

TELEGRAPH AGE.

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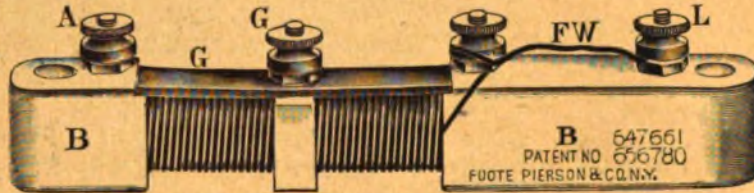
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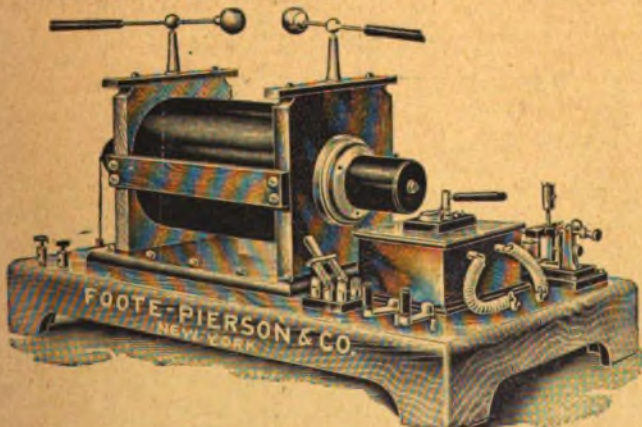


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THE TELEGRAPH AGE

No. 1.

NEW YORK, JANUARY 1, 1903.

Vol. XX.

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Recent Telegraph Patents.

A patent, No. 715,686, for an electric telegraph system, has been granted to F. D. Penniman, of Baltimore, Md. The feature of this invention is the reconstructed alphabet.

Mr. John E. Carney of Montgomery, Ala., has been granted a patent, No. 715,347, for improvements in American District Telegraph apparatus.

Business Notice.

It is not often that we can endorse this kind of proposition to our readers, but in the case of Fairbank's Tar Soap, the advertisement of which appears on another page, you will receive something for nothing. We know a sample cake will be sent free if you will but write the maker. We want our readers to reciprocate the patronage of this maker of such excellent soap and hope they will write for a cake for winter use, to the following address, The N. K. Fairbank Co., Dept. R I, Chicago, Ill.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy.

SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

Improved Methods and Apparatus of the Postal Telegraph-Cable Company.

When the writer began these semi-monthly contributions to this journal about four years ago, he had great doubts that he would be able to find subjects enough to continue the series for any great length of time, but experience has shown that the rapid strides which telegraph companies are continually making in their various methods of facilitating the service, furnishes more material than he can keep abreast of within the limited space allotted.

Partially for this reason many items of particular interest to the employees of the Postal Telegraph-Cable Company have not received their proper share of attention. Through the courtesy of Mr. Francis W. Jones, electrical engineer of that company, this paper is now in possession of a number of blue prints illustrating some of the latest improvements in their apparatus and methods of operation. They disclose, among other things, that within a comparatively short period their quadruplex apparatus and method of current distribution has undergone some striking alterations.

It will be seen from the accompanying diagram, Fig. 1, that they no longer require separate dynamos for producing the "long" and the "short" end currents, respectively, but now use upon a few circuits, a modified form of the Field Key system, the original method and property rights of which were owned and controlled by the Western Union Telegraph Company prior to the expiration of the patents.

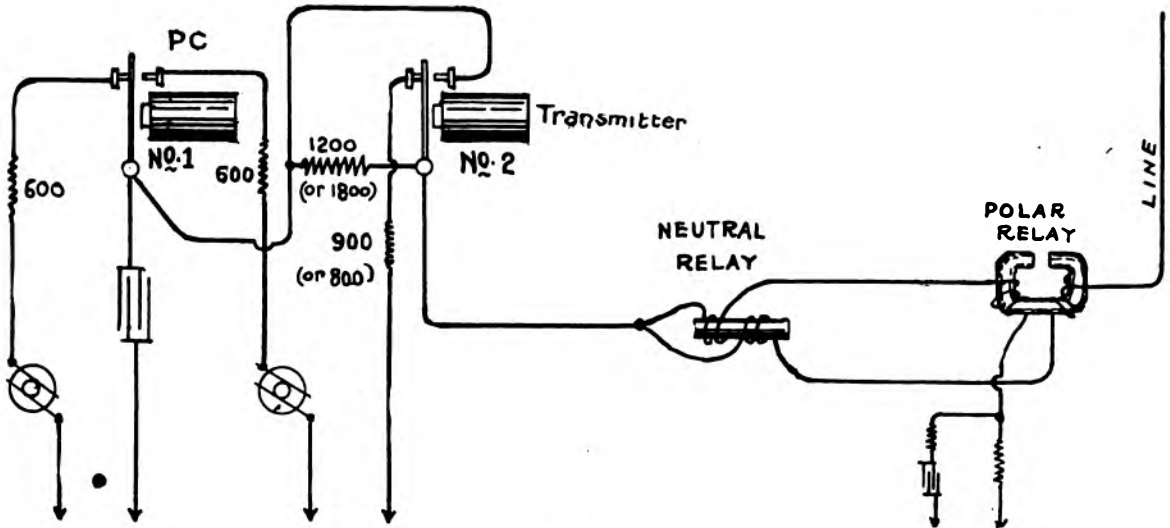
The inductorium has also been discarded for an improved "bug trap" which seems to give better results. Without the inductorium there is no necessity for the three spool pattern of neutral relay, hence the new pattern instruments require but two coils. Where the three coil pattern is still employed the relay connections are made as shown in Fig 1, one coil being simply ignored.

The Postal company has also separated the "sounder" feature from the "repeater" feature in its transmitters, in all systems, and in series with the transmitters of 16 ohms there is always a 10 ohm sounder to do the auricular part. The sounder is provided with a "cut out" so as to relieve the local circuit of 10 ohms resistance in favor of the transmitter when it is working as such for repeating.

The polechanger required for the Field Key

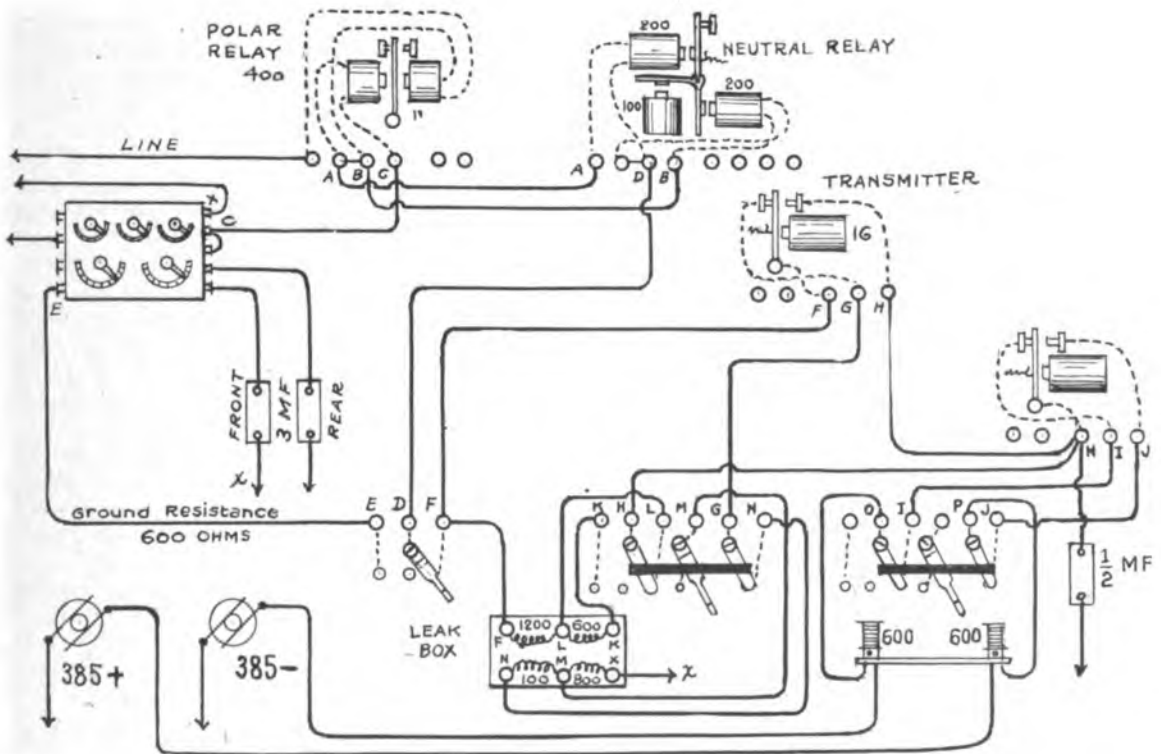
system is merely a 16 ohm relay, to the front and back contact points of the armature lever of which are taps connecting with the positive and the negative polarities of battery respectively, as shown in Fig. 2.

clumsy is requires a different adjustment for fast and slow sending respectively. On the other hand a comparatively small relay lever playing between the two contact points readily keeps in step with such alterations and requires but little attention



Owing to the small mechanical inertia obtain- ing in this pattern the device is said to be of a

after having once been properly adjusted. The same figure shows the arrangement and



very high order, and is particularly adapted for variations in the speed of transmitting operators. Where the lever of a polechanger is stiff and

connections of the resistance coils necessary to drop the full value of the electrical pressure three-fold or fourfold, as desired, in order to produce

the "short" end current. The different values of the various resistance coils are the same as those composing the Western Union's "leak" and "added" resistance box, and the operation is identical.

The explanation of how the coils produce the short end has been given in this journal before, but for the benefit of any who may not have read it we will say briefly that the law of joint resistance is brought into service and the various coils given such values and positions in the arrangement, that the initial or full value of electromotive force of the dynamo will have dropped two-thirds or three-fourths of its pressure at the tongue of the transmitter when it rests on the "open" contact point, because the current produced will have traveled two-thirds or three-fourths of the entire distance (in ohms) to the nearest "ground"; or, it will feed the line with full vigor when the tongue rests on the "closed" contact point, because it has had practically no work or traveling to do, having found a short cut around the resistance coils.

Figure this out yourself. You will find it an interesting and instructive pastime.

The Railroad

The Burlington Railroad is installing a long distance telephone in the telegraph offices along its lines.

The Western Union Telegraph Company has made a contract with the Kansas City, Mexico and Orient Railroad to conduct its telegraph business for twenty-five years.

Mr. E. E. Dildine, assistant superintendent of telegraph of the Northern Pacific Railroad at Tacoma, Wash., is now located in the office of O. C. Greene, the superintendent of telegraph at St. Paul, Minn.

Mr. Arthur Hale, formerly superintendent of telegraph of the Pennsylvania Railroad system at Philadelphia, and for the past two years assistant general manager of the Baltimore & Ohio Railroad Company, at Baltimore, has been appointed general superintendent of transportation of the company, with headquarters at Baltimore, Md.

Judge Amidon, in the Federal District Court, at St. Paul, Minn., is hearing arguments in the final hearing of the suit brought by the government in 1890 to compel the Northern Pacific Railroad Company to operate its own telegraph system. The action is brought under the land grant act of 1863, requiring the railroad company to maintain lines of telegraph for general business purposes along its route.

Mr. N. B. Ballantine, superintendent of telegraph, of the Kansas City Southern Railway Company, Kansas City, Mo., has distributed quite a number of copies of Jones' "Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students," among the oper-

ators along his road. Mr. Ballantine states that for the past two or three years he has been endeavoring to raise the standard of intelligence among the operators by getting them interested in the details of the business and considered Jones' Diagrams a decided help in furthering this educational work.

IMPROVED TELEGRAPH SERVICE ON THE SANTA FE.

The newly appointed superintendent of telegraph of the Atchison, Topeka and Santa Fe, Mr. C. H. Gaunt, is rapidly bringing the telegraph service of that road up to a standard for quick service and accuracy that some of our larger commercial companies might take lessons from. Mr. Gaunt was appointed to office last February, since which time he has surrounded himself with some of the best telegraphers in the business. Among them are Walter Knowd, formerly wire chief of the Western Union at St. Paul, who is Mr. Gaunt's chief clerk; Mr. Redline, formerly wire chief of the Western Union at Kansas City, now night chief at Los Angeles; James Brennan, who for years worked in the newspaper offices in Chicago, is night chief at Cleburne, Tex., while A. C. Nutter, is manager at that point. Mr. Nutter was with the Western Union at Flagstaff, Ariz. Mr. Fisher, recently of the Northern Pacific, is manager and wire chief at La Junta, Colo. George Hood is manager of the general offices at Topeka, while Alfred Morelock, is night chief. Frank L. Titus is manager and wire chief, at Ft. Madison, Iowa. Mr. Titus is well and favorably known in Chicago, having served as assistant quad chief in the Western Union office for three years. He left there to go with the American Telegraph and Telephone Company as assistant wire chief with which he served three years at Maumee, O., and at Chicago. Mr. Titus has held several important positions for a man scarcely yet thirty years of age. If the Santa Fe gives over its entire system the same quality of work it does between Kansas City and Chicago, the service is ideal. At Purcell, O. T., Mr. Hudson is manager and wire chief. He was formerly repeater chief at Dickinson, N. D. H. M. Sholes is night chief at Purcell. He is well known in telegraph circles having for years acted in the capacity of Western Union wire chief at Kansas City. G. A. Clark for years chief operator of the Western Union at Galveston, Tex., is manager of the Santa Fe offices in that city. Mr. H. Arthur a well known commercial operator is manager of the Chicago office. Mr. Gaunt's assistant superintendents are Mr. Horace E. Chace located at Los Angeles, Mr. H. D. Teed, Galveston, Tex., and Mr. L. M. Jones at Topeka, Kan.

Telegraphy in War Time.

Military and naval men and those interested in the subject of wireless telegraphy were in evidence at the meeting on December 20, of the National Geographic Society, held in the lecture-room of the Cosmos Club, Washington, D. C., Prof. Willis L. Moore presiding.

The first lecture was by Gen. A. W. Greely, who described at length the work of the Signal Corps, carried on in Cuba and Porto Rico, during the Spanish-American war. The most striking and salient point which the General brought out was the fact that at the outbreak of the war with Spain there was no such thing as a telegraphline existing on the island of Cuba, whereas at the time the United States turned the Queen of the Antilles over to the Cubans there were 4,000 miles of telegraph line uniting every town, city and station. This magnificent work was accomplished by the army and navy Signal Corps and went as a gift to the Cuban people.

Gen. Greely was followed by Col. Samuel Reber, who described in detail the Weather Bureau, Marconi, De Forest, Slaby-Arco, Muirhead-Lodge, and Pleasanton systems of wireless telegraphy, but did not offer any opinion as to their merits, leaving the audience to be the judge. He said in conclusion that the proper sphere of wireless telegraphy is now, and always will be, between ship and shore and ship and ship at sea, the system being of doubtful value on land owing to the number of obstructions which at sea are absent.

Capt. Edgar S. Russell, of the Army Signal Corps, read a paper on the recent manœuvres on Long Island Sound and Narragansett Bay, in the course of which he brought out many interesting facts which did not appear at the time. He said that the telegraph, telephone, and telautograph instruments used in the forts and coast defense stations had to be made "brutally strong" in order to withstand the detonations and terrific reports of the rapid-fire and long range guns. He also described how, during these manœuvres, the officer in charge of the balloons combined an old with a new invention, with very satisfactory results. This officer, instead of deflating the observation balloons in order to remove them from one point to another, simply loaded them upon, or rather made them fast to, several light automobiles, and transported them from one point to another over considerable distances in an inflated condition.

Prof. Moore concluded the meeting in a short speech in which he said some interesting things relative to wireless telegraphy. The term "wireless telegraphy" was, he stated, a misnomer, but having gotten into general use could not now be changed. Wires are not only used, but employed very extensively in this species of communication, which, he said, should be known as "space" rather than "wireless" telegraphy. He also stated that, thus far, wireless telegraphy, owing to lack of further development and perfection, had little or no commercial application or value.

"Don't talk to me about compulsory vaccination!" exclaimed the man who had his arm in a sling. "I'm sore on that subject."

Money and time are the heaviest burdens of life, and the unhappiest of all mortals are those who have more of either than they know how to use.—Johnson.

Barclay's New Repeating Relay, Main Line Relay and Box Relay.

The new repeating relay, the device of Mr. J. C. Barclay, the electrical engineer of the Western Union Telegraph Company, marks an important step in an improvement over the type of instrument now in use. The distinct advantages are such that in its workings, where many repeaters are in circuit, practically no time is lost in repeating the signals, and circuits are now worked between New York and San Francisco, New York and Galveston and New York and Havana, Cuba. On such circuits a gain of from twenty-five per cent. to fifty per cent. in efficiency has been obtained over the former arrangement in which walking beam pole changers were used. And not alone is the new method quicker in action, but signals, if received at an office in good shape, are absolutely certain to go out on the connecting line just as perfect.

The improvements made by Mr. Barclay in the standard Western Union main line relay, may be summed up as follows: The abandonment of the aluminum armature lever, stamped iron being used in its place; and the abandonment of the set screws to hold the armature in position, the pin pattern armature set in solid trunion being substituted therefor. All posts have been pinned to prevent their turning. The main line wires are brought up through the centre of the base so that when the magnets are moved forward and backward the wires will turn in a circle instead of a direct line. One of the particular features is that the trunion seat is constructed with a square shoulder to act as a stop to prevent the magnets from coming in contact with the armature. A 1-16 of an inch, or any desired space between the armature and magnets can be maintained.

The mechanism of the box relay is of a high grade, all parts being readily accessible and standard, the same as are used in main line relays except the extension core. The boxes are constructed on the snare drum principle and give a sound similar to that of the local sounders. The use of the steel points in place of the platinum also adds to the clearness of the sound, and the substitution of hard maple in place of the cherry or mahogany, further adds to the efficiency of the instrument as well as increasing the sound. There are no connections underneath the box, so that it is not necessary to remove the same in order to repair the relay. The brass portion of the box acts as a carrier for the magnets, and the box is attached to the base in a manner rendering it almost impossible of breakage. All screw posts are pinned, making it impossible for them to turn. The back stop armature holder is bolted to the wood in a way that makes it impossible for it to work loose.

These instruments are manufactured by J. H. Bannell & Company of 20 Park Place, New York, and are referred to in an advertisement published elsewhere in this issue.

Low Resistance Relays—Reminiscences of an Old Timer.

BY MADISON BUELL.

[Madison Buell, the writer of the accompanying article, is one of the best known of telegraphers. He was born at Lebanon, Conn., July 31, 1834, and entered the service as a messenger boy in February 1847, in the Buffalo office of the New York, Albany & Buffalo Telegraph Company. Throughout the Civil War he gained an honorable record as a military telegrapher, and received warm commendation for efficient service from high Government officials. During the past eighteen years he has been one of the repeater chiefs in the Buffalo, N. Y. office of the Western Union Telegraph Company.—Editor.]

I have been an interested reader of the various articles on the value of the low resistance relay that have appeared in TELEGRAPH AGE. In view of the fact of the great advance made in electrical science during the past thirty years, I am at a loss to discover why there should be any serious discussion at all between well known authorities.

The articles, however, cannot help proving beneficial to some of the fraternity, placing before them in this way, information that they would not seek for in books or papers unless easily obtainable. From them, the young and the old in the profession can glean ideas and information of inestimable value.

Away back in the sixties, the ratio which the attractive magnetic force produced bore to the current producing it, had been investigated by many experimentalists and mathematicians. Prof. W. R. Grove, an English lawyer and physicist, and at one time vice-president of the Royal Society of London, and the inventor of the powerful battery known by his name which was so successfully used in the early days of telegraphy, stated in one of his papers before the Royal Society, on the above point, that the data were so numerous and variable that it was difficult to arrive at definite results. "Thus the relative size of the coil and the iron, the temper or degree of hardness of the latter, its shape, or the proportions of length to diameter, the number of coils surrounding it, the conducting power of the metal of which the coils are formed, the size of the keeper or iron in which magnetism is induced, the degree of the constancy of the battery etc., complicate experiments." Since that time, we all know rapid strides have been made and rules laid down for the guidance of those connected with electrical pursuits.

It is said that "every person has one good story in him if he will tell it truly, namely, the story of his life." This little reminiscence is a part of my telegraphic life between 1866 and 1871—and it may be interesting to a few in its application as to the value of the low resistance relay, which was first demonstrated by me as far back as the years named.

Having made this statement, I may appear egotistical in giving the proofs in the way that I do, but if the unintentional egotism be overlooked, one can become interested in knowing how some of the old time lines worked—the difficulties labored

under—and how the latter were eliminated without the aid of the apparatus for electrical measurements so well known to-day. Hard and close study in 1865-1866, of three volumes of De La Rive's Treatise of Electricity, and a few other electrical works, laid the foundation of my success. I cannot help emphasizing here, some late editorial remarks in TELEGRAPH AGE, that "the quicker the vast number of men of to-day, apply themselves to a closer study of the technical side of telegraphy, the quicker they will find the path to future preferment."

It is a historical fact that the conductivity and insulation condition of the wires of the Western Union company running out of the city of New York, previous to 1867-1871, coupled with the use of high resistance relays and over-loaded batteries in their large offices, was such as to render them almost useless for traffic, after a few hours of rain and fog. More than two-thirds of the wires were unserviceable, and at such times only a few could be made serviceable, by opening the others until the weather cleared up when the traffic resumed its normal condition.

About 1866, Cromwell Fleetwood Varley, the first electrician of the first Atlantic Cable company, at the request of the officials of the Western Union company, made an exhaustive test of the conductivity and insulation condition of the wires running out of New York, and his report of the wires outside of the testing office was put into form by the late J. D. Reid. It was lithographed and printed for those concerned, and those who are at all conversant with the well known chirography of Mr. Reid can readily understand that it was a work of art as well of utility.

