gone to Albuquerque, N. M. When he returns work will be commenced on the dynamo plant.

Manager Damico of Santa Barbara, has been elected a member of the chamber of commerce of that city.

NEW YORK CITY.

"My Old Virginia Home Upon the Farm," "Utopian Waltzes," and all popular music, 18c. each. Pianos sold \$1 per week. B. L. Brannan, 105 B'way, N. Y.

WESTERN UNION.

The Telegraphers' Social and Dramatic Club held an outing on August 30, at Rockaway Beach. Notwithstanding inclement weather a number of the members and their friends attended. An excellent dinner was served at Felio's New York Hotel. Senator W. L. Ives made an appropriate after-dinner speech in which he spoke of the sociability and good work of the club. After dinner the members enjoyed the beach attractions. Semi-monthly receptions will be held this winter and rehearsals for an entertainment, to be given in the near future, will begin at once. All telegraphers are cordially invited to join.

Mr. A. Weller, a former manager of the Western Union Telegraph Company, at Milwaukee, Wis., was a recent visitor.

Mr. Fred Catlin, the well known old timer, now a member of the night extra force, still retains his old time swiftness in manipulating the key. A few nights ago he clipped off seventy messages in exactly one hour, to New Haven, Conn. The receiving operator, whose name we do not know, received this business without a break.

Mr. Thomas M. Brennan, assistant manager of the operating department, is absent on his vacation.

Mr. Ralph E. Bristol, of the office of General Superintendent Brooks, has returned from a vacation spent at St. Louis, Mo.

The rate of extra pay at the Central Cable office has been increased from thirty-five to forty cents per hour.

Mr. C. J. Powers, chief operator Commercial News Department, is absent on sick leave.

Mr. John E. Wood, manager of the Western Union Telegraph Company, at Norwalk, Conn., was a recent visitor and was a guest of Senator W. L. Ives.

Mr. William T. Rogers of the day force has returned to duty after a prolonged illness.

POSTAL.

Chief E. J. Rankin is spending his vacation at Greenwood Lake, where he is having a great success as a "lone fisherman."

Traffic Chief S. B. Haig, is absent on his vacation.

J. M. Mearns, night city chief, is also away on a vacation.

Others who are enjoying vacations are: William B. Clum (the dean of the force); Harry Gibson, W. C. Mullen and C. B. Martin.

Arrivals: B. F. Ziegler, H. Kaufman, L. J. Williams and F. C. Meyer, all of whom have been assigned to the split trick.

J. F. Cronin and G. H. Fleetwood are on the waiting list.

Resignations: D. J. Sullivan, J. E. Pucci, Wilbur Eastlake, M. W. Maltby and Edward MacCormack.

Messrs. Hope and Thomas have been assigned to the St. Louis bonus wire.

A daughter was born to Mr. and Mrs. T. V. Flynn, on September 9.

The strain on the force during the yacht races has been lifted to the satisfaction of all concerned, and business has resumed its natural course but with a heavy increase.

It is reported that a French scientist tests the quality of wine by use of the telephone. His method of accomplishing this task is by means of using the liquid to conduct electric currents.

THE ASSOCIATED PRESS.

Mr. G. W. C. Spaid, night manager of the New York bureau, is acting in the capacity of day manager while Manager G. R. Allen is absent on his vacation. Mr. Spaid's position as night chief is being filled by Mr. T. W. Thielen.

Mr. W. L. Waugh, one of the oldest and best

TYPEWRITER BARGAINS.



No. 6 Remington Typewriter, \$50.

We offer No. 6 Typewriter, second-hand, but as good as new, for all practical purposes, with new platen, new ribbon, and written guarantee for two years for \$50 cash with order; \$55 c. o. d. with trial, or \$65, payment of \$15 cash, \$10 per month.

No. 2 Smith Premier Typewriter, \$55.

Late model, nearly new, No. 2 Smith Premier Type writers, with new ribbon, new platen and guarantee for two years, only \$55, cash with order; \$60 c. o. d. with trial; \$70, \$10 payments.

No. 2 Remington Typewriter, \$30.

First-class No. 2 Remington Typewriters, in perfect working order, \$30, cash with order; \$35 c. o. d. with trial; \$40, \$10 cash, \$5 per month. 100,000 of these machines in daily use. High speed, small compact keyboard, durable.

Oliver Typewriter, \$50.

We are still selling the popular Oliver Typewriter at \$50 cash with order, \$52 c. o. d. with trial, \$60, payments. Prints in plain sight, simple, durable; dead platen for wire work.

Caligraph, \$25 instead of \$85.

Only a few more left. Improved hollow bar No. 2 Caligraph. Every key represents character it prints; no mistakes. \$20 cash with order; \$25 c. o. d. with trial; \$30, \$5 cash, balance \$5 per month.

Jewett Typewriters, \$30; Cost, \$100.

We have a few Jewett Typewriters in good order which we will sell as long as they last at \$30 cash, or \$40 on \$10 payments. Same keyboard as No. 2 Smith Premier.

No. 10

Pittsburg Visible
\$25 instead of \$75

Work in sight.
Remington Keyboard.



New Soft Platen will make any old Typewriter write like new machine.
Sharp, clear work. Prevents noise.
Price, \$1.00. Mailed, postpaid, to any address.

ST. LOUIS TYPEWRITER EXCHANGE,

A Corporation Established 20 Years.

A. C. ALBRIGHT, Treas.-Mgr.

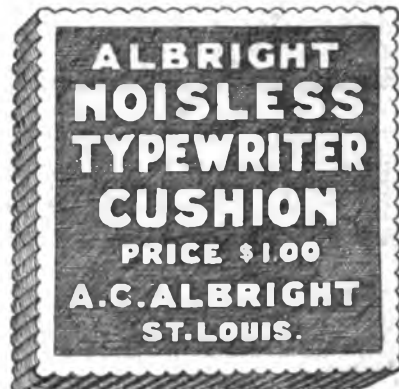
HOLLAND BUILDING,

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RED CROSS

\$1.00 Typewriter Ribbon, all silk and 7 yards long. Mailed to any address, postpaid, upon receipt of 50 c. each, or 3 for \$1.00



Felt Cushions
For All Typewriters
Deaden all Noises,
Prevent Jarring of Machine.
Last a Lifetime.
Agents Wanted Everywhere.

THE

PERFECT TYPEWRITER

The

Simplest

and

Most

Durable



Does the

Most Beautiful

Work in the

Quickest Time

The New Manifolding **“HAMMOND”**

Writes the Best Points of All Standard
Typewriters with Unique Qualities of Its Own

Type Interchangeable

THREE SETS GO WITH
EACH MACHINE FROM A
SELECTION of OVER 100

ALL LANGUAGES

SEND FOR CATALOGUE AND SPECIMENS OF TYPES

The **HAMMOND TYPEWRITER COMPANY**

Factory and General Offices 69th to 70th Streets, East River, New York, N. Y.

known members of the New York bureau, is absent from duty on account of illness.

J. R. Baskerville, a well known Associated Press operator, whose home was in Washington, D. C., died at Missoula, Mont., on September 8, of spotted fever, a strange malady peculiar to that section of Montana. It results from the bite of a woodtick and baffles medical science. Mr. Baskerville was stricken upon returning from an outing in the mountains.

Mr. L. B. Tobin, for many years connected with the Postal Telegraph-Cable Company, Kansas City, Mo., and lately of The Associated Press, New York, has resigned to accept a position with the Yetman Transmitter. He will represent Mr. Yetman in the Chicago, Rock Island and Pacific Railroad telegraph office, at Topeka, Kans.

Mr. O. A. Smith, for some time past of the Western Union Telegraph Company, Oklahoma City, is now in the service of The Associated Press, at Guthrie, Okla., where he has been assigned to the "State Capital," newspaper. Mr. Smith was in The Associated Press service some six years ago.

The Telegraph Tournament.

As the time approaches for the coming tournament the executive committee has held frequent meetings, rendered necessary in order to complete arrangements. The two last meetings have been particularly interesting and no end of suggestions have been received which will tend to make the tournament a red letter event in telegraphy. Mr. J. W. Reed, Western Union manager, of Philadelphia, has lent encouragement to his presence and advice, as well as Mr. F. G. Lamb, assistant to Superintendent J. P. Altberger.