In 1866, I was sent for by Gen. Eckert, at that time general superintendent of the eastern division of the Western Union company, and was appointed assistant superintendent of the 8th district at Philadelphia, under D. Homer Bates, and later transferred to New York. It was my duty to put the wires into a serviceable condition until the work of reconstruction in the way of the removal of defective insulation and soldering old joints, was made permanent.

At the time I reached New York I found that President Orton had in his office a differential galvanometer and plug rheostat, which were occasionally loaned to those found competent to use it. The galvanometer and rheostat were assigned to me and were used on my various trips between Nova Scotia and Texas. It was from the plug rheostat that I obtained the idea that led to my inventing and putting into operation the disc and bar form of the plug switch-board now in universal use. The spring jacks are not my invention they being in use at that time, on the well known Culgan switchboard. As originally designed, the discs were to be numbered to facilitate manipulation from one end of the board to the other, but for the sake of economy in its manufacture the numbering was dropped.

The drawings for the first board for eleven wires, were made by me in Gen. Eckert's office,

145 Broadway, New York, and the board was manufactured by Geo. M. Phelps, superintendent of the Western Union shops at New York. This board cost \$75, and Mr. Phelps expressed his opinion at that time, that it would not probably come into general use on account of its excessive cost over the Culgán board then in use. The eleven-wire board was put up in the room adjoining Gen. Eckert's office. This room was used for the wires to Plaister Cove, N. S., connecting with the Atlantic Cable lines. Mr. W. J. Dealy was the manager of this department and associated with him, were J. H. Emerick, and Mr. Maxwell, old military operators.

After this some two and three-wire boards were made for Col. Hinchman, superintendent of the Metropolitan district, for the Long Island lines, and these were followed by a forty-wire board for Manhattanville, a test office. On account of my having never patented the board, I never received any other compensation other than attached to the position held by me. In 1872, the board was adopted by the Western Union company, as their standard board.

When Geo. M. Phelps, the son of the superintendent of the Western Union shops alluded to, was in Buffalo, some years ago attending the electric light convention, he told me that he was in his father's shop at the time the drawings were received. It was thought at that time, that although the design was a good one, that if adopted, more or less trouble would be experienced by its use on account of the closeness of the discs and the bars. I have been very explicit in regard to my being the inventor of this board, for the reason that some have put forth claims for the honor without the slightest foundation, and if future claimants appear for the honor, I shall publish a letter from the late President Orton, of the Western Union Company, that will settle conclusively the matter, but at this time it is unnecessary to do so.

When I first went to New York, it was desirable that the circuits that handled the Atlantic Cable traffic, should be put into the best possible condition, and two trips were made by Gen. Eckert, and other officials including myself, to Plaister Cove, where the Western Union lines connected with the Atlantic Cable lines. These circuits were found to have high resistance relays, ranging from 500 ohms, up to 1,500 ohms. A Milliken repeater at St. John, N. B., had magnets of 1,500 ohms resistance. At Boston, Portland and Bangor, the average resistance of the relays was 1,200 ohms. In fact the high resistance relay was omnipresent on all my trips north and south. The greatest care was taken to perfect these circuits. At all of the testing offices, the wires leading into and out of the testing offices were renewed, and small relays of low resistance put in. Gen. Eckert, sometimes took a hand in soldering and running the wires through the window tubes. It is hardly necessary to say here what is so well known, that it was owing to Gen. Eckert's indomitable will and perseverance,

that enabled him to lift up the eastern division from the low condition in which he found it, and place it upon a higher level.

Before the changes were made, there were six repeaters in use between New York and Plaister Cove, N. S., in bad weather and in ordinary weather, three, and sometimes four. After the changes were made, and the low resistance relays substituted for the higher ones, the traffic was handled with greater speed with only one repeater at St. John, N. B., in ordinary weather. In bad weather, two repeaters were used, one at Bangor, but it required very bad weather to render it necessary to put in a third repeater at Boston. All the low resistance relays were 80 ohms.

I do not wish to trespass too much upon the valuable space of TELEGRAPH AGE, but the letters that now follow, have never been given publicity before, and only now, because they may be interesting in connection with the subject of the low resistance relay.

The improvements under my supervision were necessarily slow, but by October, 1868, the results were of such a character as to elicit the following note:

New York, Oct., 20th, 1868.

MADISON BUELL, Electrician.

There is something remarkable in the working of our wires. No trouble in the least. Work almost as well as in dry weather.

DOWNER, Chief Operator.

This note was followed by another from the late electrical engineer of the Western Union Company, who was at that time the manager of the New York office.

New York, Oct. 22, 1868.

MADISON BUELL,

Dear Sir: It gives me pleasure to state that a very marked improvement is perceptible in the working of our wires of late. This improvement I can attribute to nothing else than the changes made in our batteries. If my present views are confirmed by further experience, I shall consider the change in batteries of great value and importance.

Yours very respectfully,

A. S. BROWN, Manager.

The next few weeks showed still further improvements, and the following was sent to me by the night manager of the New York office.

Met. Dist. N. Y. Nov. 5, 1868.

MADISON BUELL,

The "combination" circuit, (printers) between this office, Philadelphia and Washington, worked steadily and rapidly on Sunday night, Nov. 1, until close of business, although storming here since noon of previous day and along the line to Washington.

The "combination" operators reporting for duty on above night expressed doubts of working to Philadelphia, and Washington was regarded as hopeless judging from experience in like storms of the past four years. I beg to inclose their reports and to add that the credit belongs to the steadiness of the battery—the absence of "cross-fire" being remarkable. Lines to Buffalo (via Erie Railway), and Boston, were also worked direct with decided satisfaction to distant offices as well as to ourselves; business (mostly heavy press) going through promptly.

THOS. DOLAN, Night Manager.

The report alluded to by Mr. Dolan was from Mr. Miler:

New York, Nov. 5.

MR. DOLAN:

Combination worked surprisingly well to Philadelphia

Sunday night, Nov. 1. Received a column and a half in about an hour, Philadelphia remarking, "I am surprised to find this circuit work so well through such a storm."

The absence of "cross-fire" alluded to by Mr. Dolan, was due to the fact of working but a few wires out of one battery, and those only having an equal resistance. It was also accounted for by another fact, that the ground wire of the New York office had been found defective by having a high resistance, and unable to do its work. A large copper wire was run from the battery room to the cellar, and connected with the gas pipe outside of the meter and also to the water mains. Notwithstanding the bad conductivity and insulation of the wires, the effect was marvellous, but easily accounted for. The combination printers had also had their long core high resistance magnets removed and 80 ohm magnets substituted therefor.

The introduction of low resistance relays and battery changes continued to be made throughout the winter, and after the Washington office had been reconstructed, another letter was received from Mr. Brown, as follows:

New York, May 20th, 1869.

MADISON BUELL,

Dear Sir: Yesterday being the first rainy day since the reconstruction of the Washington office and batteries, afforded us a fair opportunity of testing the value of changes made there. I am happy to say that the wires worked unusually well for bad weather, and in fact about as well as they ever do in the best of weather. We had no difficulty in working all of our circuits without repeaters, even to the New Orleans circuit, which worked all day with no repeater this side of Lynchburg.

Very respectfully,
A. S. BROWN, Manager.

8.45 A. M. Rain since 3 P. M. May 19, and all night in Washington.

A year after the Washington office had been changed, I received the following from the late Morrell Marean, at that time manager of the Washington office, and the reader will please note his remarks relative to the low resistance relay:

Western Union Tel. Co., Washington, D. C. 1870.

DEAR BUELL: After nearly a year's experience with the new battery you put up here, and with the low resistance relay magnets substituted for the old high resistance relays, I am free to say that both are great and decided improvements over the old instruments and batteries. The battery is much more constant and retains its strength under severe action, and under all other circumstances. The improvement in the working of our northern circuits was more particularly noticeable, when the high resistance relays were taken out of the Baltimore office, and those of low resistance substituted.

Our Pittsburg wire is the only wire that has given us any trouble, but that has greatly improved recently owing to the removal of the high resistance relays. This circuit is, I believe, nearly four hundred miles in length, and with numerous way stations on it, making one of the longest circuits worked out of this office. We work direct to Boston on several of our good wires, and work well, too, repeaters not being used at New York, except in bad weather.

Several evenings since, we had two of the best wires connected together at New York, without intermediate battery there, making a continuous circuit of nearly five hundred miles, with both ends of the wire here, and connected them to our two printing instruments. The circuit worked beautifully, with seventy cells of battery, the writing from one instrument being received on the other with perfect ease, the operator "slinging" in some of his most rapid com-

binations, the small relay recording them without the slightest trouble.

Yours truly,
MORRELL MAREAN, Manager.

After Philadelphia, Washington, New York and Boston had been put into fair shape, the improvements made thereby, had been so great and substantial, as to draw forth the following letters:

Western Union Telegraph Company,
New York, Jan. 26, 1870.

MADISON BUELL,

Dear Sir: It was my intention to write you a letter something like Mr. Downer's which accompanies this, but he has covered the ground so completely, that there is nothing for me to say, more than to add my endorsement to his statements. I consider that you have every reason to be satisfied with the success which has attended your efforts.

Yours respectfully,
A. S. BROWN, Manager.

The letter of Mr. Downer, is a lucid illustration of the condition of the wires previous to the changes made, and the results that followed them. It is well to note, that the principle of working poorly insulated wires by reducing the voltage of the current, and the substitution of low resistance relays for the high resistance ones, was put into practice by me.

Western Union Telegraph Company,
New York, Jan. 26th, 1870.

MADISON BUELL, Electrician,

Dear Sir: During the past eight years I have acted as the chief operator of wires from Boston to Washington, and previous to the changes made under your supervision, respectively, at Philadelphia, New York, Washington and Boston, we scarcely knew that it was possible to make our wires work well during bad weather. Our greatest difficulty was experienced between New York and Philadelphia. We always worked better south of Philadelphia to Washington, than from New York to Philadelphia. We even worked better to Boston than we did to Philadelphia. It was a common occurrence to abandon the Philadelphia printer on account of hard working wires, the business having to be done by Morse. Philadelphia has frequently relayed our Washington and southern business, because the lines worked too bad to make repeaters practicable.

I recollect one instance during a sudden thaw, that we could use but three wires out of the lot; and only then by opening all the others. At that time, there was no trouble further than that caused by the storm. All were "O. K." when the weather cleared, proving that the failure was either the insulation or office arrangement. Our custom, then, was to largely increase the intensity of our battery. We attributed the whole difficulty to escape and sympathy, or cross-fire, between the lines. It was a well established fact that the insulation was bad, but the principle of working poorly insulated wires, was not put into practice until the cleaning out of Philadelphia and New York was commenced.

Immediately after the Philadelphia office was reconstructed, we all noticed a great improvement, and since the New York battery was changed, and the cupola has been re-insulated, there has not been an instance of a wire refusing to work from New York to Philadelphia from causes previously existing. We notice a great difference with our eastern wires since the Boston office was changed. During the last thaw, when the thermometer rose to 60° our wires worked direct to Boston through as dense a fog and rain as I ever saw. That day all the brokers had wires. The "printers" worked all day with the exception of two hours in the afternoon, when we abandoned one of them; but I believe that one, could have been made serviceable, if the Boston instruments had been of the new pattern with small coil for relay. There is but one opinion here as regards the low resistance coils for relays. All of our operators prefer them. On our long circuits, the very ones that we supposed at first they would be unsuited to, they are the very circuits on which they are the most appreciated.

In conclusion, I will add that our system of batteries now

is the most perfect that we ever had here, and as regards convenience in the management of wires working from them, the change has taken a heavy load of responsibility off of my shoulders in the matter of getting off our business.

Please accept my warmest congratulations.

Very respectfully,

A. S. DOWNER, Chief Operator.

The latter part of 1870, I inspected Nashville, Louisville, Memphis, New Orleans, Mobile, Montgomery, Atlanta, Macon, Savannah, Charleston, Augusta, and Richmond, to say nothing of the smaller offices. Changes were suggested and made where necessary, and they were so successful, that some years afterwards, I received letters stating that the changes remained of the most beneficial character.

I will add only one more letter, one from J. R. Dowell, who was superintendent at Richmond. In doing so, attention is particularly called to his opinion of the low resistance relay and the fact of Richmond being able to get the large number of offices on the same adjustment, which they had before been unable to do.

Western Union Telegraph Company, Supt.'s Office,
1st District, Richmond, Va., Jan. 27, 1871.

MADISON BUELL, Electrician,

My Dear Sir: You have abundant reason to congratulate yourself for the remarkable improvement produced by your efforts, an improvement, too, with which the company must justly feel proud. We now have our three separate batteries at work, and while we discover no material increase in the strength of circuits, yet all the wires work as clear as bells, and work well, too. I am decidedly pleased with the change. Our Aquia Creek wire continues to work with great satisfaction; here you made a decided improvement. All offices now work without the slightest trouble, and at Richmond we get them all on the same adjustment.

I have written Mr. Van Horn, requesting him to give me fifteen 100-ohm relays, that I may try my hand as you did, upon as bad a line along the Chesapeake and Ohio Road. If he gives them to me, I think you will hear of another improvement just such as you made on the Aquia Creek route at least I hope so. Mr. Van Horn writes me that he is going to send all of his superintendents, a galvanometer, and repeats your suggestion that we all look well to our office insulation.

Very respectfully,

J. R. DOWELL, Superintendent.

This reminiscence has been made much longer than originally intended, and I will only add, that if I could accomplish over thirty years ago the results that these documents show, aided only by the use of a few electrical works at that time, what cannot the telegrapher of to-day do, with the great mass of electrical works now available? TELEGRAPH AGE is constantly calling attention to electrical works that ought to be in the hands of every telegrapher, and its columns are filled with information so valuable, that sometimes even a single item is worth double its subscription price.

There are a few things to be borne in mind by those of the fraternity who are trying to reach the top of the ladder. Besides a complete understanding of the technical side of telegraphy, they should have the qualities necessary for the successful conduct of any position that they may be called upon to assume—"special aptitude; promptitude of action on emergencies; capacity for controlling their men to mutual advantage; great tact, and, above all, a knowledge of human nature."

If they ever reach the top of the ladder, they

should select men having the same characteristics, and reward them with prompt promotion. The benefit to the service will be incalculable. How? "He who wishes to secure the good of others, has already secured his own," and "The laurel is cheap to the giver, but precious in his sight who hath won it."

Assistant W. U. Superintendent at Boston.

Robert E. Winn, as previously announced, has been promoted from the position of chief clerk in the office of G. J. Frankel, superintendent of the Western Union Telegraph Company at St. Louis, Mo., to that of assistant superintendent at Boston, Mass., where he is associated with Superintendent C. E. Page. He was born in Chillicothe, O., on January 23, 1869, and entered the telegraph



ROBERT E. WINN.

The New Assistant Superintendent of the Western Union Telegraph Co., at Boston.

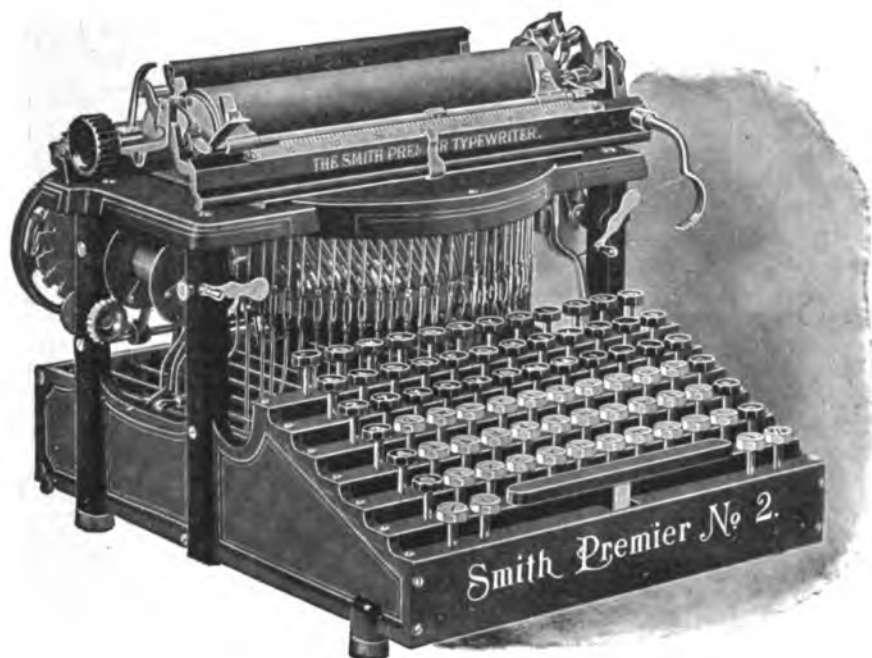
service at that point in 1887, as messenger. In 1888 he removed to Texas and in the fourteen years that have since followed he has pursued a steadily upward course, the quiet energy and sterling worth of the man proving itself on all occasions. The positions he has successively filled are those of operator, manager, chief clerk to superintendent of telegraph, chief clerk to both assistant superintendent and superintendent, of the Western Union, and now as assistant superintendent himself. At the age of thirty-three, with a most creditable record behind him, Mr. Winn describes his past history as uneventful, and modestly states that he considers his life as but just beginning. When in Texas Mr. Winn, for some time was the agent for TELEGRAPH AGE and it is a pleasure for us to state that he made a most efficient representative, painstaking, prompt and reliable in all of his dealings, characteristics that have been the moving power in Mr. Winn's career.


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NEW YORK, January 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.

Our Twentieth Anniversary.

The first number of TELEGRAPH AGE was published in 1883. The record of events covering the past twenty years with which this Journal has been contemporary, has been a remarkable one in every field of endeavor. The progress of the world, considered from every point of view during the two decades just closed, has been a tremendous one, unmatched in the amount of intelligent energy and research displayed and magnificent results achieved, in any corresponding period of history. We are living in an age so startling in its rapid evolutions and revelations that seemingly it is instinct almost with the attributes of omniscience itself. The developments in electrical science have been marvelous, and such are its present accomplishments as to suggest to the thinking man a great unfolding of future potentialities of which the human mind, although reach-

ing out to the infinite, cannot yet grasp and but faintly conceive.

Amid all of this striving the telegraph is acting its part with enlarged scope and increasing usefulness and opportunities. And there is nothing



JOHN MITCHELL.

One of the Founders of Telegraph Age.

to take its place. All else in the realm of electrical communication is but auxiliary to the telegraph. Wireless telegraphy, so called, with all



JOHN B. TALTAVALL.

Editor and Publisher of Telegraph Age.

of its inherent possibilities, which undoubtedly are many, must be so regarded. The potency of the electric spark was first practically demonstrated when Morse gave to the world his great invention, well nigh perfected at its birth. The

brain of man, constantly alert, and with multiplied effort, has not been able to devise a better, for fundamentally the telegraph of to-day is the telegraph of its great designer. And in this fact the God-given genius of Morse stands revealed.

At the helm, when TELEGRAPH AGE first made its appearance, was John B. Taltavall and John Mitchell, both practical telegraphers and fresh from the operating key. Mr. Mitchell's connection with the paper was comparatively brief, and through all of the succeeding years of its career, with a single brief exception, Mr. Taltavall has conducted it. To-day he is still its editor and publisher and Mr. Mitchell is now night manager of the telegraph bureau of the New York Herald.

The policy of the paper has been to give to the fraternity, with which its editor is in close comradeship and sympathy, not an organ but a telegraphic newspaper pure and simple, whose purpose it is to print current information relative to the telegraph, together with that of all closely allied interests. The aim is also to furnish such instructive matter to telegraphers as shall be of permanent benefit to them, and enable those who will to obtain a closer knowledge of the technical side of their calling, without which promotion in the service is problematical.

How well this policy has succeeded and is appreciated, is abundantly attested by thousands of letters received from readers in all parts of the world in which the paper is thanked for the serviceable helps it has rendered in one form or another.

TELEGRAPH AGE has proved its friendship for the operators in many ways and on many occasions. Early in its career it defended the telegraphers in their great strike of 1883, believing that the grievances of the fraternity, due to the imposition practiced by the Vanderbilt regime were such as to warrant the action taken by the men.

Among the achievements of the paper in behalf of the fraternity have been the securing of the pardon of three telegraph operators who had deserted from the army and who had been convicted to long terms of imprisonment at hard labor. President Cleveland pardoned two of the operators and President Harrison one at the request and influence of TELEGRAPH AGE.

The editor and publisher of this paper has otherwise aided telegraphers in many ways; he has endorsed and given bonds in behalf of hundreds of deserving members of the profession who sought employment in positions of responsibility both in and outside of the telegraph and for whom it was necessary some one should stand sponsor; also promoting by similar acts the settlement of estates which otherwise might have been long delayed and in consequence entailed much suffering.

Legal and medical advice had been furnished to numerous members of the profession during the twenty years of the paper's existence. TELEGRAPH AGE has been the influencing medium in obtaining for friends or relatives of its readers at

least a dozen pensions that had been held up indefinitely in the Washington bureau.

The paper has raised funds for yellow fever victims and other extreme cases of distress; for the Galveston flood sufferers, besides a fund to defray the expenses of a delegate representing the fraternity of the United States to the Como, Italy, Volta celebration in 1899, which also included a liberal contribution to the Italian celebration fund. It assisted in the raising of a fund to defray the expenses of a monument erected to the memory of James Francis Leonard, the first spund operator; also a monument to mark the last resting place of Mortimer D. Shaw.

The recitation of such facts as these might be extended indefinitely, but these are recalled simply to define the heart of TELEGRAPH AGE when properly appealed to from within the profession which its purpose is to serve.

The Past is now behind us, the Present is here and the Future with all of its hopes, its aspirations and possibilities, in which all are interested, is before us. The times in which we are now placed and which we are entering with greater individual responsibilities than ever before imposed upon man, call for the development of the best there is in us. There are opportunities for advancement in the telegraph ranks that men can achieve if they will but employ the right means. More than ever it is the well-informed man only, the student in his profession, who will meet with reward in his labor. TELEGRAPH AGE will endeavor to aid all such by placing before them such instructive matter in every issue as it believes will, if followed, lead to the making of better informed men, and consequently of more progressive and successful men. This will be the constant aim, and the moral uplift in desire, purpose and result should be mutual. We wish all of our readers a Happy New Year!

Cable System Not in Danger.

Sir William Henry Preece, formerly president of the Institution of Civil Engineers and a well-known electrician, was interviewed on December 24 in regard to Marconi's latest successes in ocean wireless telegraphy. Sir William was emphatic in declaring it to be his opinion that the wireless system would never become a serious competitor of the submarine cable. In the first place, he said, there was the want of reliability. It was possible to tap every wireless message and consequently there could be no privacy. Secondly, there was the low rate of speed of the wireless system as compared with the cables. Sir William expressed the opinion that wireless ocean telegraphy would never be practicable as an important means of communication because it could never stand comparison with the cables.

"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.

R. G. Callum Appointed Assistant Supt.

Mr. Robert G. Callum, for many years past manager of the Mutual District Messenger Company at Washington, D. C., has been appointed assistant superintendent of the fourth and fifth districts of the Western Union Telegraph Company, with headquarters at Washington, D. C. Mr. Callum's territory will embrace Pennsylvania, New Jersey, Maryland, the District of Columbia, Virginia, West Virginia, North Carolina, South Carolina and Tennessee.



ROBERT G. CALLUM.

The New Assistant Superintendent of the Western Union Telegraph Co., at Washington.

Mr. Callum was born in Danville, Va., in 1855, and entered the telegraph business in that city in 1868. In 1871 he was made manager of the Western Union office in Staunton, Va., and in 1872 he was made manager of the Goldsboro, N. C., office. From 1874 to 1877 he held positions with the Western Union in Augusta, Savannah and Macon, Ga., and in the cable office at Lake City, Fla. In 1879 he was made manager of the Atlantic and Pacific Telegraph office in Augusta, Ga., and in 1882 manager of the Mutual Union office in Washington, D. C., and in 1883 he was appointed superintendent after the company had been absorbed by the Western Union, its organization remaining as before.

In 1884 Mr. Callum was appointed manager of the Western Union branch offices in Baltimore, and in addition thereto, in 1885, manager of the Gold and Stock Telegraph Company at the same place. In 1887 he was made manager of the Western Union Philadelphia office and assistant to Mr. W. B. Gill, then superintendent. In 1888 he was made manager of the Mutual District Messenger Company of Washington, D. C., which position he now relinquishes. Mr. Callum is also secretary and general manager of the Instantaneous Fire Alarm Company,

of Washington, D. C., and patentee of several manual and automatic fire and burglar alarm systems with entirely new and valuable features.

Wireless Telegraph Calls on Ocean Steamers.

It is a common thing nowadays to have one of the telegraph operators employed on the great ocean liners relate that during certain trips of the steamer he was in constant communication with the land and passing steamers during the entire passage across the ocean. It will interest our readers to learn that each steamer has its call the same as every telegraph office. Thus, the call for the steamer Kronprinz Wilhelm, is K. P., and the call for the steamer Philadelphia of the American Line, is P. H., and the other steamers equipped with the Marconi system have calls suggestive of their names. The telegraph operator sits at his instrument during the voyage and when he notices that his instrument is vibrating, he at once opens his key and says, for instance, "Who is it?" and then signs his call. If the vessels are going in opposite directions they will be in communication with each other from four to twenty-four hours, but if the vessels are going in the same direction it often happens that they are in communication with each other during the entire trip across the Atlantic and until the vessels are actually docked.

Telegraphic Facilities at Coronation Durbar.

A special despatch from Calcutta gives some interesting details of the preparations being made at Delhi for the coronation durbar, which is to be held in January. The interest that is being taken in the great event it is evident from the fact that a special telegraph office has been fitted up to accommodate 200 operators. There will be thirty emergency wires, with a working capacity of approximately 1,000,000 words per day.

Organization.

Eight telegraph operators were dismissed on December 23 by the Western Union Telegraph Co. at Pittsburg, Pa. All of them were members of the Brotherhood of Commercial Telegraphers, and it is believed by the men that they were dismissed on this account.

MAGNETIC CLUB:—The annual meeting of the Magnetic Club for the election of officers, for the year 1903, and for the transaction of other business that may properly come before the meeting, will take place on January 8, at 195 Broadway, New York.

The Order of Railroad Telegraphers during the year 1902, succeeded in obtaining twenty-two new and revised schedules from railroad companies, which according to report, brought to the railroad telegraphers increases in pay amounting to about \$1,100,000.

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

Dr. P. E. Murray Appointed Assistant Superintendent.

Dr. Price E. Murray, manager of the Western Union Telegraph Company at Atlanta, Ga., has been appointed assistant to Superintendent J. M. Stephens, with headquarters at Atlanta.



DR. PRICE E. MURRAY.

The New Assistant Superintendent of the Western Union Telegraph Co., at Atlanta, Ga.

For more than thirty-three years he has been connected with the Western Union Telegraph Company. He is a first-class operator and fine electrician. For twenty years he was the night chief operator in the Atlanta office, having been transferred from Rome, Ga., to that position. He is 48 years of age, a gentleman of high character and most popular address, and one of the most widely known and highly respected citizens of Atlanta.

Several years ago Mr. Murray took up the study of medicine, graduating at the Atlanta Medical College. In addition to being an accomplished operator he is thoroughly familiar with the accounting department.

The International Municipal Electricians.

The following letter has been addressed to the members of the International Association of Municipal Electricians, under date of December 15:

"Gentlemen:—Your Executive Committee is pleased to announce that several papers covering many subjects of interest to the Electrical Engineers, have already been promised for our next convention.

"Believing, however, that it is possible some of our members may desire to suggest topics, your committee will be pleased to receive any such suggestions and offers of papers. These sugges-

tions should reach the committee not later than February 1st, 1903. As the papers will be read at the convention in abstract only, it is necessary that they be printed and distributed beforehand, that the members may become acquainted with their contents for intelligent discussion. Persons presenting papers will therefore please bear in mind that such papers must be in Secretary Foster's hands not later than July 1, 1903.

"With a view of increasing the value of our 'Question Box,' the following is proposed:

"Members desiring information on subjects connected with Municipal electrical affairs are invited to send their questions to the committee. The questions will be assigned, as far as possible to gentlemen believed to possess special knowledge of the information desired, with a request that they prepare the answers for the next convention. The questions and answers will not be printed beforehand, like the papers, but will be read at the convention by the persons to whom they have been assigned. It is believed that the publication of such answers in our annual report will tend to increase its value as a work of reference.

"The co-operation of each and every member is requested in order to make our next convention the most successful in the history of the Association. Do not, therefore, rest content with merely reading this circular letter, but send your suggestions and questions to the committee, and in that way assure us of your interest and support.

"Members are urged to use every effort to increase the membership. A special circular on this subject will be sent later.

Yours fraternally,

Walter M. Petty, chairman; W. H. Thompson, president; Jerry Murphy, 1st vice-president; Adam Bosch, treasurer; Elmer G. Loomis, Wm. Brophy, A. S. Hatch, J. B. Yeake, F. C. Mason, W. Y. Ellett, G. F. Macdonald and Wm. Crane, Executive Committee; Frank P. Foster, Secretary, Corning, N. Y."

To live content with small means; to seek elegance rather than luxury, and refinement rather than fashion; to be worthy, not respectable and wealthy, not rich; to listen to stars and birds, babes and sages with open heart; to study hard; to think quietly, act frankly, talk gently, await occasions, hurry never; in a word, to let the spiritual, unbidden and unconscious grow up through the common—this is my symphony.—William Henry Channing.

Everybody in the telegraph service is reading "Pocket Edition of Diagrams," etc. It is endorsed by experts, and no telegrapher who would gain a thorough knowledge of his business, told and illustrated in a manner clear to every reader, should fail to procure a copy. See advertisement.

No operator should fail to read TELEGRAPH AGE regularly. It will pay him to do so.

The Strange Story of Printing-Telegraphs.

BY DONALD MURRAY, IN EVERYBODY'S MAGAZINE, FOR
JULY, 1902.

[Since this story was written the German postal department, after prolonged experiments, conducted between Berlin and Hamburg, in sending four telegraphic messages each way simultaneously over a single wire at the rate of 300 to 350 words a minute, has accepted Professor Rowland's octuple transmitter and intends to introduce the system between Berlin, Hamburg, Cologne, Leipzig, and Frankfort.—Editor.]

About a year ago in one of the rooms of the Johns Hopkins University at Baltimore, a new machine was being shown to some visitors by its inventor, Professor Henry A. Rowland. It was a printing-telegraph of unheard of capabilities. In one part of the room four girls sat playing on the keyboard of four machines that looked like typewriters. In another corner, purring gently, was an alternating-current dynamo. Farther on was the crowning wonder, a machine about six feet long by four feet wide, a wilderness of wheels and wire and brasswork—and this incredible machine, without any human aid, was printing four telegraph messages simultaneously in page form on sheets of paper ready for delivery. The messages were coming over a single telegraph wire from Philadelphia, 100 miles away. In that town there was a similar outfit. Four girls were there playing on keyboards transmitting the four messages which were being printed simultaneously in the room in the university at Baltimore, the four girls at Baltimore transmitting four messages which were being simultaneously printed at Philadelphia—all over one wire. Full of eager vitality, Professor Rowland was moving about talking to his visitors, explaining, adjusting, and tearing off sample messages. Assisting him were several students of the university. Presently some other students came in. "Are you going to lecture this morning, Professor Rowland?" No; he was very busy. Would they mind if he postponed the lecture for an hour? Then some of the visitors timed one of the four little printers as it clicked away on the incredible machine. Professor Rowland said it was writing about thirty words a minute. Actually it was found to be printing its message at the rate of thirty-five words a minute. That was about a year ago. To-day Professor Rowland is dead; but his system is now being exploited by a company, and cablegrams recently published in the daily papers announced that the Rowland "Octuplex" is being tried with great success on some of the German telegraph lines.

Reflecting for a moment on Professor Rowland's wonderful octuplex printing-telegraph, and considering how almost everything nowadays is done by machines, it will no doubt surprise many to learn that telegrams are not yet sent to any appreciable extent by machinery, at any rate not in progressive countries like America. Out of every hundred telegrams transmitted in the United States at least ninety-nine are still sent by means of the Morse key and sounder—instruments too

elementary to be called machines. They have not been substantially altered since they were invented over fifty years ago, and they are so simple and perfect that it is certain they will never be wholly superseded. Like hammer and saw they are amongst the permanent possessions of mankind; but now, at the beginning of the Twentieth Century, there are indications that their field of usefulness is going to be materially restricted. Machine-telegraphy is arriving at last. That means that a considerable change is impending in telegraph methods, and the object of this article is to describe in a popular way the inventions—some of them hardly yet out of their swaddling clothes—that are causing this new development. The most important part of this change—at any rate so far as the present generation is concerned—is summed up in the words "printing-telegraph."

Within a brief twenty-five years the telephone has added hundreds of millions of dollars to the wealth of nations, and it has not been necessary to spend even one per cent. of that sum in useless experiments. The telephone scrap heap is comparatively small. A remarkable contrast to the history of the telephone presents itself in the case of the sister art of printing-telegraphy. It is a conservative estimate to say that, during the past fifty years, at least ten million dollars have been spent on printing-telegraphs, and, until within the last year or two, there has been nothing to show for the money except the little stock-tickers, and the Hughes printing-telegraph, a machine discarded in America, but still widely used on the Continent of Europe. Yet the inventors persevere. New men take up the problem regardless of all that has been done by their predecessors, and sooner or later they add one more machine to the scrap pile.

The invention of printing-telegraphs is peculiarly an American industry. The stock-tickers are Americans born and bred. The Hughes printing-telegraph is an American invention. The only important printing-telegraph systems that are not American are the Baudot and the Murray. But the Baudot system is simply a multiplied Hughes, and the Murray system, though it originated in Australia, has been developed in New York. In fact, in America the conditions are so favorable that the attention of inventors has been devoted to this subject to a remarkable degree. Three months rarely pass without some new patent being issued in the United States for a printing-telegraph. Taking, for instance, the months of May and June, 1901, it will be found upon examining the "Patent Gazette" that no less than six printing-telegraph patents were issued to six different inventors, at least five of whom are Americans. It may be that one of these will prove to be a success. Several of them certainly will not, and the odds are heavily against them all.

Within a radius of fifty miles of New York at the present time there are known to the writer no less than nine different printing-telegraphs, either in existence or in process of development. These are exclusive of stock-tickers. And New York is

not alone in this respect. There is hardly one large city in the Union in which there is not at least one printing-telegraph inventor at work. Certainly since the days of Morse, fifty years ago, the number of men who have wasted time and money on printing-telegraphs must run into hundreds. A year seldom passes without some newspaper printing a story in regard to the latest marvel that is going to revolutionize telegraphy, abolish the Morse key, and sweep the telegraph operator out of existence. One actual test on a telegraph line usually finishes its career. But the subject has a certain will-o-the-wisp attractiveness about it, so there are always newcomers blundering into this dismal swamp of the inventive world. The reason for such a waste of human endeavor is that most inventors have ignored at least one of the three fundamental requirements of a successful printing-telegraph system. This is that it must print messages in page form at a high speed over long distances.

It is only within the last two or three years that printing-telegraph systems fulfilling these conditions have been perfected. They divide themselves naturally into two classes:

Multiplex systems.

Automatic systems.

These classes are both based on the fact that it is impossible for one man to manipulate a keyboard fast enough to utilize a telegraph wire to its full capacity. In the multiplex systems the difficulty is overcome by dividing up the work among several operators, who each get a momentary turn at the wire. In the automatic systems, several operators prepare messages in the form of perforated paper tapes, which are then used to automatically transmit the messages at a high speed. The chief multiplex systems are the Rowland and Baudot, and the chief automatic systems are the Buckingham and the Murray.

The first practical printing-telegraph was invented by Royal E. House, of Vermont, in 1846, and it went into regular commercial operation in 1849. That is to say, within five years after the establishment of the electric-telegraph, a successful printing-telegraph was in operation. Under favorable conditions, it could transmit forty words a minute, whereas the best Morse operator cannot send more than about twenty words a minute, and yet the House printing-telegraph was abandoned forty years ago, and the Morse key is to-day in use the wide world over. The chief reason why it was superseded after having given satisfactory service for about ten years was that it would not work over long distances. That same reason explains the failure of many a printing-telegraph since. As it is being constantly overlooked, and as it lies at the root of the whole subject, the point requires explanation. To put it briefly, the longer a telegraph line the fewer the signals that can be sent over it in a given time. An analogy will make the reason clear.

If we take 500 feet of rubber garden hose and attach it to a water-tap, the water will not start and stop flowing instantly when the tap is turned

on and off. The water will not flow out in sharp jets, as it does with a short hose, but in gradually increasing and decreasing gushes. And if the tap is opened and closed very rapidly, the gushes will not have time to increase and decrease. They will merge into one another, and the water will flow out in a steady stream. In other words, if we try to send signals rapidly through a very long garden hose, the signals run into one another and are lost. The reason is that the rubber hose is slightly elastic, and the pressure of the water flowing through it swells it up slightly. When the tap is suddenly closed the hose contracts again to its ordinary size, thus forcing water out at the open end for a moment or two after the tap is closed. When the tap is suddenly opened again the reverse process takes place. The hose is already full of water, but enough extra water has to be forced into it from the tap to swell it up as much as it will stretch before the water will start flowing out of the open end.

A telegraph or telephone wire is exactly like the garden hose. The wire, or rather the ether surrounding the wire, is elastic, and when we pump electricity into the wire it does not instantly start or stop flowing at the other end, unless the wire is very short. We must give the signals time to start and stop, and the longer the wire the slower the rate of signalling. That is why it is impossible to telephone over more than about one thousand miles, and why telegraphing through Atlantic cables is so slow. It follows also that a telegraph system using a large number of signals per letter will not be able to compete over long distances with a system using only a few signals per letter. That was the trouble with the House and many other printing-telegraphs, and that is the reason the little stock-tickers are only used within city limits. The House machine was like the little stock-tickers in all essential respects. It had a small wheel with the letters of the alphabet cut on the rim, and this wheel was moved round step by step by electric impulses till the right letter was brought opposite the paper tape, and then it printed. For "A" there was one step, for "B" two steps, and so on to "Z" with twenty-six steps. Each step required one signal sent over the line. The curious buzz-clicking sound made by the stock-tickers is familiar to most people nowadays. The buzzing sound is the turning round of the type-wheel step by step to the right letter, the stepping process being extremely fast. The click is the sound of the printing of the letter on the tape. On the average, somewhere about twelve signals per letter are required by the step-by-step telegraphs, and this is more than can be transmitted at any satisfactory speed over long lines. The ordinary Morse alphabet employed with the Morse key uses only two and a half signals per letter, so that, when working over long distances, it is far more efficient than any step-by-step telegraph can possibly be, and it is vastly simpler and cheaper. The Morse key can be operated satisfactorily over a distance of 5,000 miles, and it is habitually used in America between New

York and San Francisco, a distance of over 3,500 miles. Three hundred miles would probably be the practical limit for a step-by-step printing-telegraph, and a variety of other considerations would probably prevent it being commercially successful over even that distance.

Obviously, the next step for the printing-telegraph inventors was to reduce the number of signals per letter, and this was done by David E. Hughes, of Kentucky, in 1855. He used what is known as synchronism. That is to say, he kept a type-wheel revolving in New York at a speed of about two turns per second, and he also kept a type-wheel revolving in Boston at exactly the same speed, so that when the letter A on the type-wheel in New York pointed to two o'clock, the letter A on the type-wheel at Boston also pointed to two o'clock. On depressing a key, say letter E key in Boston, as soon as the letter E on the type-wheel at Boston came around to the six o'clock position—that is to say, the lowest point on the type-wheel—a single electrical signal would be sent over the line to New York, where the letter E on the type-wheel would also be in the six o'clock position, and the signal would make it print. As it only requires one signal per letter the Hughes printing-telegraph works well over considerable distance, though it is handicapped by the necessity of maintaining synchronism, a task of increasing difficulty with increasing distance. Still, up to the last two or three years it has been the only really successful long-distance printing-telegraph, especially in its improved American form. It was adopted by the French Government in 1860, and now it is in use as the standard telegraph instrument all over Europe. But its use is practically confined to Europe. It is not in use in England or America, because it does not fulfil at least one of the essential conditions of a successful printing-telegraph. It does not print messages in page form. It prints them on a tape, which has to be afterwards cut up and pasted on a sheet of paper. This is a messy arrangement which has never been popular in America or England. The Hughes is also comparatively slow, as it does not transmit more than about thirty words a minute over 300 miles. With all its disadvantages it was an improvement on the House printing-telegraph, which it gradually superseded in America about 1860. George M. Phelps, an associate of Hughes, greatly improved the Hughes machine, and it came into extensive use on various American lines. It was made capable of transmitting fifty words a minute, and further improvements by Phelps ran up the speed to over sixty words a minute. This improved printer has been in use for years on a number of lines of the Western Union Telegraph Company; but it has almost ceased to be worked now, and as the old operators who learned to use it die out, they are not being replaced. It will soon be a thing of the past, chiefly because it prints on a tape, and also because it, in its turn, is being supplanted by a far superior system that prints messages in page form

at from 90 to 100 words a minute over distances of 1,000 miles.

The use of synchronism by Hughes reduced the number of signals per letter so much that it was only necessary to transmit about three signals per second for a speed of thirty words a minute, while a long telegraph line will easily convey ten times this number. The telegraph line was, therefore, not being used up to anything like its full capacity. This, therefore, was the next great step; namely, to devise a printing-telegraph system that would utilize the full capacity of the telegraph wires. Solutions were found along the two lines already mentioned—automatic and multiplex working.

The multiplex solution came from a Frenchman, Emile Baudot, a Government telegraph engineer. In 1870 he invented a most ingenious multiplex printing-telegraph. This has been developed and improved, until now it is a most remarkable system, and is widely used in France. It has been working for some time between Paris and Milan, and it was recently set going with great success between Paris and Berlin. It is so complicated that it is impossible to give any clear idea of the system in a short article, but the general principle underlying it is not difficult to grasp, and it will be briefly explained here, because it is the same general principle that has been used by Professor Henry A. Rowland in his still more marvelous octuplex printing-telegraph.

Suppose we take two clocks, remove the pendulums and hour hands, and allow the minute hands to go flying round at a speed of three or four turns per second, and suppose they keep exact time with each other, each pointing to the same hour at the same instant. Now suppose that one of these clocks is in New York, and that arranged round its dial are a number of keys, A, B, C, etc., but that the hand as it flies round cannot touch any key till one is pushed in. Suppose the other clock is at Boston, and that it is so arranged that the hand touches all the keys in succession. Suppose, now, that an operator named Brown in New York presses in one of the keys in front of him, let us say the letter C. As soon as the hand touches C an electric signal is sent over the line to the other hand at Boston, and as that hand will be at that same instant touching the letter C in Boston, that letter C will be printed on Brown's tape in Boston. Hence, whatever key Brown presses in New York, a corresponding letter will be printed in Boston. Now, the important point about the Baudot system, and also the Rowland system, is that between the moments when Brown is pressing his key there is time for several other operators to press their keys, so that their letters will be printed on their tapes in Boston without interfering with Brown or each other. The process of subdividing the work in this way can be carried up to the limit of the capacity of the wire. Over short distances the Baudot system can transmit six different messages at once. A large portion of the press despatches and other telegrams from Rennes to Paris during the Dreyfus trial were

transmitted in this way. Over longer distances, as between Milan and Paris, it is worked four ways instead of six. That is to say, four Hughes printing-telegraphs are kept going on the same line, and a speed of about 120 words per minute is obtained, as against 30 with the simple Hughes. The Baudot system, however, retains the defect of the Hughes in printing on a tape instead of a page.