Generous contributions to the general fund have been received from General Superintendent B. Brooks, of New York, and superintendents Frank Jaynes, of San Francisco, Cal.; J. F. Wallick, of Indianapolis, Ind.; B. F. Dillon, of Jacksonville, Fla., and D. C. Dawson, of St. John, N. B., all of the Western Union Telegraph Company. Also from J. C. Sager, chief of the Philadelphia electrical bureau, and Andrew Keiser, of Philadelphia, superintendent of telegraph of the Pennsylvania Railroad Company. J. H. Bunnell & Co. (Inc.) of New York, in addition to a liberal cash donation, has offered to furnish instruments for use at the tournament. Mr. Charles E. Yetman, of New York, is also a cash contributor, and will send two of his transmitters for use on the occasion of the tournament.

Mr. D. A. Mahoney, chairman of the finance committee, who has shown great activity in promoting the affair, has been very successful in obtaining new members, in eleven days having enrolled over 250 names. Mr. A. S. Weir, chairman of the committee on prizes, a most active worker, has also received many favorable responses to his appeals for cash contributions.

Much interest is being manifested in the dif-

ferent events and from all sections of the country questions are being asked relative to the contests. The committee on contest rules is preparing the governing rules, which will be issued at an early date.

Up to the present time the work of the executive committee has been confined to preparatory detail, but now that everything is perfected so far as the hall is concerned, they will take up the finishing arrangements. Circulars have been sent to all the most important offices of the two telegraph companies and these will be followed by others.

Mr. Frank E. Maize, chairman of the programme committee, will have a pleasant surprise in the shape of a souvenir programme for the fraternity. Mr. C. A. Stimpson, chairman of the executive committee, is busily arranging for the exhibits and conducting the arrangements for the electrical department.

The names of the judges and electricians will be announced in the next issue of TELEGRAPH AGE. In selecting the former the greatest care will be taken that the appointments shall be such as will inspire the utmost confidence, giving a guarantee of absolute fairness. Prospective contestants should announce themselves to the secretary as early as possible.

One of the interesting events will be the contest in the special Yetman transmitting-type-writer class. The contestants are to have fifteen-minute trials in both sending and receiving and the prizes, it is said, will be valuable. It will be interesting and instructive to the general telegraph fraternity. For the first time in the history of tournaments, a contest of skill will be witnessed between operators using an automatic transmitting device and the skill displayed will be of a scientific nature. It will tend to overcome the feeling among operators, if any exists, that one cannot manipulate the keyboard of a typewriter accurately with eyes off.

The Telegraph in 1865-66.

A glance at the files of old telegraph papers always reveals much that is quaint and of interest on telegraphic information to the telegrapher of today. We clip from "The Telegrapher" of October 16, 1865, the following items:

"Washington, Sept. 18, 1865.

"D. H. Craig, Agent, etc.:

"Sir: I have this day assented to the transmission over the military telegraph lines, by agents of The Associated Press, of daily reports, not to exceed one hundred words, to and from Augusta and Mobile, agents being held responsible for the character and tone of such reports.

"THOMAS T. ECKERT,

"Acting Assistant Secretary of War.

"Since the issuing of the above order the whole South has been thrown open to The Associated Press."

(Mr. Craig was general manager of the Associated Press in those days. In a later issue of

the same paper, however, the following item shows how this high functionary was driven out of the service):

"To all agents and correspondents of The Associated Press:

"Please to take notice that Mr. D. H. Craig has been discharged from the General Agency of the New York Associated Press by the unanimous vote of the members.

"Mr. James W. Simonton has been appointed General Agent, and due attention will be given to his dispatches as such agent.

"W. C. PRIME,

"Of 'The Journal of Commerce,' President.

"JOSEPH P. BEACH,

"Of 'The New York Sun,' Secretary."

"The 'neutral' Government of England has ordered guards to be placed around the telegraph offices in the south of Ireland, to prevent the transmission of any dispatches relating to Fenianism."