Professor Henry A. Rowland some years ago took up this idea of a multiplex printing-telegraph, and developed it to a surprising degree. The Rowland system sends no less than eight messages at once over one telegraph wire, and prints them in page form. It easily transmits thirty words a minute on each of the eight printers, or 240 words a minute in all. The Rowland system was shown at the last Paris Exposition. Unlike the Baudot system, which is now over twenty years old, the Rowland system, in its present perfected form, has not been in existence more than about a year, during which time it has been subjected to practical trials by the French, German, and English Governments, by whom it was operated over their ordinary lines without aid of repeaters. During the winter of 1900 and 1901 the Rowland machines were duplexed between Paris and Marseilles, a distance of over 550 miles. On the result of this trial the French Government was satisfied to purchase machines for use on that line.

The German Government tried these machines between Berlin and Hamburg, and machines have been ordered for use on the Berlin-Hamburg and Berlin-Frankfort lines. The British Post-Office operated the machines between England and Scotland, the two ends being located respectively at London and Glasgow, a distance of over 420 miles apart. For moderate distances it is the most rapid of all printing-telegraph systems, as it can reach a speed of over 300 words a minute; but on long lines it is seriously handicapped by the fact that it has to transmit from eight to ten electrical impulses per letter. This is the old stock-ticker step-by-step trouble, though Professor Rowland has overcome it to a considerable extent by using an alternating-current dynamo to force his signals through.

The two most successful examples of the automatic method of high-speed printing-telegraphy are the Buckingham and the Murray systems. The former is employed by the Western Union, and its use is being rapidly extended by that company, two years' trial between New York and Chicago on commercial work having proved its great value. In this system the difficulty of one man not being able to transmit fast enough to keep the line fully occupied is surmounted by using what is known as the Wheatstone automatic transmitter. This instrument, which has been widely used in England for years, transmits signals by means of a perforated paper tape, different arrangements of perforations transmitting different signals representing different letters. Four or five or more operators may be employed to punch

the messages on the paper tape, and the sections of the tape are then run through the Wheatstone transmitter at a high and uniform speed of about 100 words per minute. Buckingham invented a keyboard machine for perforating this tape, and two or three operators working at such machines keep the automatic transmitter running steadily. In this way two or three operators are able to keep a line going at its full capacity. So far as this portion of the Buckingham system is concerned, it does not present much novelty. It is the printing mechanism at the other end of the line that is a real marvel of inventive genius. Type-wheels in printing-telegraphs have usually been made at least an inch in diameter to allow space on the rim for the twenty-six letters of the alphabet. To rotate such a wheel at a high speed to any particular letter is an impossibility, so Buckingham reduced it to four little type-wheels side by side about a quarter of an inch in diameter and with eight letters on each. The result is that this diminutive wheel, hardly bigger in diameter than a lead pencil, can be shifted so as to bring any letter to the printing point almost instantly. One of the conditions of successful printing-telegraphy, as already explained, at any rate in English-speaking countries, is that the message shall be turned out in page form. This is quite a difficult problem. Some inventors shift the type-wheel across the page to the beginning of each new line. The Rowland machine shifts its light carriage, moving the paper to a new line as the ordinary typewriter, this movement being accomplished while the operator is passing his finger from the shifting key to the next letter. Others shift the paper and its carriage, as is done in a typewriter. This means that signalling over the telegraph wire has to cease while shifting to a new line on the paper. With the Rowland system this is of little consequence, because only rarely do more than one or two operators shift to a new line at the same time. So the telegraph wire is always busy. With an automatic system this line shifting would seriously reduce the speed. Buckingham has overcome the difficulty in a very pretty way. He rolls his telegraph blank into a tube, pasting the edges together, and then prints the message continuously round the paper tube in a long spiral. When the message is finished the tube is cut open, and the message then reads in straight lines across the page. This at least is the crude idea. Actually it has been developed in a way that is the acme of nimble ingenuity. By this means the printing of the whole message is practically continuous, and high speed is assured. Like other successful modern systems, Buckingham relies on permutation of signals, six signals per letter being sufficient. This system works in the most perfect way at from 90 to 100 words per minute between New York and Chicago, a distance of about 1,000 miles, and, as it works duplex, this means a speed of from 180 to 200 words per minute. As the Edison quadruplex working with Morse keys cannot possibly reach a speed of even 80 words a minute between New York and Chicago, it will be seen

that there is a great gain in the use of the Buckingham system.

The Murray system is the latest arrival, having been perfected only a few months ago, and it has been adopted by the Postal Telegraph-Cable Company. It originated in Australia, and has been developed in New York during the past two years. Like the Buckingham system, it relies on the Wheatstone automatic transmitter and a perforated paper tape. Special keyboard machines are used to prepare this tape. At the receiving station in the Murray system there has been a wide departure from any known printing-telegraph system. Instead of operating a printing mechanism direct, it re-perforates another tape at the receiving station, and this tape is then run into a small machine that mechanically operates an ordinary typewriter, much in the same way that mechanical pianos are played by perforated bands of paper. It will be noticed that in this arrangement the shifting of the paper to a new line gives no trouble, as the printing is entirely independent of the transmission of the signals over the telegraph wire. In experimental tests, this system has successfully transmitted 100 words a minute between New York and Chicago, or 200 words a minute duplex, and on shorter circuits it has reached a speed of 130 words a minute, or about 250 words a minute duplex, remarkable development of the Murray system that is expected in the future is automatic typesetting of press despatches, as the perforated receiving tape can be made to operate a linotype or typesetting machine at any desired speed as readily as it now works a typewriter. The Murray system has the disadvantage of the slight additional trouble of using perforated tape at both ends of the line. Buckingham uses it only at one end, and Rowland not at all. To balance this disadvantage the Murray system uses only one and a quarter signals per letter, and can therefore work faster over long distances than any other system.

It will be observed from what has been said that each of these big modern printing-telegraph systems has its special advantages and disadvantages, and it is probable that they will each find special fields of usefulness. The saving that they are destined to effect in telegraph wires is enormous. They do more than double, and in some cases more than treble, as much work as the quadruplex over the same wire. In other words, they make one wire do as much as two or three are now doing. They will, therefore, save \$60,000 or \$70,000 on a single circuit between New York and Chicago, and similarly, in proportion to the distance, between other large centres of population. Whether they will save much labor seems to be doubtful, but the work required will be much less skillful and not nearly so exhausting. They are all excessively complicated, and they cost several thousand dollars per set to construct. Hence they are only available for service between large cities where there is a sufficient volume of telegraph business to make it worth while employing them.

Before concluding the subject of the writing telegraphy a few words might be added regarding its first cousin the electrograph. Pictures transmitted

by instruments have been produced sufficiently clear for reproduction at the receiving end of the circuit. When operating the electrograph, the photograph, or drawing to be transmitted is first made into an ordinary half-tone plate. The plate is flooded with metal wax, and then rubbed to a smooth surface. This fills the depressed portions with an insulating material, leaving all other parts smooth and clean. The plate is then bent around the cylinder of the transmitting machine, the operator closes his key, and the electric current does the rest.

The distant receiving machines have plain white paper wrapped around their cylinders. The closing of the circuit by the transmitting operator starts all machines at once, and in six to ten minutes the picture is completed.

The automatic operation is really a very simple one, though the results are almost beyond belief. The transmitting stylus, a fine steel point, traces a spiral upon the zinc plate, while the wax dots, rapidly breaking the circuit, cause electrical pulsations upon the connecting wire, which pulsations are recorded on the receivers by special electro-magnets actuating steel pens which trace corresponding spirals upon the recording papers. These spirals broken into dots similar to the waxed depressions in the zinc plate, build themselves up automatically and the pictures unfold gradually, being composed of thousands of dots. An exact copy is thus made of the zinc plate which in itself is a perfect half-tone of the original picture when completed. The transmitting operator then opens his key, stopping all the machines on the line. The electrograph is reversible—that is, the machine is either a transmitter or a receiver. The simple changing of a switch and substitution of a pen for the stylus makes the change. Sitting at his machine the receiving operator sees the face before him develop in a few moments from an imperfect outline to a human likeness which is startling. The effect is somewhat similar to the development of a photographic negative, pens acting instead of the chemical.

The electrograph has been operated over lines ranging from a few miles to 1,100, portraits being transmitted the longer distance successfully. An idea of the value of the apparatus for news service can be gained when it is stated that the Washington correspondent of a metropolitan daily paper, for instance, can keep one wire "hot" with the text of an interview or an account of some sensational episode, while, by another, he is transmitting portraits of persons prominently concerned and photographs of scenes connected with the story. It is not an exaggeration to predict that a year or so may see the writing telegraph and the electrograph side by side in the larger newspaper offices of the country, each doing its part in mechanical news-gathering.

What was once fiction may soon be fact.

Those who contemplate subscribing for TELEGRAPH AGE, and who would first like to inspect a sample copy, should not fail to write for the next issue.

Responsibility of German Telegraphers.

It is reported that the Berlin courts have pronounced a condemnation against two telegraphers of that city for having transmitted in a Stock Exchange telegram the word *Kaufen* (to buy) in place of *Verkaufen* (to sell), which caused grave financial trouble to the sender and to the receiver. This decision is based on the new civil code of Germany, which holds all employes pecuniarily responsible for the errors committed during their service. Those acquainted with the "Morse" code, will readily understand how such an error could arise. The two culprits have lodged an appeal, in which they urge that the senders did not avail themselves of the power of having their telegram repeated and compared, which is the stipulated means of preventing error, and which would have led to its detection in this case. The higher courts have not yet pronounced final judgment. The "Riforma," a telegraphic review published in Madrid, in commenting on this case, makes the following excellent points: "Our opinion of this charge is that errors committed in the transmission of telegrams are caused by the bad state of the lines, defects in the apparatus, the bad and unintelligible handwriting of senders and operators, the speed at which telegraph work has to be performed, and not by the ill-will of the telegrapher. Thus, the deficiencies of the employe, or his inattention cannot constitute a motive of penal responsibility, because the circumstances exclude intention, which is the sole basis for responsibility. The regulations allow senders to have their telegrams repeated and compared, and furnish a means of preventing errors involuntarily committed in transmission; if this means is not employed they run the risk of getting their telegrams altered by the above-mentioned causes and cannot attribute to the telegrapher other responsibility than that of having committed a fault independent of his will. If such a criterion of responsibility as that of rendering a telegrapher pecuniarily liable for mistakes in telegrams be established, it will create a condition in which the salaries of telegraphers will be insufficient in view of the risks of the profession. 'Errare humanum est,' and if such a position were arrived at its logical outcome would be to hold the doctor responsible for errors in his diagnosis should his patient die, and the lawyer if his clients lose their case. The errors in telegraph transmission cannot be prevented by coercive measures, but by forethought and provision. Good lines, good apparatus, well remunerated and normal work arranged in such a way that the staff take a keen personal interest in the service; these are the means of establishing the best and most perfect telegraphic service."—*Electrical Review*, London.

[In Germany like in all other countries where the Government owns and operates the telegraphs, senders of messages have no redress in case of error. To hold the individual telegraphers responsible for errors is a new condition in Germany and it is not likely that it will long pre-

vail. German telegraphers are among the grossly underpaid in the profession on the continent of Europe.—Editor.]

Weston Instrument Patent Decision.

Judge Coxe, of the United States Circuit Court of the Southern District of New York, has handed down a decision in an infringement suit, instituted by the Weston Electrical Instrument Company, which sustains in unequivocal terms two Weston patents on alternating-current instruments, one being a reissue patent, dated June 28, 1892, the date of the original application being January 18, 1890; and the other a patent, subsidiary to this, dated March 8, 1892. The defenses, with respect to the earlier patent, were lack of patentability, non-infringement and invalidity of the reissue; and lack of invention and abandonment with respect to the later patent—all of which points were decided in favor of the complainant. Judge Coxe held that Weston was the first to make a successful commercial voltmeter for measuring alternating currents, and this, his device, is to-day recognized as the standard instrument. There was, strictly speaking, no prior art, no practical commercial instruments prior to Weston's, and none entitled to be considered as anticipations. The Kelvin balance, Siemens dynamometer and Cardew hot-wire voltmeter were dismissed, the first-mentioned as being merely a laboratory instrument, the second as a complicated and sensitive device having the same fault, and the third as defective, inaccurate and liable to get out of order. While there were other instruments, they have since been relegated to the scrap heap of the art.—*Electrical World and Engineer*.

Telegraphic Mistakes.

Brevity may be the soul of wit, and it undoubtedly forms the basis of most telegraphic despatches. As a rule more trouble has been caused by the desire of a sender of a message to confine himself to the customary ten words than has every arisen from any other form of petty economy. The writer is very apt to think that the recipient of a telegram knows as much about the matter as he does himself, and the result is that the omission of a few words, at two cents each, makes the message simply an example of that little knowledge which is proverbially so dangerous a thing. In such cases the sender of the telegram has only himself to blame.

A Heliograph System.

The West India and Panama Telegraph Company, advises that the Heliograph System between Porto Rico and Vieques (Island) is re-established. The rate from Porto Rico is four cents per word. Minimum charge on any one message forty cents. So far as we can learn this is the only Heliograph Telegraph System in regular use on United States soil.

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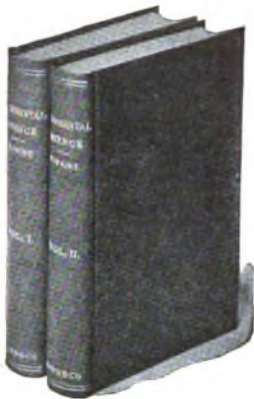
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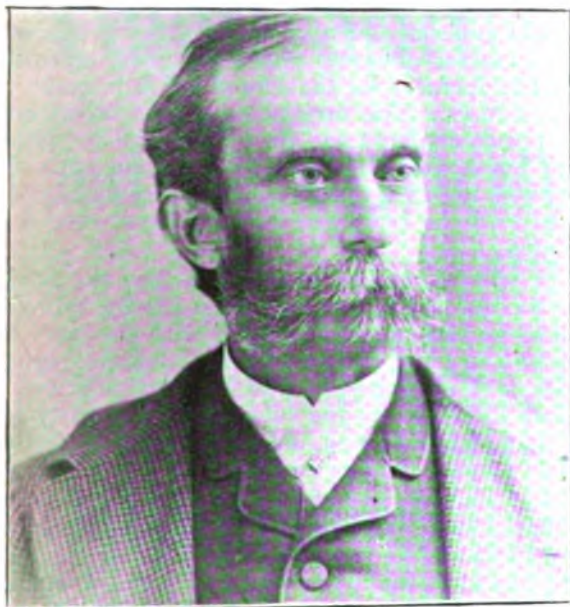
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Progress in Fire Alarm Telegraphy.*

AN ADDRESS BY JOSEPH W. STOVER.

Even though but few members of this association are directly responsible for the condition, care and maintenance of the municipal fire alarm telegraphs, upon which you depend for alarms of fire, I am certain you all are deeply interested in everything that makes for their improvement and efficiency, for you, more than all others, realize the importance of prompt alarms.

Neither the most thoroughly equipped department, nor the most ample supply of water are of



JOSEPH W. STOVER, OF NEW YORK.

any avail until the existence and location of a fire are made known. Everything goes by comparison, and it is well for us, in order to appreciate just where we stand, to occasionally compare what we have with what our predecessors had, and take note of the steps which have led up to the results we now enjoy. When our attention is called to something new, which is claimed as an improvement, we must know something of the state of the art relating to that particular thing and learn something of what has preceded, so that we can fairly judge its value and importance.

In the last fifty years hundreds of patents have been issued by the United States Patent Office for devices pertaining to fire alarm telegraphy, and it is safe to say that not one-tenth of the number have been of any practical value. The electrical field has been an attractive one, both to the inventor and the capitalist. Wonderful results have been achieved and fortunes have been won, but some have been lost, and the time has come for careful investigation before making

large investments in freely advertised new discoveries in this field.

The 29th of April last marked the fiftieth anniversary of the introduction of the Farmer & Channing system of fire alarm telegraph into the City of Boston, for on that day, 1852, the first alarm was electrically transmitted from the central office in that city to the 19 tower bells scattered about the city, on which this alarm was sounded.

It is fair, however, to call attention here to the fact that Charles Robinson, who introduced the Morse telegraph into Germany, utilized the Morse apparatus in 1850 (about two years prior to the completion of the Farmer & Channing system in Boston) for signalling the existence of fires from police stations and engine houses in New York City, to watchmen who were stationed in bell towers. New York was at that time divided into eight fire districts, with a tower bell and a watchman on duty day and night in each tower. It was the duty of these watchmen to look out for fires, and when discovered to strike the number of their district on the tower bell. The other watchmen hearing these signals repeated them on their own bells thus spreading the alarm over the whole city.

Since 1865, when the fire department of the City of New York, by legislative enactment, was first organized as a paid department, it has been generally known as a splendidly equipped and highly efficient department; but I regret to say that it has always been behind in its means for giving prompt alarms. It adhered to its watchmen and bell towers with but slight attempts at improvements, until 1869, when the Farmer & Channing system, as improved by Gamewell & Co., who had become its proprietors, was introduced—the system having been in successful use in Boston for a period of seventeen years.

With some exceptions in its central office equipment, about fifty modern type of signal boxes, and the undergrounding of its wires, the system in New York remains to-day substantially the same as when completed in 1869.

Brooklyn, however, has a much better record. Long before New York, it had a system of fire alarm telegraph, and in 1884, thanks to Hon. Seth Low (then its Mayor, who personally investigated the subject), the city adopted the non-interference type of signal boxes, notwithstanding the cost was considerably in excess of the type of boxes then in use. Other improvements followed, including a complete central office equipment in 1892.

Philadelphia took the Farmer & Channing system, with some improvements on the 1852 plant, in 1855. St. Louis closed a contract for the system in 1856, but it was not finally completed until early in 1858. New Orleans and Baltimore followed in 1860. Since that time its progress has been steady, until now nearly one thousand cities and towns are using systems of fire alarms founded upon the Farmer & Channing system of 1852.

*Delivered before the 30th annual convention of the International Association of Fire Engineers, held in New York, September 18th, 1902.

It has found its way to other lands, and is already in operation in several important cities of Great Britain and Germany. You may remember that last year there was a great International Exhibition of Appliances for the Prevention and Suppression of Fires at Berlin. To this manufacturers and all those specially interested in the subject, were invited from all parts of the world. Our Consul General, Frank H. Mason, reporting to the Department of State under date of September 17th, 1901, upon this exhibition, alludes to "the very complete and handsome display made by a New York company of fire alarm signal apparatus," and notes the fact that this exhibit was awarded the only gold medal, although there were many other exhibits in that line. The fire telegraph has also found its way to Jamaica, Honolulu and Manila.

Compare the Boston equipment of 1852 with that of a system of recent construction, and you will find that in this field, as in many others, we have a right to take pride in what has been achieved during the last half century by the genius of our inventors and the skill of our mechanics.

The original Farmer & Channing system was only adapted to large cities which could afford to employ a corps of day and night operators to receive and transmit alarms, and to carefully maintain the integrity of the electrical circuits and the apparatus.

Farmer took out a patent for a so-called "Village" system in 1850, but it was not until the invention of the automatic repeater by Edwin Rogers, of Boston, in 1870, that the fire telegraph was brought within the reach of the smaller cities and towns. This invention made it practicable to strike all the bells and gongs of a fire alarm system directly from the street signal boxes, and without the intervention of an operator at a central office. For ease and reliability of operation, boxes and alarm apparatus were distributed over a number of independent lines or circuits. Later improvements were made to prevent interference between two alarms sent in over different circuits at or about the same time.

The original plant in Boston comprised 19 tower bell strikers, and only 26 street signal stations; but it must be remembered that the requirements of the city at that time were not what they are to-day. During the year 1854, two years after the introduction of the fire telegraph, the number of alarms of fire in Boston were only 195.

I have a model here of the first signal boxes used in the Boston system. Their operation depends upon the turning of a crank by hand, and it was claimed and generally believed at the time that most any one could do it correctly. Experience proved otherwise. The original instructions placed on the boxes were to "turn the crank six times." The break circuit wheel was fastened directly to the shaft of the crank, and the number of the fire district in which it was located was first transmitted and recorded in dots on a Morse register at the central office. This covered one-

half the wheel, and the other half was cut to transmit in dots and dashes what would indicate on the registers the number of the box. The tower bells were only used to sound the district, and the firemen were expected to go to the street boxes and count the taps on the small bells within to get the exact location of the fire. These taps were sent from the central office immediately following the alarm transmitted to the tower bells. If a fireman on reaching the box did not find the bell tapping, he would signal to the office and the operator on duty would then repeat the proper signal.

As I have indicated, it was soon found that in the turning of the cranks to these boxes, parties would generally turn so rapidly that it was with the greatest difficulty and sometimes impossible for the operators at the central office to make out the signals. The directions on the boxes were therefore changed to "turn the crank 25 times," but even after this was done it was not infrequently the case that alarms sent from the boxes could not be read, and many delays were occasioned.

It will be readily understood that the advent of the automatic box was most gladly hailed by all those who were struggling with this very uncertain means of transmitting definite signals. The fact is, that the trials and tribulations of those interested in the success of these early systems of fire telegraph, must have caused them the most serious trouble and anxiety.

Mr. Farmer, in referring to his early experiences as Superintendent of the Boston system, did not hesitate to say that the first six or eight months after the first alarm had been transmitted were nothing but a series of tentative trials. Both Farmer and Channing realized the conditions and the requirements, and but for their wonderful faith and persistence, and their personal devotion, the system would have been abandoned.

Skilled mechanics, especially for electrical apparatus, were very scarce in those days, and the machinery, as produced, was exceedingly crude and clumsy; but this was not the only serious obstacle which troubled these early inventors. The fire department of Boston at that time had many of the objectionable features of the old volunteer department. Composed mostly of call men, they were opposed to any system of alarms which would give all the alarms to all the companies at the same time, and many interferences with the lines and the apparatus were chargeable to this opposition.

This can be well understood when it is remembered that the first steam fire engine used in Boston was so bitterly opposed by the men connected with the department, that it was on their account, and not on account of any inherent defects, stored away and allowed to rust and go to pieces. Philadelphia was the first city to drop this method of transmitting alarms from the street stations (namely, first giving the fire district and then the number of the box), and sub-

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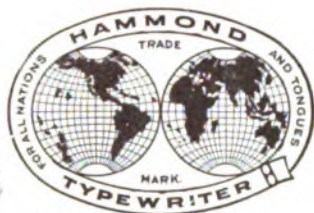
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Right here let me remark, that it is easy to criticise old-time methods; but this original Farmer & Channing system was so far ahead of any previous method of giving alarms, that it was properly regarded as a most valuable application of electricity, and it was quickly demonstrated that, as a means of saving life and property from destruction by fire, it was of incalculable importance. It is not my intention to give you a history of the fire alarm telegraph, but only to call your attention to the more important improvements which have been made from time to time in the fifty years which have passed since its introduction.

The first patent on an automatic signal box operated by a pull, to be freed from the mechanism after the pull is made, was taken out by Charles T. Chester, of New York, in 1867; but careless, inexperienced or designing persons could still interfere with these boxes while transmitting a signal, and it was not until about two years later that this difficulty was overcome by improvements made and patented by Crane & Rogers, of Boston. Their device was known as the "non-interference pull," by the use of which, when a box was once started, its signals could not be interfered with by again pulling that box before its signal was completed.

The first patent granted on signal boxes, known as "distance non-interference," was to J. N. Gamewell, in 1871. He was the first to use an open circuit break wheel. The object of these devices of Gamewell was to prevent interference or confusion with an alarm in process of transmission through the pulling of another box. It was a long step in advance, in securing certainty of transmission, but it was not absolutely non-interfering under all circumstances.

Quite a number of patents on non-interfering signal boxes were issued following this invention of Gamewell, but not until the improvements made and patented by James M. Gardiner, of Hackensack, N. J., issued in 1880, was anything produced offering a marked improvement over the devices covered by Gamewell in 1871.

This so-called Gardiner box not only provided against confused alarms from the use of imperfect pull devices, but provided against interference with the transmission of an alarm after the box was started by the starting of another box, thus securing both local and distance non-interference. No fire alarm signal box has ever come into such extensive use, and achieved so good a reputation for reliability as this Gardiner box, but important improvements have been made in recent years, which are rapidly being recognized, and which will, undoubtedly, within a reasonable time be quite generally adopted.

Soon after the automatic principle was introduced in giving alarms of fire by the introduction of the automatic box, and the automatic repeater, which made the system available for use in comparatively small cities, the principle was

made useful in central office systems by the introduction of a so-called "Joker" system, invented by Prof. Barrett, for so many years the Superintendent of the Bureau of Electricity of Chicago. This Joker plan, patented in 1876, permitted alarms to go directly from the signal boxes to those fire companies which are expected to respond to first alarms. Improvements have been made combining this plan with an automatic repeater, so that now it is considered more important than ever in the equipment of central offices. Besides the Joker system, many other improvements have been made in central office equipments. These modern equipments involve some extremely ingenious devices and the most careful and perfect mechanism ever produced.

I regret that you will not find included in the exhibition of fire alarm apparatus, in the Exhibition Hall, a complete and up-to-date central office equipment; but the comparatively large cost of such a plant, coupled with the fact that these equipments are specially designed and constructed only to meet the requirements of large cities, renders it impracticable for such an outfit to be used for exhibition purposes.

The great importance of having everything pertaining to these central office equipments for large cities as perfect as possible, will be apparent when I call your attention to the fact that according to a recent report, New York had 9,327 alarms of fire in one year. In the same year Philadelphia had 3,190; St. Louis, 3,894; Boston, 1,681; Baltimore, 1,612, and other cities in proportion to their size and population.

Referring again to improvements in signal boxes: Next to those to which I have referred deserving notice for its importance, is the signal box embraced in the patent awarded to J. J. Ruddick, in 1889, covering what is known as the "Successive" feature. By this device, boxes, in addition to the non-interference feature which prevents confusion in giving alarms, are also made to succeed each other, no matter if two, three or more are pulled upon the same circuit at or about the same time. That is, they will all come in, each giving its own definite signal. There were some defects in the first patent to Ruddick, but these have been overcome by improvements recently made.

Improvements have also been made in apparatus for striking large bells. From the original bell strikers of Farmer & Channing, it is quite a stride to the machine which is here on exhibition. With a weight drop of 25 feet, this machine will strike 10,000 blows with one winding. This 10,000 blow machine has been recently adopted for use by the United States Lighthouse Department for the striking of fog bells.

To insure its continuous operation against the running down of the weight, an automatic winding attachment, operated by an electro-motor, has been successfully applied. This automatic winder may also be used to wind the weights which carry the transmitters and multiple pen registers in a central office equipment.

I have referred in a general way to the improvements in central office transmitters, but I must call your attention to what is called a "Multiple Speed Transmitter" by which alarms may be received very rapidly and allowed to pass automatically to small bells and tappers, and at the same time to be transmitted at slower rates of speed to engine house gongs, tower bells and whistle blowers.

I have not called your attention especially to apparatus for sounding alarms other than the machines for striking bells, but machines for blowing whistles have been successfully used in connection with fire telegraphs for many years, and the gongs for engine houses which were first sounded by the direct action of the armature of electro-magnets have been improved from time to time, until now the best and most reliable in use are those in which the hammers are operated by spring or weight power held and released by electricity, by which improved devices the sound capacity of gongs from 6 inches to 24 inches is fully brought out.

As an additional security against mistakes in receiving alarms in the department houses, the electro-mechanical indicator was introduced in 1875. This, too, has been improved materially from time to time, until now an instrument is in general use which operates with certainty and precision, in displaying in large figures the number of every box from which an alarm is transmitted. Thus the firemen not only hear, but see the source of every alarm.

To save delay in the sending of alarms from the street boxes occasioned by the failure to readily find the key, and to prevent false alarms, a keyless door was invented, and the first patent for a practical device was issued to Tooker, of Chicago, in 1875. By this device the door could be opened by the turning of a handle. This handle wound a spring which set in motion mechanism, by which a local alarm was sounded on a small gong within the box. This was intended to deter malicious persons from meddling with the box or turning in false alarms. A little later Tooker received patents on a number of other improvements, and a few patents in the same line were awarded to other parties, none of which were of any considerable importance until the invention of the "automatic" keyless door, by N. H. Suren, in 1895. This invention overcomes the only serious objection to the use of the Tooker door, namely the ringing of the bell by the turning of the handle on the Tooker door before an alarm could be pulled in, in some cases resulted in causing the party desiring to give the alarm to conclude that he had done all that was necessary, and in his leaving the box without pulling the hook. With the latest improvement referred to such a result is impossible. It is only necessary that the handle should be turned; the bell will ring, and the alarm is transmitted without opening the door.

I now desire to refer to the spirit of power by which all fire alarm telegraph apparatus, from

the beginning to the present time, has been actuated and controlled, namely, Electricity.

Until within a few years, nothing has been used to any extent to generate electric currents for fire telegraphs, except galvanic batteries of the gravity form. It is true that Farmer & Channing, in order to secure the kind of current they required, used for a while the direct current of a dynamo machine, and dynamos have been used for furnishing currents to a limited extent since, but their use has never been general. Within a few years, however, an important advance step was taken by the introduction of the storage battery.

The very general use of electricity for light and power during the last few years has made it possible and practicable to obtain for fire telegraph purposes from electric light and power companies all the electric power needed at a minimum of cost, and comparatively recent inventions have made its application and use easy, economical, reliable and safe. Specially constructed switch-boards have been provided for charging and discharging the storage batteries, and these boards are provided with every device needed to insure perfect and reliable operation. Notwithstanding the great superiority and convenience of this battery over the old gravity battery, it can be maintained at a cost of about 50 per cent less.

Let me now call your attention to what you may regard as the greatest improvement of all, namely, the much lower prices at which perfect systems of fire alarm are now furnished. Notwithstanding the expensive improvements which have been added, the most complete systems known in the world are now furnished for about 50 per cent. of the cost of those furnished previous to 1885. Under this subject of progress in fire alarm telegraphy, it is proper that I should refer to the so-called "Automatic" fire alarms especially designed and constructed for the transmission of alarms from the interior of buildings.

Probably, without intention, the originators of these systems appropriated the adjective "Automatic" without considering that that term had been used to indicate the system of fire alarm telegraph especially designed for small cities and towns (and to which I have referred). This system of alarm of which I am now speaking, would have been more properly called "Thermostatic," for their operation primarily depends upon the use of thermostats, through which electrical circuits are opened or closed by the increase of the temperature in the particular room in which the thermostats are placed. These thermostatic systems have been in use for many years, but it is only in a few places that the alarms given by them are transmitted directly to the fire department. Their greatest value has been in the sounding of local alarms. There is a broad field for their use, and the protection they have afforded has proven of great value and importance.

I must also call your attention to what is known as the "Auxiliary" system of fire alarm telegraph. It is very properly termed an auxiliary system, for it was primarily intended as an aid to regular

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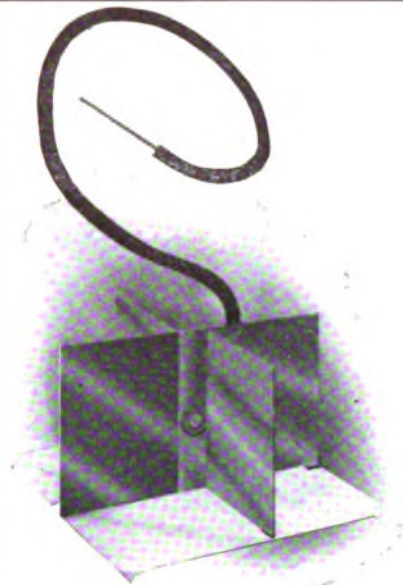
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established municipal systems in giving promptly direct alarms to fire departments. It has been in successful use for over fourteen years, and has never been abandoned when properly installed and properly cared for. Like every other new invention or new application of existing methods and means, it was at first open and subject to many criticisms; but I am certain that all legitimate objections have been overcome, and that as the system stands to-day illustrated in your exhibition hall, it deserves your favorable consideration and the favor of all those who are in any way interested in the improvements and extension of means for the transmission of prompt alarms for fire.

I am aware that this auxiliary system of fire alarm telegraph was not received as favorably in some quarters as it should have been, for the fact that it was erroneously believed that its introduction would retard, to some extent, an increase in the number of street boxes used in connection with regular systems of the alarm; but experience has proven the fallacy of all such apprehension. In many cases where the auxiliary service has been brought into use, special street boxes have been purchased by private parties, and placed where they could be used by everybody in the vicinity in case of need.

Another objection often heard was (and I may say is) that the auxiliary system, as generally used, does not indicate the exact locality of a fire. Neither does a street box; but I have been frequently told by chiefs of large experience, that there was never any trouble in discovering a fire of any account, when the nearest street box is pulled. However, this objection has been fully provided for, and wherever it is desired, those who control the auxiliary system stand ready to furnish a number of devices which completely overcome this objection, if it is one.

I am confident that the auxiliary system, improved and perfected since its introduction, can be relied upon to do all that is claimed for it; that it cannot, when properly installed, under any circumstances interfere with the integrity or operation of a municipal plant. It has been in use in this city for more than six years, and notwithstanding it encountered from the start the bitter opposition of interested and prejudiced parties, it steadily won its way until January 1st of this year, when it had in use over 2,400 boxes—a number equal to the number of street boxes in use in Greater New York. It has received the approval of the New York Board of Underwriters and Mayor Low has recently recognized the great value of this service by recommending its absolute control by the Fire Department through municipal ownership.

The origin and the progress of the fire alarm telegraph, its existence and successful use and greatest value has been demonstrated through municipal ownership. Why should not the means for giving alarms from the interior of buildings be furnished by municipalities and paid for by those desiring the added protection which it

would afford, the same as water is furnished and paid for?

Notwithstanding the numerous and important improvements made in fire telegraphy in the last half century, there is room for more. Increased means for the prevention and suppression of destructive conflagrations have hardly kept pace with the causes which create conflagrations. Last year (1901) over \$160,000,000 went up in flames and smoke in the United States and Canada. No matter what insurance companies may do to repair the loss to individuals, this was so much property wiped out.

Is there a lesson in this story of the fire telegraph? I answer, "Yes." It has proved most valuable from the start. It has saved thousands of lives and millions of property. As in war an army needs sentinels all about to give warning of a coming foe, so the telegraph is needed to warn you of your enemy fire. You should therefore insist on improvements and extensions to the full extent of your reasonable requirements.

An honorable or life member of this association for more than twenty-five years, and engaged as you are in fighting fire, I have had some special opportunity for making notes on the results of your management and work. I could easily and justly indulge in compliments, but I don't consider it necessary, for I am convinced by my observations that the public generally is fully appreciative of your ability, your devotion and the splendid results of your efforts. But just this word of criticism—You are too modest. Better than all officials you men of practical experience in fire-fighting, know just what you want and you should never fail to present your requirements and insist upon their full recognition. Place yourselves on record, so that when, as a result of mistaken economy, ignorance or wilful neglect the legislative or executive boards to whom you look for support fail you, and disasters follow, you may not be blamed therefor.

In view of the constantly lurking and imminent danger of fire, is it not the bounden duty of all those who are specially required to consider the best methods for diminishing great losses which are constantly occurring, to welcome and encourage everything which tends to make more and more effective the fire-fighting power of our municipalities.

The fire alarm telegraph as it stands to-day is not the work of one nor a half dozen men. Many have contributed to its perfection. I have only named a few. It has been an evolution; but if I were asked to name the one man to whom, more than all others, we are indebted for its progress and general use, I should without hesitation name John N. Gamewell, of South Carolina. From 1855 to the time of his death, he devoted his splendid business ability and his best efforts for its advancement and its extended use. It has been a number of times suggested to me that those who best understand the importance of his work should erect a monument to his memory. My answer has been and is—It is not necessary; the

evidence of his devotion and beneficent work may be found on nearly every street of nearly every city and town in this broad land.

A Complimentary Dinner to Mr. Burton.

The complimentary dinner tendered by his telegraphic friends to Hon. Walter C. Burton, Senator-elect from the 6th district, at the St. Denis Hotel, New York, on Saturday evening, December 20, proved to be one of the most successful and enjoyable social affairs of the season. The committee having the details in charge comprised F. W. Jones, M. F. Gaffney, T. A. Brooks, Geo. Leveene and M. H. Kerner. An artistic menu card was designed for the occasion by Arthur P. Stirling. A picture of the Capitol at Albany appears at the top of the card. The centre is embellished with an excellent likeness of Senator Burton surrounded by a wreath of laurels, by the side of which is gracefully posed an ideal figure of a woman bearing in her left hand a telegraphic instrument, and in her right hand a fern extending over the portrait of Mr. Burton. Mr. W. J. Dealy presided as toast-master in a manner that elicited well deserved praise from every one present. His introductory remarks were brief but well chosen. Short addresses were made by Messrs. F. W. Jones, Thos. E. Fleming, E. E. Brannan, E. F. Howell, M. J. O'Leary, M. H. Kerner, J. H. Rathbone, and a whole lot was said in a few words by Mr. David B. Mitchell, the life long friend of Mr. Burton.

The occasion was much enlivened by the songs and stories which were interjected by Messrs. Tom Ballantyne, T. Arthur Baker, Geo. Leveene and Dennis Harmon. Mr. Burton's address, which closed the entertainment was by all pronounced a fine effort. At its conclusion the usual "Auld Lang Syne" was enthusiastically sung by the entire assemblage and then a grand rush of everybody to shake the Senator's hand and wish him Godspeed in his new field.

The following were present: Walter C. Burton, Thos. Brennan, Chas. A. Bergin, J. B. Bertholf, John Brant, E. E. Brannin, W. W. Briggs, Harry Bennett, T. A. Brooks, Tom Ballantyne, Walter Brock Burton, Walter L. Brant, T. Arthur Baker, P. J. Casey, Clinton Chichester, H. C. Conkling, J. J. Conlon, Wm. J. Dealy, E. Delaney, D. Delaney, Fred. Eberle, Thos. E. Fleming, M. J. Fitzpatrick, M. F. Gaffney, F. H. Gilhuley, J. Graf, Wm. Grossman, Andrew J. Gillman, W. J. Hannigan, E. F. Howell, J. R. Heidemark, D. Harmon, Perry F. Irish, F. W. Jones, W. J. Jerome, M. H. Kerner, Don Kinnev, Geo. B. Knobloch, G. P. Kavanagh, J. A. Kenna, C. A. Kilfoyle, Geo. Leveene, D. B. Mitchell, D. W. McAneeney, W. H. McCormick, T. F. Murphy, Robert Morton, F. E. McKiernan, Jas. F. Moran, D. F. Mallen, C. F. Morcom, R. C. McDonald, W. C. McDonald, Albert Nugent, M. J. O'Leary, J. J. O'Brien, Frederick Pearce, John M. Phelan, A. E. Price, Geo. V. Price, Jas. A. Rice, Jno. Rathbone, Ed. J. Rankin, C. J. Reilly, A. E. Sink, Epes W. Sargent, E. W. Sharot, A. P. Stirling, D. P. Smith,

John B. Sabine, John B. Taltavall, H. L. Talbot, Jas. E. Tomkins, E. M. Tomlinson, S. S. Williams, A. V. Waldron, J. C. Watts, W. J. Wisert, L. W. Wingate and J. E. Walsh.

James Gamble on Organization.

The venerable James Gamble, formerly general superintendent of the Pacific Division of the Western Union Telegraph Company, now residing in dignified and quiet retirement at Santa Barbara, Cal., in a recent letter to TELEGRAPH AGE discusses the subject of organization among the telegraphers. He expresses satisfaction with the tone of an editorial on "Organization" that appeared in the November 16 issue of this journal, and says: "From your remarks secrecy appears to screen all the actions of the meetings." He further adds:

"As an old telegrapher I regret to see such a move, particularly if it is with the intention of enforcing an increase of pay from the companies employing them, either by striking or otherwise. 'Competition is the life of trade,' and this has been my motto through life, for in this way the best men always win. There is now a big competition between the telegraph companies, and the telephone companies are making the competition keener, for skilled operators are not required by the telephone companies, and the latter, when they combine, as they are likely to do in the near future, will, in my opinion, cut a large figure in the short distance and local telegraph business.

"I still have a pretty vivid recollection of the big telegraphers' strike of which I was the innocent cause of starting in 1869-70. There was then a secret union of the telegraphers, which extended over the country and into nearly every state. As manager of the Pacific Division of the Western Union I paid very little attention to it, but conducted the telegraph business as I thought to the best interest of the company. I kept well posted, as was my duty, as to the efficiency of the employes, and made it a point at the close of every year to revise my salary list. When I found an employe deserving promotion he received it, and when I found a man receiving more pay than I thought he earned, his salary was reduced or his services dispensed with in case it was not required. In this case as it was mid-winter, and business being dull, I relieved two operators, reduced the salary of two others, and raised the pay of two others who I thought deserved it.

"This action upon my part brought on the great strike. A cipher message being sent by the head of the branch of the Union in San Francisco to the chief headquarters in New York city, that the Western Union had begun to cut down salaries in the Pacific Division. A strike was ordered at once, and it spread to nearly every city in the United States. The story of it is told in Reid's Telegraph in America, page 547, an extract from which follows:

In 1866 a number of operators in New York organized

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themselves into an association styled "The Telegraphers' Protective League." It was the outgrowth of no existing grievance. Labor organizations were then popular. They had their charm to many minds, chiefly in the idea of fellowship, into which entered as an element, more or less dimly seen, the protection of labor. The self assertion in the presence of capital which it implied was attractive. It was the claim of manliness—the consciousness of and the assertion of rights. In all this there was fascination. The spirit of the times in this direction was eminently stimulating and expressive. At the close of the year 1869, the League embraced within its membership a large number of the effective force in the chief offices of the Western Union Telegraph Company. The head-quarters of the League was at New York, with branches in other large cities. In becoming a member of the League, the following oath was required to be taken:

OATH OF THE TELEGRAPHIC PROTECTIVE LEAGUE.

"You do solemnly swear, in the presence of Almighty God and these witnesses, that you will make common cause with the members of the League, that, forsaking your allegiance to corporations and individuals, you will, if necessity requires it, place your time and services at the disposal of the officers of the Telegraphic League, and reveal neither the names of officers nor members, nor the purposes of this society, so help you God." The following pledge was required after taking the oath: "I, A. B., do hereby acknowledge that, having become a voluntary member of the Telegraphic Protective League, and being made cognizant with its objects and intentions, I have bound myself by a solemn oath to bear true allegiance to said League; and I do hereby pledge my sacred honor that I will aid, in whatever manner may be required, the advancement and protection of its members, etc."

Section 3, Article 9 of the Constitution to which consenting signatures were required, provides:

"It shall be the duty of every member of the League to perform his whole duty to his employer, provided he does not thereby conflict with a duly authorized order from the chief operator of the circuit to which he belongs."

"Sec. 5. No member shall be at liberty to leave his regular duties to operate in any other town or city under orders from any telegraph company, without having first received permission from the chief operator."

The language and the assumption of this oath were sufficiently startling. As the Hon. Ezra Cornell remarked in a terse letter on the subject to the New York Tribune, "Here are obligations, oaths and pledges which conflict with an operator's faithful performance of his duty, and which cannot be complied with by the operators of any telegraphic company without destroying all the legal and legitimate authority of such a company over its business."