The quotations of telegraph stock in those days, as supplied by John Horner, cashier of the American Telegraph office, 145 Broadway, New York were as follows:

Western Union.....\$100 shares.....73	Montreal.....\$100 shares, 115 gold
American.....".....125	Nova Scotia... 20 " 17 10
Russian Extension ".....30	Vt. and Boston 50 " 25
Ill. and Miss.....\$50 par	Troy & Canada
East-India....."....."	Junction..... 50 " 25
	Maine..... 50 " 17 50
United States.....\$100.....by the Company.....100	
Bankers' & Brokers'.....\$25 shares.....par	
Insulated Lines Co.....\$50 ".....par	

"The telegraph lately informed us that the Empress of the French, on her way from Switzerland to Fontainebleau, accepted a dinner offered her by the wife of the sub-prefect of Pontarlier. Empresses do not habitually seat themselves at the hospitable board of sub-prefectresses, and people were rather surprised; but still such condescension was not impossible, and so the incident passed unnoticed. It now proves to have been the telegraph at its old tricks. The Empress was offered, and graciously accepted, a bouquet. This the wires altered into banquet, and the pen into dinner."

"An English paper relates an unusually abominable telegraphic blunder. A gentleman sent a dispatch to Cambridge requesting a volume of prize poems containing "Johnson's Poem of Plato." As received, the message asked for 'John Pomens on Plate Money,' which the bookseller in reply deeply regretted his inability to find.

"The cost of sending a telegraphic dispatch to Europe is illustrated in a story told of an ambitious young man from the country who, on a recent visit to Boston, was anxious to send a dispatch over the Atlantic cable—just for the fun of the thing. Gathering up all his loose change, he entered the Boston office and expressed his wish. Having written his message and handed it in, he laid his cash on the counter, exclaiming, 'How far will this money pay for?' Quickly running over the money, the operator replied, 'About an inch.' The youth departed a sadder and wiser man."

Operators will find a fund of practical information in every issue of TELEGRAPH AGE.

[Advertising will be accepted to appear in this column at the rate of three cents a word.]

New, much enlarged 1903 edition, Maver's "American Telegraphy and Encyclopedia of The Telegraph," 656 pages, 490 illustrations; issued about October 1 next. Fully 100 pages new matter (about 75,000 words) and 70 diagrams added since 1902 edition, mainly in new edition. New sections on Wireless Telegraphy, Repeaters, Quadruplex, Printing, Military Telegraphy, Inductance, Impedance, Loaded Conductors, etc. Price new edition, \$5. (not \$4 as stated last issue). Advance orders accepted up to October 1, 1903, at \$3 per copy, express paid. Maver Publishing Co., 120 Liberty street, New York.

Wanted.—To purchase two to five shares of Western Union Telegraph stock. Name price. Address, "Stock," care Telegraph Age, 253 Broadway, New York.

Wanted: For small town office, operator thoroughly experienced in duplex repeaters and wire testing. Address "Position," care TELEGRAPH AGE.

THE TELEGRAPHER'S FRIEND

The 20th Century Telegraph Key
POSITIVELY CURES
and prevents Loss of Grip.

Makes fast sending Easy.
Send for Booklet and Net Prices.

E. S. RUSSELL, General Agent
253 BROADWAY, NEW YORK.



Send for **Net Prices**

In writing mention Telegraph Age.

INDIFFERENCE TO A
VITAL NECESSITY
cannot be excused on the plea of economy.
At the small cost of a few cents a day
you can insure your life in the

TELEGRAPHERS' MUTUAL
BENEFIT ASSOCIATION

ORGANIZED 1867
INSURANCE, \$500, \$1,000 or \$1,500
RESERVE FUND, \$200,000

Agents in principal cities. Further details and
application blanks promptly furnished by

M. J. O'LEARY, Sec'y,
P. O. Box 510 NEW YORK

A Prophecy Fulfilled.

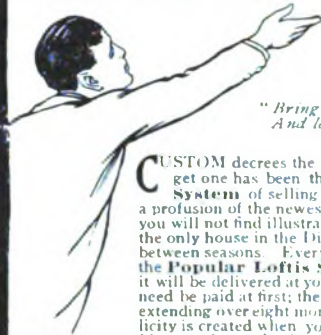
A contemporary quotes from an address delivered by Wendell Phillips to a gathering of Boston school boys in 1865, which in view of what is now an accomplished fact, places the famous orator in the light of a prophet. In admonishing his hearers not to be content to follow in the groove set them by their fathers, but to reach out for and strive to attain more advanced goals and ideals he said: "Now boys, do not imitate us. Be better than we are. We have invented a telegraph, but what is that? I expect, if I live forty years to see a telegraph that will send messages without wires, both ways at the same time!"