"This extract shows that it was the intention of the League to run the telegraph business to suit itself. While the great strike crippled the business of the company for a few days, it turned out a signal failure, and many good men who were induced to join it lost their situations while many new men who were taken on retained them."

Mr. Gamble goes on to say:

"I am now entirely in a neutral position, having no connection with either the telegraph or telephone, nor am I likely to have any in the future, therefore I have only the interests of my old friends, the telegraphers, at heart, in what I may say. There are greater reasons now why a Union should not be formed than there was thirty years ago. Now there is a competitive telegraph company, and it is always the desire and aim of each company to get the most competent employes, in order to give the best service, so that there is always a chance for an operator to improve his condition. Then, there is the telephone which, in my humble opinion, is soon to cut a

big figure in the telegraph business when the different telephone companies combine, which they are sure to do in the near future. In such an event many a good telegrapher would be left out of business, for "Hello Girls" are numerous and, it should be remembered, are willing to work for less pay.

"Another very serious objection to a Union of the kind proposed, is that in case they succeed in forcing their terms upon the company, that every Union man puts himself out of the line of promotion in the business, for no employer will appoint a Union man to any position to manage his affairs.

"Still another and a very good reason why a man should not surrender his independence and chances for promotion in his calling by binding himself to a Union is, that some men are always worth more than others, and would get better pay if not bound by an agreement to place himself on the same level with his fellows who are not as competent.

"Every man should aim to be free and independent. If not satisfied, and can do better, he should resign without prejudice."

The Western Union and Pennsylvania Railroad.

The argument in the case of the Western Union Telegraph Company against the Pennsylvania Railroad Company, to prevent the latter from removing the Western Union pole line from its railroad right of way, which has been argued at Pittsburg, Pa., and at Newark, N. J., is extremely interesting. In the case brought before Judge Andrew Kirkpatrick, at Newark, in the United States Court, counsel for the telegraph company, stated that the principal question involved was the right of the telegraph company to retain its system on the Pennsylvania, upon the payment of proper compensation. That a legal right existed to do so, counsel continued, he and his conferees would insist. The method of fixing such compensation, he said, was secondary, but he claimed for his company the choice of one of three courses. One was the appointment of a commission by the court; a second, the issuance of a writ in the law proceedings, and a third, the courts assessing of damages and compensation in equity. Counsel then referred at length to the negotiations with the railroad company looking to a renewal of the contract, which expired on May 14 last, or the execution of new covenants for the maintenance of the telegraph system. These, he said, it was expected would be satisfactorily consummated, but were eventually blocked by the Pennsylvania's "obdurate attitude."

Here counsel came to the principal basis of the Western Union's case—namely, the rights conferred by successive acts of congress. By virtue of these statutes, he asserted, the telegraph company became veritable interstate agents for the government. Further, the company, under its congressional authority, was bound to transmit government business at greatly reduced rates. All of these obligations, he affirmed, had been faithfully performed.

G. F. McMurchy at Lexington, Ky.

Mr. G. F. McMurchy, who became the manager of the Western Union Telegraph Company, at Lexington, Ky., on December 1, was born on September 29, 1864, on a farm in Jefferson County, Miss. He is the son of G. W. McMurchy, who



G. F. McMURCHY.

Manager of the Western Union at Lexington, Ky.

died in the service after fifty-one years of continuous employment. Mr. G. F. McMurchy began his telegraphic career as a railway operator and assistant agent at Fayette, Miss. Here he remained during 1882 and 1883, passing the following year as an operator at New Orleans. From 1884 to 1886 he served as manager of the Western Union office at Helena, Ark., and from 1886 to 1895 pursued the occupation of a commercial traveler in Texas. Returning to the telegraph he became an operator at New Orleans and Houston, respectively, so continuing until 1899, when, for a year, he engaged in farming in his native county. Once again returning to the telegraph he was appointed manager of the Western Union office at Baton Rouge, La., retaining this place from November 1900 to July 1902. Later Mr. McMurchy received the appointment of inspector of the second Southern district of which Mr. James Compton is superintendent. The recent selection of Mr. J. R. Terhune as assistant superintendent of this district, thereby rendering the post of inspector unnecessary, Mr. McMurchy was given the managership at Lexington, as before stated.

In these days when technical knowledge is of such value to the telegrapher who would master his profession, its acquirer becomes of supreme importance. A subscription to TELEGRAPH AGE will supply the information every operator needs.

Cincinnati's New Western Union Chief Operator.

John P. McCabe, who has succeeded William Fellows as chief operator of the Western Union Telegraph Company, at Cincinnati, O., is a native of that city, where he was born July 22, 1859, and where he has since lived. He entered the service of the Western Union, beginning as a boy, in the office of the then superintendent, George T. Williams. He acquired the art of telegraphing under the guidance of E. T. Gilliland, the well known telegrapher, inventor and capitalist, now retired, and speedily became an expert in his chosen avocation. While yet a boy, but 12 years of age, he was placed in charge of the Western Union Telegraph office at the Cincinnati Exposition. Mr. McCabe continued in the Western Union employ until the organization of the American Union Telegraph Company, in 1879, when he entered the new service as wire chief and night chief operator. Later, however, on the consolda-



JOHN P. McCABE.

Western Union's Chief Operator at Cincinnati, O.

tion of the two companies named, he once again found employment with the Western Union, where he has since remained, advancing step by step, filling the positions, respectively, of wire chief, assistant chief and electrician of the operating department and night chief operator. Mr. McCabe has an engaging personality, is possessed with energy and holds the confidence of his superior officers. His friends in Cincinnati and elsewhere are numerous.

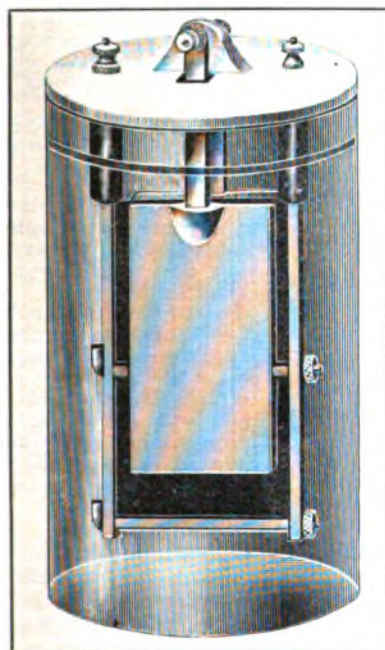
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Postal Telegraph's New Office at Buffalo.

The new main office of the Postal Telegraph-Cable Company, at Buffalo, N. Y., is declared to be the most modern telegraph equipment in the country, possessing, as it does, every up-to-date time and labor saving devices. The office is located in the Stafford Building, corner of Pearl and Church streets.



THE POSTAL TELEGRAPH-CABLE BUILDING,
Buffalo, N. Y.

The company occupies three floors and the basement. On the first floor are the receiving room, the manager's office and the delivery service department. On the second floor is located the superintendent's office, while the top floor is given up to the operating room, the dynamos and the bookkeeping department.

The basement contains the gas engine, which is held in reserve in case the Niagara power should ever fail temporarily. Here, also, are the cloak rooms for the messengers together with storage room with their bicycles.

The color scheme of all the rooms is yellow, the selection being made by E. G. Cochrane, the general superintendent, who also selected the oak furniture and furnishings and exercised general supervision over the installation of the plant.

The planning of the office and the details of the installation were in charge of John F. Skirrow of New York, the electrician of the eastern division.

At the western end of the operating room enter the cables bearing the current from Niagara Falls. The switchboard is fitted with switches by which the wires may be connected with either the three-wire system from the Falls or with the two-wire system from the gas engine in the basement.

All of the wires run beneath the floor in sheet iron boxes, the same being fireproof, water-proof and rat-proof.

The terminal room presents a handsome exhibit of artistic electrical wiring. There are 20,000 connections. The switchboard is the piece de resistance of the operating room. It is a new departure in this line of work and is so built that

its three rear sides form the walls of a room, while its three front sides form the switchboard proper. The old-fashioned cords with one end secured under the switch shelf are dispensed with in this board, and the space usually occupied by them under the switchboard shelf is filled in with handsome panel work.

In this switchboard shelf 200 small round jacks are mounted under each of the four panels of the board. To these so-called "pin-jacks" all the various instruments and apparatus are connected, each table, repeater, duplex, quadruplex, etc., being attached to one jack. The connection from the apparatus jacks is made by flexible cords. These cords have upon them a device by which the cord may be lengthened or shortened at will, thus making the cord any desired length for use between any pair of connections in a switchboard section.

In displacing the old style fixed cords the risk of fire is practically eliminated. A tangled mass of such fixed cords, carrying currents of high voltage, forms a constant menace of fire and entails many precautions. It has been necessary, in the past, to make the connections of such cords on slate or porcelain, or to enclose them in glass, in order that the fire risk might be lessened or a blaze quickly detected.

This new type of board renders these precautions unnecessary, as the only cords used are instantly removable, interchangeable, in plain view



VIEW OF A SECTION OF THE SWITCHBOARD
In the Postal Telegraph's New Office, Buffalo, N. Y.
and entirely above the switchboard shelf. The feature of interchangeability is of great import-

ance, as a defective cord may be replaced in a few seconds' time minimizing delay and trouble from such a cause. The portions of the switchboard to which the outside lines are connected are constructed of slate and metal exclusively, thus being entirely flame proof and safe from the danger of possible crosses of the lines with electric light or trolley circuits.

Every main line and instrument, and in fact every connection in this switchboard, is brought to a terminal frame or connecting rack in the room formed by the rear sides of the switchboard. To this frame are also brought all the wires on the underground cables which lead to lines to all

frame is soldered, and the post or jack to which it is secured bears a small mica-covered silicate card on which is marked the location of the instrument or line to which the post or jack is thus connected.

The repeater tables are of new design. The operating tables are fitted with extension arm resonators which enable the operators to change their position frequently at their work. This is the first office in the country thus entirely equipped in this manner. The chief operator sits upon a raised platform whence he can survey the entire room. An automatic tube connects the operating and delivery departments, the tube



GENERAL VIEW OF THE OPERATING ROOM IN THE NEW OFFICE OF THE POSTAL TELEGRAPH-CABLE COMPANY, BUFFALO, N. Y.

points north, south, east and west, to the various branch offices, the Board of Trade, and the offices of the lessees of circuits. All the cross connections are made upon this frame and the arrangement is such that any necessary connection in the office may be made or changed in a few seconds.

By this plan the switchboard proper becomes a permanently wired structure, at which no changes are made, except those by the wire chiefs in the manipulation of the flexible cords. Each connection at the switchboard and terminal

has an automatic switch which starts the electric motor operating it, when a box is introduced, and stops it when the box arrives at the other end of the tube. In the wall is an inter-communicating telephone system by which any part of the building can be communicated with at any moment.

The lighting plan is new. Triple light chandeliers are placed at intervals of about nine feet along the aisles between the sides of the operating tables. These chandeliers are equipped with porcelain shades with the convex side downward or just the reverse from the usual plan. This

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throws the light outward and on to the operating tables and typewriter keyboards, as well as furnishing a perfect general illumination of the room.

The opal porcelain shades reflect practically all of the light and, yet at the same time, permit enough to pass through them to obviate any deep shadows upon the ceiling. The ceiling and walls, being of a pale color, aid in the distribution of the light.

The switchboard lighting is accomplished by single brackets with green backed porcelain shades. These brackets are extended so as to illuminate every portion of the switchboard and shelf clear back to the last row of holes. Two 16-candle power lamps are furnished to each 50 wire section.

Those who assisted General Manager Baker, General Superintendent Cochrane and Mr. Skirrow are Superintendent Harvey D. Reynolds, who took an active interest in every detail; Chief Operator J. W. Sullivan, Master Mechanic W. Begg and C. J. Moore, chief of the force of wire and line men.

The Telephone in Railroad Service.

BY L. B. FOLEY, SUPERINTENDENT OF TELEGRAPH, DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

Would the railway systems of this country have discontinued the use of telephones in their operation had telegraphy been invented after the telephone? Had the telephone been invented first and put in general use before we had the telegraph, would the Morse system have been adopted in its place? Any person who knows how superior telephony is to telegraphy will say "No" emphatically to both questions. Undoubtedly had railroads been able to install telephones and use them in train dispatching and the transmission of orders, they never would have changed to the telegraph. The telegraph never would have been used at all in railroad work. Telephony has been in use on several large systems in the past few years. But it has not been found as efficient as the telegraph. The reason for this is very simple. Whereas there are from five to twenty circuits for sending telegraph messages, in nearly every instance where the telephone has been used in railroad work there has been but one telephone circuit. If this one telephone circuit is interrupted the telephone is out of commission, and the telegraph has to be relied on. If there was only one telegraph circuit and many telephonic circuits, if this one telegraph wire should break down, would not the telephone have to be relied on exclusively? Most assuredly it would.

There is a natural prejudice amongst some old railroad employes against the telephone. They have grown up in the service, and have during all their railroad experience been accustomed to the telegraph as a means of communication. They feel that the telegraph has been entirely satisfactory in years past, and that it is good enough for

the future. It would be a step backwards, according to their viewpoint, to substitute telephones for the telegraph. But fortunately, there is another element in railroading—the younger element—and, as they are practically in control of railroad systems in these days of progress, it seems certain that every railroad in this country will, in the course of the next few years, be equipped with telephonic communication. In my opinion this is bound to come.

In view of this, it may prove interesting to know what the Delaware, Lackawanna & Western has accomplished and is doing. We have at present three hundred and forty miles of telephone circuits, handling ordinary routine business that three or four years ago was done exclusively by telegraph. The system we use is simple in the extreme. It is operated in the same manner as the long-distance service of the telephone companies. We have a through trunk line from New York to Elmira, N. Y., and expect soon to have this extended to Buffalo, a distance of four hundred and ten miles. Besides this trunk line of two hundred and sixty miles to Elmira, we have on each division of the road, short lines radiating in all directions and connecting the different local stations. It is apparent that should the trunk line be used to communicate between all the stations on the road, it would be kept so busy all the time that one could not get communication with stations widely separated from each other. Our telephone circuits are placed on the poles with the telegraph wires. This results in a noisy line, but the noise is avoided and almost eliminated by our system of transposition. At principal points on the line we have installed private branch exchanges. All business coming in or going out from one division to another is handled by these exchanges. One bright boy is able to do the work performed by a number of telegraph operators. And he can do it in much less time. To show this, let us see how the two modes of communication operate. First the telegraph: An agent, at a small station along the line, wishes to communicate with our general passenger agent's office or general freight office in regard to rates, billing instructions or other business. He writes his message on a blank, involving considerable time and labor to him. He is also obliged to condense his request for information into as few words as possible, not being able to give a full explanation. Next, he sends it to the telegraph office, where an operator gets it, calls another operator at the other end of the wire, and then the first one, slowly and laboriously ticks off the message, which is again written by the receiving operator. Next, a messenger boy takes the message and carries it to the party addressed. He in turn reads it, writes an answer and sends it back in the same manner. All this involves considerable labor and time. Now let us see how the same agent can communicate with the general office by telephone. He simply goes to the telephone, calls for the "general office, New York," and the ex-

change operators do the rest. They proceed to build up the connection in exactly the same manner that toll line connections are secured, and in a few minutes the agent, miles away, is put in personal communication with the general offices of the company, to whom he may make a lengthy explanation, if necessary, and get a reply instantaneously.

The uses of the telephone are not limited. It can be used in every case that the telegraph can, and in many in which the telegraph is an impossibility. Of course, at the present time we do the bulk of our business by telegraph, but in a few years this will be changed. One of the new uses of the telephone is in handling train orders. A second-class train may be waiting on a siding for a passenger train. The conductor of the former, by telephoning to the dispatcher's office, can obtain orders to proceed after setting the proper signals, if he finds he can reach another siding ahead of the passenger train. This was impossible before the advent of the telephone. Often a second-class train was delayed on a siding for hours, waiting for a passenger train to pass. At each siding an iron box is placed on a telegraph pole, enclosing a telephone set. This box can be unlocked with an ordinary switch key, one of which every trainman is obliged to carry. Thus trainmen can instantly get into communication from any point on the line with the dispatcher's office.

The general superintendent's car is equipped with a telephone set, having a cord and plug arrangement by which connection can be made at any time with the line wires. This enables the general superintendent, no matter where he may be, to keep in close personal touch with every detail of the work.

One of the strongest reasons why every railroad system is anxious to install telephones is the fact that any one can use a telephone. In many small towns, where we have stations, there is only one telegraph operator. The communication with this place depends entirely on his being at his post. Should he be ill or meet with an accident, communication with his station would be entirely cut off. Now, by using telephones any one could receive or transmit communications. A conductor of a train could receive his orders, and in turn give them to the engineer. Or he could personally report to the proper official any trouble or breakdown or give or receive information of any kind without the necessity of employing a special operator.

Our mining department has its own telephone system, comprising about fifty miles of telephone circuits, which connect with our transportation department by means of a branch exchange, located at Scranton. Each of our collieries can be reached by the superintendent of mines from his office. He can communicate direct with the outside foreman or with the mining boss underneath the ground.

The telephone system is invaluable to the mining department, as it enables prompt distribution

of cars, which is very important when cars are scarce. A colliery may break down and mining have to be suspended for several hours. By telephoning to the proper official, cars en route to that mine can be diverted to another.

There are many advantages and combinations that can be effected by the telephone that are not possible with the telegraph. The Lackawanna could scarcely do without the telephone now. If it should be abandoned, our line would be seriously crippled. I have often asked our men how they got along before we had the telephones, and they invariably say they don't see how they handled the business. We are daily receiving requests for more telephones, and are furnishing them as fast as we can construct the necessary wires.

These figures show how great a labor and time saver the telephone is over the telegraph. With six hundred miles of telephone line in use on our road, we handle the same number of messages that we handle on three thousand miles of telegraph lines. One telephone employe, at a salary of \$30 a month, handles as many calls as six or eight telegraph operators would take care of at \$75 a month each. The middle man, who receives and again transmits messages, is entirely dispensed with. Communication can be had personally between the parties interested. The general offices of the company frequently hold important conferences with each other, although many miles apart.—American Telephone Journal.

Our Book Table.

"The How and Why of Electricity" is a book of information for non-technical readers. It was written by the late Charles Tripler Child, who, up to the time of his death, was the technical editor of the *Electrical Review*, of New York, and who said in his preface, "It is not the purpose of this book to tell what electricity is, for the writer does not know, but to tell something of its properties, of how this generated, handled, controlled, measured and set to work, and to explain how familiar electrical apparatus operates." The author appears to have accomplished his work to some purpose, and in the 23 chapters of the volume, embracing 127 pages, deals with the topic in a manner well calculated to interest and instruct the average reader, and has, therefore, contributed a welcome addition to the literature of the subject.

The volume is well printed on good paper, contains 40 illustrations, is bound in cloth, and the price is \$1. Orders will be filled by J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

T. M. B. ASSOCIATION:—Assessment No. 402 has been levied by the Telegraphers' Mutual Benefit Association to cover the claims arising from the deaths of Morris Nunan, at Liberty, N. Y.; Chas. Smith, at Lexington, Ky.; Fred. A. Sandeen, at Boston, Mass.; W. C. Turner, at Covington, Ga.

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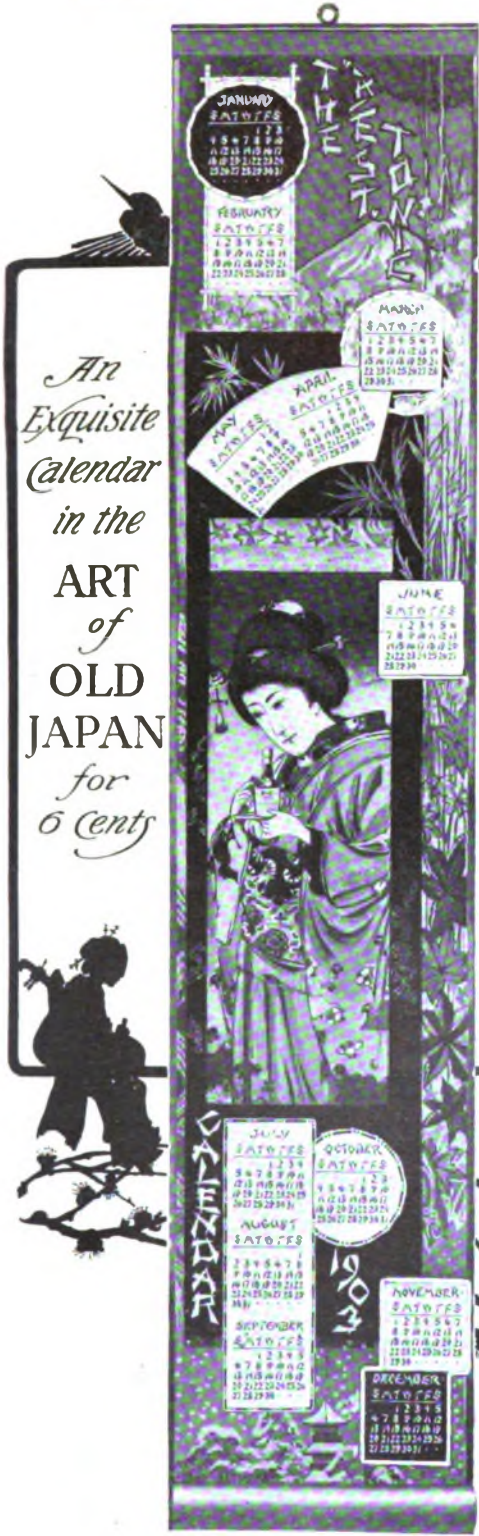
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Rev. John H. Watson, testifies in the *New York World*, that it has saved him from the edge of the grave when dying of Kidney disease and terrible suffering when passing water. Mr. James Thomas, Esq., of the Board of Review Bureau of Pensions, Washington, D. C., writes: "Was cured of a usually fatal Kidney Trouble after many physicians had failed and he had given up all hope of recovery. Hon. R. C. Wood, a prominent attorney of Lowell, Ind., was cured of Chronic Rheumatism, Kidney and Bladder Disease of ten years standing by Aikavis. Many ladies, including Mrs. E. R. Dinsmore, South Deerfield, Mass., and Mrs. James Young, Kent, Ohio, also testify to its wonderful curative power in Kidney and allied disorders peculiar to women.

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L. N. Boone at St. Louis.

Lorance N. Boone, the new chief operator of the Western Union Telegraph Company at St. Louis, Mo., who lately succeeded W. H. Spencer, deceased, was born at Springfield, Mo., in 1857, and is a great-grandson of Daniel Boone, the famous Kentucky pioneer. His early life was



LORANCE N. BOONE.

New Chief Operator, Western Union Telegraph Co., St. Louis, Mo.

passed mostly at Hannibal, Mo., where at the age of 13 he entered the service of the Western Union as a messenger boy. Learning telegraphy, he soon became a night operator for the Hannibal and St. Joseph railroad. Two years later he was made manager of the Pacific and Atlantic Telegraph Company, a position he held until that concern was absorbed by the Western Union Telegraph Company in 1874, when he was sent to St. Louis by the latter and made assistant chief operator, a post he has since held with the exception of two years, during which time he became a dispatcher for the Hannibal and St. Joseph Railroad. Mr. Boone is recognized as one of the most practical men in the employ of his company. He is a close student in his chosen profession and possesses a fine all around knowledge of his business and enjoys the entire confidence of his superiors for whom he has in time past performed much special business.

Personal Mention.

Mr. J. C. Barclay, the electrical engineer of the Western Union Telegraph Company, New York, has returned from his business trip to Havana, Cuba.

Mr. Andrew Carnegie, the well known old timer and philanthropist, has arrived at New York from England, and is again enjoying the best of health, despite his recent serious illness at London.

Mr. L. J. Maxwell, assistant superintendent, Western Union Telegraph Company, at Jacksonville, Fla., recently accompanied Mr. J. C. Barclay, electrical engineer of the company, on his trip to Havana, Cuba.

Mr. Marston R. Cockey, son of Edward C. Cockey, superintendent of supplies, Western Union Telegraph Company, New York, has been re-elected worshipful master of Chancellor Walworth Lodge, one of New York City's most influential masonic lodges.

Mr. Fred G. Mason of New York, assignee of The United Press, an old time telegrapher and a son of Mr. S. C. Mason, superintendent of supplies of the Western Union Telegraph Company, Chicago, Ill., was on December 17, elected worshipful master of Hope Lodge, at East Orange, N. J., which is the most influential masonic lodge in that State.

Mr. H. L. Hotchkiss, an old time telegrapher, but for many years a Wall street banker, has retired from active business. At one time Mr. Hotchkiss was prominent in American District and Gold and Stock Telegraph circles. In fact he assisted in organizing and conducting successfully both of these branches of the telegraph service for a number of years.

President C. H. Mackay, G. G. Ward, vice-president and general manager of the Commercial Cable Company, W. H. Baker, general manager and E. C. Bradley, vice-president of the Postal Telegraph-Cable Company, New York, have returned from San Francisco, where they went to take part in the ceremonies attending the landing of the shore end of the Commercial Pacific Cable to connect Hawaii and the United States.

Mr. Willard L. Candee, manager of the Okonite Company, New York, has returned from San Francisco, where he took part in the festivities attending the landing of the all American Pacific Cable, just completed to Honolulu. Mr. Candee's Company manufactured the underground cable connecting the submarine cables with the main offices, both in San Francisco and in Honolulu. He is well pleased with the manner in which his Company's share in this important work has been carried out.

Resignations and Appointments.

Mr. C. R. Tracey, manager of the Western Union Telegraph Company, at Wheeling, W. Va., has resigned.

Mr. P. J. Nixdorf, has been appointed Western Union manager at Colfax, Wash., vice W. T. Booth, resigned.

Mr. A. B. Gould has been appointed assistant superintendent of the Western Union Telegraph Company at St. Louis, Mo.

Mr. C. H. Cadwallader, has been appointed assistant superintendent of the Western Union Telegraph Company at Cleveland, O.

Mr. T. W. Timberlake, has been appointed assistant superintendent of the Western Union Telegraph Company at Cincinnati, O.

Mr. S. B. McMichael, has been appointed assistant superintendent of the Western Union Telegraph Company, at Minneapolis, Minn.

Mr. A. I. Morgan has been appointed manager of the Western Union Telegraph Company at Whatcom, Wash., vice C. S. Poage, resigned.

Mr. J. G. Wallick, son of Superintendent John F. Wallick, has been appointed assistant superintendent of the Western Union Telegraph Company, at Indianapolis, Ind.

Mr. J. H. Kenney, of the New York office, has been appointed manager of the Western Union Telegraph Company at Williamsport, Pa., vice G. E. Sornberger, resigned.

Miss M. Frances Alley, an operator of the Western Union Telegraph Company of Pittsburg, Pa., has been appointed manager of the Wilkinsburg, Pa., office of the same company.

Mr. F. Carney, manager of the Western Union Telegraph Company at Quincy, Ill., has been appointed assistant superintendent of the Western Union Telegraph Company at Boston, Mass.

Mr. M. L. Hellings, manager of the cables at Key West, Fla., has resigned, and the duties of his position will be assumed by Mr. J. W. Atkins, manager of the Western Union office at that point.

Mr. C. Willoughby, all night chief of the Western Union Telegraph Company, San Francisco, Cal., has accepted a position with the same company at Chicago, where he resided up to fourteen years ago.

Mr. N. E. Church, for many years cashier of the Western Union Telegraph Company at Pittsburg, Pa., has been appointed assistant to superintendent E. B. Saylor, with headquarters at Pittsburg.

Mr. E. F. Brennan, who for several years past has been clock inspector for the Western Union Telegraph Company at Burlington, Ia., has been appointed superintendent of construction at Chicago, Ill.

Miss E. B. Travers of Middletown, Conn., has been appointed manager of the Western Union office at Yonkers, N. Y., vice T. P. Brady, resigned. Miss Travers is relieved at Middletown by Miss D. M. Addis.

Mr. I. N. Miller, Jr., has been appointed superintendent of the Western Union Telegraph Company, with headquarters at San Francisco, Cal. Mr. Miller will have jurisdiction over a new district, covering southern California.

Mr. Wm. Lyle, for many years manager of the Postal Telegraph-Cable Company at Natchez, Miss., has been promoted to the management of

the same interests at Meridian, Miss. Mr. Lyle is succeeded by Mr. J. P. Collins, Baton Rouge, La.

Mr. H. F. Taff, manager of the Western Union Telegraph Company, Washington, D. C., who in addition to his present duties, has been appointed manager of the Mutual District Messenger Company, vice R. G. Callum, promoted. James T. Bresnahan has been appointed assistant manager and will have direct charge of the messenger business.

Mr. William Dorr, manager of the Western Union Telegraph Company at Port Angeles, Wash., has resigned, and H. J. Hart of Port Gamble, Wash., being transferred to the position, G. O. Sands being appointed to the vacancy at Port Gamble.

Miss Ella Templin has been transferred from Snohomesh, Wash., to the managership of the Western Union Telegraph Company at Fairhaven, Wash., vice Miss Sada Templin, resigned, the position at Snohomish being filled by the appointment of Mrs. H. W. Carr.

Mr. H. R. Welsh, manager of the Western Union Telegraph Company at St. Cloud, Minn., has resigned, and J. C. Otterholm has been transferred from Grand Forks, N. D., to succeed to the vacancy. The position at Grand Forks has been filled by W. R. Powell transferred from Crookston, Minn.

Mr. L. L. Potter, who has been manager of the Western Union office at Cairo, Ill., for the past three years, has been promoted to the Quincy, Ill., office, vice Frank Carney, appointed assistant superintendent at Boston, Mass. Mr. Potter has been in the service for 15 years, and his promotion to the Quincy office is in recognition of excellent executive ability.

General Mention.

Mr. George B. Abbott, recently of the Western Union Telegraph Company, San Francisco, Cal., has accepted a position with the Frisco line at Springfield, Mo.

The United States Signal Corps will soon appoint electrical engineers as follows: One at a salary of \$2,000 a year; one at \$1,600 and one at \$1,400. Examination and civil service rules will govern the appointments.

Mrs. A. D. Bartholomew, manager of the Postal Telegraph-Cable Company, Battle Creek, Mich., in remitting to cover her subscription for another year, writes: "Battle Creek needs the AGE just as it needs The Foods."

"Electric Messages" is the title of a paper published at Tokio, Japan, in the English and Japanese languages for telegraph operators. The ed-

1903 ANNOUNCEMENT.

FOR TWENTY YEARS *Telegraph Age* has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. **They have been invaluable to the active operator as a practical aid in his daily employment.** The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of *Telegraph Age* have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given *Telegraph Age* a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this large circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check, to

J. B. TALTAVALL,
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 Suite 115, 155 Washington St., Chicago, Ill.

itors and publishers are C. E. Cowman and E. A. Kilbourne, both old Western Union operators, formerly of Chicago, Ill., who are in Japan, doing evangelistic work among the telegraph operators. Judging by the contents of the first issue of their paper they are apparently meeting with great success, and they receive a hearty welcome wherever they appear.

We have received with the compliments of Mr. H. L. Shippy, treasurer of the John A. Roebling's Sons' Company, a daily memorandum and desk pad for 1903, and a daily vest pocket memorandum book issued in twelve separate monthly parts.

The annual report in pamphlet form of the Telegraphers' Mutual Benefit Association, is now being distributed among the members. It is a satisfactory document and reflects credit on the management for steadfastly adhering to a policy that has brought the society up to its present high standard.

That TELEGRAPH AGE is a potent factor in telegraph circles, even in our Far East possessions, can be seen from the following paragraph taken from a letter just received from Sergeant W. S. Kelly, U. S. Signal Corps, Cebu, Cebu Island, Philippines, which reads as follows: "In renewing my subscription I wish to state that I find great interest in reading the 'AGE', and consider it one of the best investments that a telegraph operator could make. Its leading articles are worth more than ten times the cost of the paper."

New York Visitors.

Mr. H. B. Perham, president of the Order of Railroad Telegraphers, St. Louis, Mo.

Mr. Harvey D. Reynolds, superintendent, Postal Telegraph-Cable Company, Buffalo, New York.

Mr. C. E. Page, superintendent, Western Union Telegraph Company, Boston, Mass. Mr. Page with his family spent Christmas at his old home in Cincinnati, Ohio.

Wireless Telegraphy.

Mr. Marconi on December 21 made the following statement: "I have established wireless telegraphic communication between Cape Breton, Canada, and Cornwall, England, with complete success. Inauguratory messages, including one from the Governor General of Canada to King Edward VII., have already been transmitted and forwarded to the Kings of England and Italy; also a message to 'The London Times,' transmitted in the presence of its special correspondent, Dr. Parkin, of Toronto." "The London Times" confirms the receipt of a message by wireless telegraphy from Mr. Marconi at Cape Breton, N. S. The text of the wireless message from "The Times's" correspondent, which was transmitted from Glace Bay, N. S., to Poldhu, Cornwall, is as follows: "Being present at its transmission in Signor Marconi's station, I have the honor to send through 'The Times' the in-

ventor's first wireless transatlantic message of greeting to England and Italy."

It is stated that the company will be able to handle 1,000 words per hour. So soon as it is able to get the English Post-office authorities to connect Poldhu with the inland telegraph, the company will commence regular commercial business between Nova Scotia and Cornwall. Mr. Marconi says that he will remain at Table Head for a short time and then proceed to Cape Cod station and from there to Cornwall, England, to make arrangements for the opening for commercial purposes. The staff at present at Table Head consists of Mr. Marconi, R. N. Vyvyan, managing engineer for Canada; his two assistants, F. S. Stacey and F. Taylor, and two of Marconi's personal staff, P. W. Pagett and G. S. Kemp. The rates will be ten cents per word for ordinary messages, and five cents per word for press messages.

King Edward, in reply to the marconi-gram received by him from the Earl of Minto, Governor-General of Canada, said:

"I am much interested by the wireless message you have sent me, and am delighted at the success of Signor Marconi's great invention, which brings Great Britain and Canada into still closer connection."

Lord Knollys, the King's private secretary, sent the following cablegram to Signor Marconi:

"I have had the honor of submitting your telegram to the King and am commanded to congratulate you sincerely by his Majesty on the successful issue of your endeavors to develop your most important invention. The King has been much interested in your experiments, as he remembers that the initial ones were commenced by you from the royal yacht Osborne in 1899."

The great achievement announced by Mr. Marconi has been expected for a long time by scientists all over the world, who have been keenly interested in his experiments, lasting more than a year, at Table Head, Cape Breton.

Prior to last December the greatest distance covered by wireless telegraphy scarcely exceeded a hundred miles. Early in that month Mr. Marconi visited Newfoundland, ostensibly to establish a station for reporting passing ships. But he also conducted experiments secretly to discover whether messages could be sent across the ocean by this system. Without telling the world about it in advance, he had equipped a station at Poldhu, Cornwall, with more powerful transmitting apparatus than had been employed anywhere up to that time. While on Signal Hill, Newfoundland, about eighteen hundred nautical miles from Poldhu, Mr. Marconi received faint signals—the letter "S" several times repeated—both on December 12 and December 13, 1901. His vertical wire was sustained by a kite, whose unsteadiness made it difficult to obtain uniform results. One or two small balloons, which he tried for the same purpose, escaped. To the coherer at the receiving station no recording apparatus

was attached. The signals were caught only by the ear, with the aid of a telephone. Under the circumstances some scepticism was felt among electrical experts as to the character of the performance. It was deemed credible that Mr. Marconi, whose honesty no one questioned, might possibly have been deceived. There was no independent testimony to confirm his belief.

All doubt vanished, however, when the next important test was made. Mr. Marconi was then on the steamship Philadelphia, on his way to America. At this time not only did he attach recording apparatus to his receiver, but he also obtained certificates from the ship's officers as to his latitude and longitude at certain critical periods. Thus his distance from Poldhu was established beyond question. On February 25, when 1,551½ miles away, a distinct message, made up of words, was received on shipboard. On the following day signals were recognized at a distance of 2,000 miles. The interval was equal to or greater than that between Poldhu and Signal Hill. The Philadelphia tests rendered it highly probable, therefore, that Mr. Marconi was not misled in regard to the Signal Hill experiments.

During the last few weeks messages have been sent from Poldhu to cruisers in Russian waters and also to Spezzia, Italy, not far from Genoa. In neither instance was the distance over one thousand miles. These incidents possessed some personal and political importance, but added nothing to the previous demonstrations of the possibility of long distance work. The King of Italy kindly placed at Mr. Marconi's disposal the warship Carlo Alberto for the purpose of visiting Cape Breton. She sailed from Spezzia just before the close of September. The vessel was equipped with receiving instruments, but not with a transmitter of sufficient power to send very far. It was expected that attempts would be made, both at Spezzia and Poldhu, to talk to Marconi on this voyage across the Atlantic, but it did not appear to be feasible for him to reply. Communication both ways, for more than a hundred miles, was possible only after Cape Breton was reached.

At Table Head, Glace Bay, near Sydney, in that province, the work of equipping a station for transoceanic communication has been in process during the last few months. This is practically a duplicate of the new station on Cape Cod. Before the close of last year there had been erected at the latter point a great circle of poles, which were to sustain the vertical wires needed for transatlantic messages. The construction was inadequate, and the poles soon blew down. An entirely different plan has since been adopted there. At Poldhu there was also a circle of poles originally. These, too, met with a mishap during the last few months. The reconstructed station in Cornwall has now been modelled after those at Table Head and South Wellfleet (Cape Cod). Table Head is about twenty-three hundred miles from Poldhu, and Cape Cod some five hundred miles further. The following description

will fit all three stations:

Four square wooden towers have been erected at this point. Each measures 28 feet across at the base, is from 9 to 11 feet across at the top, and attains a height of 215 feet from the earth. The towers stand at the corners of a square, whose sides are 210 feet long. Each one is cross braced with steel wire rope, such as is used in rigging a yacht. Then all four are connected with one another by diagonal stays. Finally, to render the structure still more rigid and wind-proof, stout cables are run up over the tops of each pair of towers on all sides, and secured to anchorages in the earth. So much for the architectural features of the station. Now for the electrical equipment.

From each of the four horizontal bridges which connect the tops of the towers are suspended fifty copper cables. The cables are composed of seven strands an eighth of an inch in diameter, tightly twisted together. Outwardly these cables look like single wires at a short distance, but in reality there are three hundred and fifty wires on a side, or fourteen hundred in all. Perhaps the reason for using many fine strands instead of a few large rods is to secure a larger amount of surface for a given amount of copper. It will thus be seen that the solitary "vertical wire" of the original Marconi experiments has now been enormously multiplied. Since the length of a Hertz wave is four times the length of the vertical wire, or antenna, waves not far from 860 feet (or a sixth of a mile) long should be developed. This corresponds to a frequency of about 1,100,000 a second.

The fifty cables of each of the four groups converge a little as they go downward, and also incline slightly toward the centre of the quadruplex edifice. The lower ends, therefore, are arranged along the sides of a square much smaller than that formed by their supports at the top. They terminate, of course, in the operating room of the station.

It is expected that Mr. Marconi will retain the now famous coherer as his receiving instrument for the present, although he has invented a substitute for it, a magnetic detector, which in some respects is more satisfactory. When he wishes to insure non-interference he will doubtless employ the tuning system invented by Professor M. I. Pupin, of this city, whose rights he purchased last spring.

In the transmitting apparatus transformers will be substituted for the old-fashioned induction coils. The spark gap will be scarcely more than an inch long, but the spark itself will be widened or thickened greatly by the shortness of the interval. It will be produced between globular terminals, two inches in diameter. An alternating current, generated by a forty horsepower dynamo, will do the work. The voltage will be raised by the transformer from 2,000 at which the current is to be generated, to 20,000. Condensers and other electrical appliances will increase this still further. Thus a voltage of from 50,000 to 70,000 will be secured. The dynamo will be driven by two twenty-two horsepower gasolene engines, run in combination.

Directory of Officers of Telegraph Companies.**WESTERN UNION TELEGRAPH COMPANY.**

The following constitutes the list of officers of the Western Union Telegraph Company:

Robert C. Clowry, president and general manager; George J. Gould, J. B. Van Every and Thomas F. Clark, vice-presidents; A. R. Brewer, secretary; M. T. Wilbur, treasurer; J. B. Van Every, auditor; John F. Dillon, general counsel; G. H. Fearons, general attorney; Rush Taggart and H. D. Estabrook, solicitors.

C. H. Bristol, general superintendent of construction; J. C. Barclay, electrical engineer; William Holmes, superintendent of tariff and check bureaus; G. W. E. Atkins, superintendent of contract and free service departments; E. C. Cockey, superintendent of supplies; W. J. Dealy, superintendent of commercial news department, all of New York.

European Agency.—D. Le Rougetel, general superintendent, and George Crighton, superintendent, London, Eng.

Executive Committee.—Thos. T. Eckert, chairman; Robert C. Clowry, John T. Terry, Russell Sage, Samuel Sloan, George J. Gould, Edwin Gould, Louis Fitzgerald, Jacob H. Schiff, James H. Hyde, Frank Jay Gould.

Eastern Division.—General Superintendent, B. Brooks, New York. Eastern Division District Superintendents: E. M. Mulford, Herbert Smith, assistant, New York, and Richard O'Brien, assistant, Scranton, Pa.; E. B. Saylor, N. E. Church, assistant, Pittsburg, Pa.; J. P. Altberger, Philadelphia, Pa., R. G. Callum, assistant, Washington D. C.; C. E. Page, R. E. Winn and F. Carney, assistants, Boston, Mass.; D. C. Dawson, St. John, N. B.; J. B. Tree, Richmond, Va.; J. M. Stephens, P. E. Murray, assistant Atlanta, Ga.; B. F. Dillon, L. J. Maxwell, assistant, Jacksonville, Fla.; James Compton, J. R. Terhune, assistant, Nashville, Tenn.

Western Division—General Superintendent, Theodore P. Cook, Chicago, Ill. Western Division District Superintendents: F. H. Tubbs, Wm. J. Lloyd, assistant, Chicago, Ill.; G. J. Frankel, A. B. Gould, assistant, St. Louis, Mo., and G. C. Felton, assistant, Houston, Tex.; J. J. Dickey, C. A. Nelson and Wm. Salisbury, assistants, Omaha, Neb., and C. B. Horton, assistant, Denver, Col.; C. Corbett, C. H. Cadwallader, assistant, Cleveland, O.; John F. Wallick, J. G. Wallick, assistant, Indianapolis, Ind.; I. N. Miller, L. W. Timberlake, assistant, Cincinnati, O.; I. McMichael, J. Levine and S. B. McMichael, assistants, Minneapolis, Minn.

Pacific Division—General Superintendent, Frank Jaynes, San Francisco, Cal. Pacific Division District Superintendents: F. H. Lamb, I. N. Miller, Jr., San Francisco, Cal.; T. W. Goulding, Seattle, Wash.

POSTAL TELEGRAPH-CABLE COMPANY.

The following constitutes the list of officers of the Postal Telegraph-Cable Company:

Clarence H. Mackay, president; William H. Baker, vice-president and general manager; Edgar C. Bradley and George G. Ward, vice-presidents.