No doubt those who heard him considered this a fanciful flight of Mr. Phillips' imagination, justified by oratorical license. It is likely, too, that he regarded it, himself, more as a prophetic possibility in the mysterious realm of scientific necromancy, than as a prediction sufficiently within the limits of probable accomplishment to be actually realized. But be that as it may, although the forty years have not yet elapsed this forecast, which at the time it was made partook too much of the nature of the miraculous to be credible, has been fulfilled. The wireless telegraph is no longer a dream of the theorist, but a demonstrated reality, rapidly taking the form of an unromantic, practical scientific and commercial proposition.

Both the Western Union and Postal Telegraph Companies are heavy sufferers from losses sustained in their poles being stripped of copper wire in various parts of Pennsylvania and in Massachusetts. The companies are offering liberal rewards for the arrest and conviction of these copper wire thieves who are continually interrupting the telegraph service by their depredations.

He that does good for good's sake, seeks neither praise nor reward, though sure of both at last. —William Penn.

DIAMONDS ON CREDIT



"Bring therefore all the forces that ye may, And lay incessant battery to her heart." —SPENCER.

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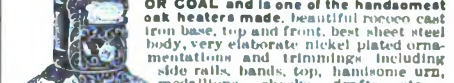
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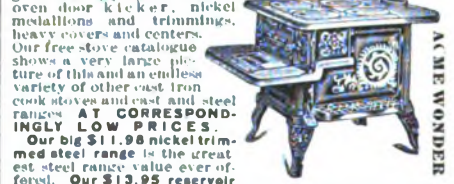
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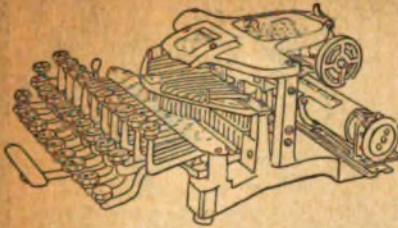
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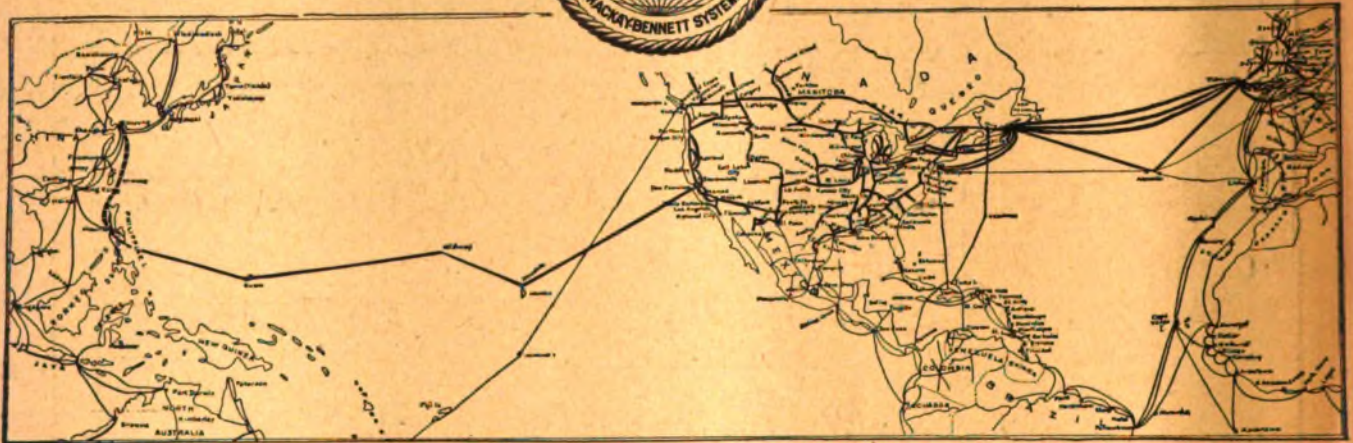
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