Board of Directors.—Albert B. Chandler, chairman; Clarence H. Mackay, George G. Ward, William H. Baker, Edgar C. Bradley, Edward C. Platt, Sir William C. Van Horne, Charles R. Hosmer, James W. Ellsworth, George Clapper-ton. Francis W. Jones, electrical engineer; Edward C. Platt, treasurer; Theodore L. Cuyler, Jr., assistant treasurer; Edward Reynolds, auditor; Isaac Smith, superintendent of tariffs; Walter D. Francis, superintendent of supplies; Minor M. Davis, traffic manager and assistant electrical engineer; John Doran, superintendent complaint and claim department; Thomas E. Fleming, special agent; John O. Stevens, secretary, and Charles P. Bruch, assistant secretary and assistant general manager.

Legal Department.—William W. Cook, general counsel, New York, N. Y.; J. R. McIntosh, general counsel, southern division, Atlanta, Ga.; F. J. Loesch, general counsel, western division, Chicago, Ill.

Of the Eastern Division, Edward G. Cochrane is general superintendent; William H. McCollum, superintendent of construction and John F. Skirrow, electrician all of New York. First District—Edward B. Pillsbury, superintendent, Boston, Mass. Second District—George H. Usher, superintendent, New York, N. Y. George W. Blanchard, assistant superintendent, New York, N. Y. Third District—Leona Lemon, superintendent, Philadelphia, Pa. Fourth District—Harvey D. Reynolds, superintendent, Buffalo N. Y. Fifth District—Edson Kimmey, superintendent, Pittsburg, Pa. Sixth District—Albert C. Kaufman, superintendent, Albany, N. Y. Seventh District—Arthur L. Edgecomb, superintendent, Portland, Me.

Of the Western Division, Edward J. Nally is general superintendent; Charles M. Baker, assistant general superintendent; Welcome I. Capen, superintendent of construction, all of Chicago, Ill. First District—Frederick W. Conger, superintendent, Chicago, Ill. Second District—Edgar W. Collins, superintendent, Cleveland, O. Third District—Guy E. Paine, superintendent, St. Louis, Mo. Fourth District—Henry J. Kinucan, superintendent, Detroit, Mich. Fifth District—George M. Dugan, superintendent, Chicago, Ill. Sixth District—W. P. S. Hawk, superintendent, Helena, Mont. Seventh District—William C. Black, superintendent, Denver, Col.

Of the Southern Division, Charles C. Adams is general superintendent; Samuel A. Duncan, assistant general superintendent; B. S. Price, superintendent of construction, and Jesse Hargrave, electrician, all of Atlanta, Ga. First District—Joseph W. Kates, superintendent, Richmond, Va. Second District—Samuel A. Duncan, assistant general superintendent, Atlanta, Ga. Third District—Thomas R. Rusk, superintendent, Augusta, Ga.

Of the Pacific Division, L. W. Storrer is general

superintendent at San Francisco, Cal. First District—Leonard W. Storrer, general superintendent, San Francisco, Cal. Second District—James G. Blake, superintendent, Seattle, Wash.

COMMERCIAL CABLE COMPANY.

Clarence H. Mackay, president; George G. Ward, vice-president and general manager; A. B. Chandler and C. R. Hosmer, vice-presidents; E. C. Platt, treasurer; C. E. Merritt, assistant treasurer; Albert Beck, secretary; J. O. Stevens, assistant secretary; George Clapperton, traffic manager; John Beattie, accountant; W. K. Smith, chief clerk; F. H. Dennis, superintendent of clearing house; J. H. Smart, superintendent, New York; S. F. Austin, assistant superintendent, New York; C. Cuttriss, electrician, New York; S. S. Dickenson, superintendent, Canso, N. S.; F. B. Gerrard, assistant superintendent, Canso; W. H. Anthony, superintendent, Boston, Mass.; R. Herne, superintendent, Rockport, Mass.; D. Coath, assistant superintendent, Rockport; F. Ward, manager in England; E. G. Phillips, superintendent, London; T. J. Wilmot, superintendent, Waterville, Ireland; A. Holt, assistant superintendent, Waterville; F. Chevallier, electrician, Waterville; J. Furze, superintendent, Liverpool, Eng.; J. Wilkinson, assistant superintendent, Liverpool; H. J. Tracey, superintendent, Glasgow, Scotland; J. P. Gorton, superintendent, Weston, England; L. Crozat, superintendent of Continental agencies, Paris, France; E. Ronot, superintendent, Havre; R. J. Hughes, superintendent, Fayal, Azores.

The Cable.

THE COMMERCIAL PACIFIC CABLE COMPANY.

The cable steamer Silvertown began the laying of the Honolulu cable for the Commercial Pacific Cable Company on December 15, and reached Honolulu twelve days later. After buoying the shore end, and the final splice is made, the Hawaiian Islands will be placed for the first time in direct communication with San Francisco and the entire world. Up to the time of going to press on December 31, the final splicing of the cable at Honolulu had not been made.

When the end of the cable was brought ashore from the steamer at San Francisco, Miss Lucille Gage, the little daughter of Governor Henry T. Gage, christened the new line by breaking a bottle of champagne over it.

Mayor Schmitz delivered a short speech, congratulating Mr. Mackay on the successful beginning of the work. He also spoke of the importance of the undertaking and the benefit to the world at large that would result from its completion.

Clarence W. Mackay, president of the Commercial Pacific Cable Company, thanked the Mayor and those present. Governor H. T. Gage, on behalf of the State of California, paid a fervent tribute to the late John W. Mackay. The formal exercises closed with cheers for the cable and all those taking part in its landing.

Mr. Mackay also sent the following telegram to President Roosevelt: "I have the honor to inform you that the end of the Honolulu cable was successfully brought to shore this morning."

A portion of the cable was cut up into small pieces for souvenirs and distributed by President Mackay among his special guests.

The earnings of the Central and South American Telegraph Co., for quarter ended December 31, partly estimated, compare with the estimated figures for corresponding period a year ago as follows:

	1902.	1901.	Increase.
Traffic receipts	\$265,000	\$257,000	\$8,000
Op. expenses	93,500	99,500	*6,000
Net	171,500	157,500	14,000
Other income	5,000	3,500	1,500
Total net	176,500	161,000	15,500
Jan. dividend	115,884	115,884
Added to surplus	60,616	45,116	15,500
Previous surplus	714,962	586,858	128,104
Total surplus	775,578	631,974	143,604

*Decrease.

Germany is planning the laying of a submarine cable from the Azores to Dutch Guiana. This statement emanates from a high authority and is extremely significant at this time.

Germany has entered upon a vigorous policy of constructing or inducing the construction by German capital of submarine cables, in order that she may not be dependent upon English cables in time of war.

S. S. Dickenson, the special agent of the Commercial Pacific Cable Company, returned to Honolulu on December 18 from Manila, where he has chosen cable landing sites at Midway Island, Guam, and Manila. He also surveyed a route around Nero Deep, a very deep hole in the ocean bed between Guam and Midway, which was discovered by the United States Survey ship Nero, and reported to be the deepest bit of ocean in the world. In surveying around the Deep, Mr. Dickenson says that he went down to a depth of 4,500 fathoms, and the route chosen went around it, it being deemed impracticable to lay a cable over it.

The rate on cablegrams from San Francisco to Honolulu over the new Commercial Pacific Cable will be fifty cents per word. The rate from New York to Honolulu will be sixty-two cents per word.

"Small Accumulators" is the title of an illustrated volume of eighty-one pages, by Percival Marshall, M. E. The book covers the subject of storage batteries, as indicated by its name, as fully as is possible, and it will be found a practical and trustworthy guide of the matter treated, readily understood by non-technical readers. The price of the book is fifty cents, an amount which covers the prepayment of express charges. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

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.]

Those desiring electrical or telegraph books will consult their own interest by securing our book catalogue. We make it a point to fill all orders the same day they are received. Address TELEGRAPH AGE, 253 Broadway, New York.

MEMPHIS, TENN., WESTERN UNION.

Following is the self-explanatory correspondence which lately passed between Mr. Emmet Howard, our manager, and those who were employed by him:

December 1, 1902.

"EMMET HOWARD, Esq.

Dear Friend—Having learned with regret that you have severed your connection with this office, we, the undersigned, desire to tender you this present as a token of our esteem and friendship. We all feel that your stanch qualities of character will ever be an example and guide, and that 'thought, labor, method, enthusiasm and a cheerful disposition' will be our motto as of vore."

This letter was signed by the entire force.

Mr. Howard replied as follows:

"My Dear Friends—Had you looked into every nook and corner of the habitable globe you could not have found anything as appropriate, or pleased me so much, as a token of your firm friendship as does this handsome desk.

"Words are inadequate to express to you—my daily companions for so many years—my heartfelt gratitude for this evidence of your appreciation and esteem, and this desk will be the medium by which I can concentrate my efforts to demonstrate the value of my motto, 'Thought, Labor, Method and Enthusiasm,' as essential to success.

"This precious remembrance shows how strong is the tie and unending the circuit of our friendship, and I do assure you, no matter how dear the new associates may become, they can never take the place in my affections of those formed in the Memphis office.

"God bless you, my boys, and remember that I

will watch your career with interest, and your success or failure will mean joy or sorrow to your old manager and friend.

EMMET HOWARD."

EVANSVILLE, IND., NOTES.

The personnel of the local office of the Louisville and Nashville R. R., is made up as follows: John W. Logsdon, division superintendent; H. K. Corrington, chief clerk to superintendent; Charles Wilson, operator in superintendent's office; W. Devney, chief clerk, assistant superintendent's office. The dispatchers are: R. E. Kemper, chief; E. F. Yearwood, first trick; M. N. Walker, second trick; C. Bour, third trick; I. O. Hart, extra. H. L. Plummer is operator. At Earlington, Ky., W. F. Sheriden is trainmaster, and E. L. Wise chief train dispatcher.

Of the Evansville and Terre Haute Railroad Company, the Evansville personnel includes the following: J. S. Douglas, trainmaster; O. P. Williams, chief dispatcher; E. R. Glidden, R. H. Hutchison and A. R. Dakin, dispatchers; L. H. and E. L. Wise chief train dispatcher.

CHICAGO, ILL.

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WESTERN UNION.

The rumor that Clarence E. Finley, a cavalryman of Troop B., son of C. H. Finley, assistant chief operator, had been drowned in the Philippines, has been confirmed.

Wire Chief Wilmot, of the east board, has our sympathy in the death of his mother and sister, which occurred but ten days apart.

Assistant division chief, J. F. Clark, believes TELEGRAPH AGE to be one of the finest publications in the shape of telegraphic literature, so gives his subscription to the paper.

L. N. Boone, successor to the late Chief Operator Spencer, of St. Louis, was a visitor here Dec. 20, and was shown through the office by Chief Operator L. K. Whitcomb.

Mrs. O. T. Rullman spent the holidays with her parents at St. Joseph, Mo.

N. Hickey is taking the heavy day report at Marshalltown, Iowa, a position he admirably fills.

Alfred C. Schwartz is preparing to take up the study of medicine.

Company 7, U. S. V. Signal Corps Veteran Association, which served in Porto Rico during the Spanish War, held its third annual banquet and reunion at the Brevoort House, Saturday evening, December 6. Capt. John W. McConnell made an address, which was followed by a witty speech by Major E. M. Meehan. Remarks were also made by Privates W. E. Goodrich and S. F. Weller.

It is told by an old timer who served in the military telegraph during the Civil War that during the encampment one night a party of tel-

egraphers in 1862, in Tennessee, and repeated here for what it is worth, that a party of telegraphers were startled one night by the shrill whistle of a locomotive in which they plainly read in the toots "Tell Grant to attack our left." No action, however, was taken on the peculiar advice given.

MONTREAL, QUE., GREAT NORTHWESTERN.

The Telegraphers' Hockey Club had their first practice at the Prince Arthur Rink, on December 12, when about 100 persons attended.

Resigned: Louis Goyette, who has accepted a position as operator with a broker; William M. Thompson, who has gone to North Bay, Ont.; Frank Hall, who has gone west, and William Buckingham, to the Windsor Hotel.

Arrivals: George Moss, Julius Scriver, Ernest Pare, John Currie, W. D. Wood, and Robert Kane.

William Burris replaces H. Keating, resigned, and John Moore, resigned, at the Merchants' Exchange office.

Thomas Dewitt, operator at the "Star", was a delegate to the Baptist convention in Boston, lately.

Half tricks: Frank Cochrane, Herbert Keating, John Vautier, W. B. Riuet, Arthur Ross.

Extra: Mr. Shepperd.

HOUSTON, TEX., POSTAL.

Mr. S. M. English, general manager of the Postal Telegraph-Cable Company of Texas, with headquarters at Dallas, who was a recent visitor here, made the remark: "Our business in this State has been constantly increasing since we came into the State, and so greatly pleased are we with the results so far attained that we are now planning to make further extensions of our lines. The business in this State of the Postal company was much larger in the month of October than for any month in the history of its existence in Texas. Houston has been one of the best Postal towns in the State." Mr. J. C. Witt is the manager and he is proud of the fact that New Orleans is the only southern city in the Postal system that can boast of receipts in excess of this office.

ST. LOUIS, MO., WESTERN UNION.

"The Tack Society" is the name of a promising social club that has been organized at this office. Its membership is limited to twelve. The officers are: Miss P. M. Brooks, president; Miss Ida Schrage, vice-president; Miss Josephine Schmidt, treasurer; Miss Ernesthauser, secretary. The other members are as follows: Miss Steinbach, Miss Coyle, Miss Hickey and Messrs. Chas. Barber, Wm. Keistey, Edward Jenkins and Fred Jacobson. Mr. Andrew Steinbach is the chap-eron and Charles Barber acts as man-at-arms..

Mr. Flanagan of Metropolis, Ill., was a recent visitor.

C. W. Groos, wire chief, has lately become the father of a son.

Joseph Barry, has returned from his annual hunting trip. He is quite an expert rifle shot.

F. M. Pinnell, operator at the Southern Hotel for the past 10 years, died of consumption after a very short illness, at his home at Indianapolis.

The death of the father of W. J. Armstrong, one of our assistant chiefs, occurred on December 10.

Miss Minnie Kleckamp, who has been ill at her home for the past six weeks has returned looking perfectly restored to health.

Miss Ida Ernsthauser spent the holidays at her home in Toledo, Ohio.

Miss Mary Tynan passed the holidays in Coffee, Ills.

L. N. Boone, chief operator, was absent a couple of days lately in Chicago on business.

TOLEDO, O., WESTERN UNION.

Robert Rippon, a lineman, forty-eight years of age, an Englishman by birth, was accidentally killed by coming in contact with a live wire. December 13. "Bob," as he was familiarly known, together with Calvin Easthorn, were at work testing out an aerial cable behind the switch board. He had detected the existence of an electric light wire cross, when, in some unaccountable manner, he touched the wire and received a deadly shock. Robert Rippon was a valued member of the linemen's force, and one of the best informed men to be found in his department. He was genial, kind, big-hearted, always ready to do a friend a good turn. The funeral occurred on December 16. The floral offerings were numerous, Cleveland and Columbus sending beautiful tributes as tokens of love and esteem. The force contributed a beautiful floral piece made representing a telegraph pole with a broken arm. Besides this the Toledo contributions of money amounted to upwards of \$50, which was placed in Mrs. Rippon's hands. The deceased left a wife, two sons and two daughters. He was in the continuous service of the Western Union Company for 26 years at this point.

WINNIPEG, MAN.

Though Winnipeg is not often reported in the AGE, it nevertheless cuts considerable ice in the telegraph world, as is evidenced by the enormous amount of business handled by the various companies. The roster of the Canadian Pacific Railroad telegraphs is too large to give in full, suffice it to say that at present there are 44 operators on the staff.

In the Canadian Northern Telegraph office are to be found: P. H. Attwood, local manager, with operators R. Anderson, T. W. Attwood and W. G. M. Corregan, and E. Depencier in charge of the bookkeeping department. On the 13th of December, this company took over the lines in Manitoba, formerly controlled by the Northern Pacific Railway and the Great North Western Telegraph (in Manitoba only).

In the Great North Western Telegraph Company the staff consists of Lyman Dwight, superintendent; S. Hutchinson, local manager, with operators L. Goldstein, G. H. Stead, R. Hamilton, R. Goldstein and R. McDougall.

In broker offices we find O. E. Glenn with

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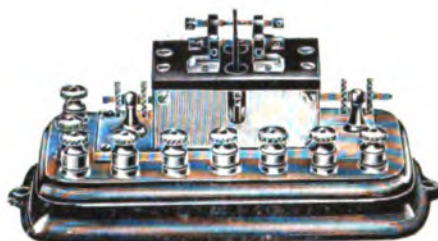
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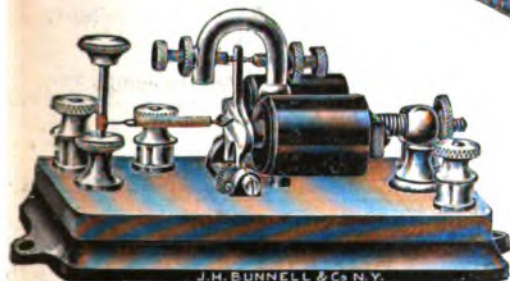
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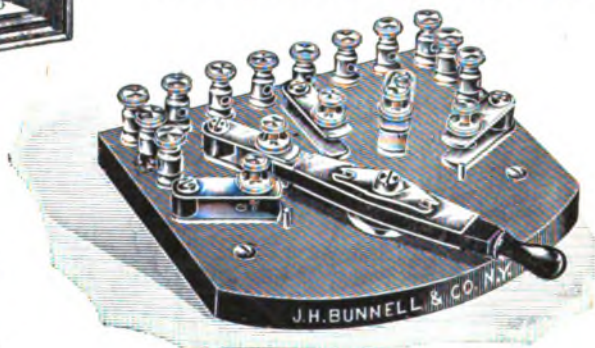
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Perfection" We have recently published a large sheet with fine illustrations of the newest types of Telegraph Appliances. Any operator who would like to have a copy to hang up in his office, can have it sent free on request. We have also recently published a handsomely bound and illustrated work of 250 pages, entitled,

"SKETCHES, OLD AND NEW," by Mr. Walter P. Phillips, a most entertaining book, particularly interesting to operators.

We have laid aside a few hundred copies to be sent with our "73," to members of the craft, who shall first apply for them, enclosing ten cents to pay carriage.

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The Telegraph Age,
253 Broadway, New York, U. S. A.

Vandusen Harrington Co.; E. Parker with Watson & Co.; W. J. Saunders with Lewis & Co., and P. G. Bowman with the Coe Commission Co.

Messrs. R. C. Ross and A. H. Hood of the Canadian Pacific telegraphs have gone east on a six weeks' leave of absence.

A son has been born to Mr. and Mrs. Geo. Voyer of this company. The little rascal came on pay day, too.

Mr. R. J. Pennie, also of the C. P. R. was genuinely surprised on Christmas Eve., when he was presented with a beautiful diamond ring, as a token of the esteem in which he is held. Wire Chief Baker made the presentation speech.

"Buffalo" Jimmy Ford is around again after a severe attack of grip. He says there is one thing a man can get in this western country, in pure unadulterated form, and that is the "grip." Being a Secret Society man he ought to know
PHILADELPHIA, PA., POSTAL.

The Christmastide brought the usual good cheer and half holiday to those fortunate enough to be placed where they could avail themselves of the privilege, but for the hustling messengers and the American District Telegraph Company in general, to whom every day looks alike, no such favor was presented.

Nearly two months absence under hospital treatment, with the prospect of continuance makes the holiday season somewhat unpropitious for Mrs. C. W. Power, who, however, is hopeful in anticipating a complete recovery from an attack of nervous troubles.

Mr. A. H. Morningstar, manager of the North Tonawanda, N. Y., office was a recent visitor to Philadelphia.

Home attractions and a position with a local stock broker have induced Mr. Louis Cowell to break his connections with us and return to East Stroudsburg, Penna.

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. Robert J. Murphy, of this office, was given charge of the testing, etc., of the new line of twenty-nine copper wires paralleling those running over the Pennsylvania Railroad between New York and Pittsburg, Pa. His headquarters were at Williamsport, Pa. The following temporary assignments were made to help out in the work of testing: Martin Durivan at Muncy, Pa.; H. B. Dettra, at Danville and Northumberland, Pa.; J. F. Bannon, at Butler, Pa., and C. J. Chryst, at Clearfield, Pa. These well known New Yorkers are now back again at their accustomed places in the operating department.

Mr. E. C. Cockey, superintendent of supplies, is again at his desk after an absence of ten days, caused by illness.

A meeting of the shareholders of both the

Electric and Serial Building Loan and Savings Associations took place on December 16th, at 195 Broadway, New York, and the following nominations were made: President D. B. Mitchell; vice-president, John Brant; treasurer, E. C. Butterfield; secretary, E. F. Howell; attorneys, J. B. Sabine and A. A. Rich.

For Directors: W. J. Quinn, F. W. Jones, T. M. Brennan, A. E. Chandler, F. W. Gregory, W. C. Burton, T. A. Brooks, M. J. O'Leary, W. H. Jackson, W. A. McAllister, G. H. Schnitgen, G. W. Blanchard, M. F. Gaffney, T. E. Fleming, A. P. Stirling.

The annual election will take place at the office of the corporation on Friday, January 9, at 5 P. M.

Mr. J. B. Korndorfer, manager of the 317 Greenwich street office, one of the busiest commercial centres in the Metropolis, has resigned to accept a position with a national bank. The bank is to be congratulated on securing the services of so enterprising a gentleman. Mr. W. H. Doherty, of the Western Union Telegraph Company, Milwaukee, Wis., has been appointed to fill the vacancy.

Miss Ida Pate, the little lady who attends to the wants of the callers at the door of the general operating room, was presented with a gold watch and chain by the members of the staff, in appreciation of her many kindnesses.

Much sympathy is tendered to Mr. Lewis Dresdner, treasurer of the Gold and Stock Life Insurance Association, whose father died December 13, in Berlin, Germany.

The office of the Telegraphic Mutual Benefit Association has been moved from the fourth floor to the second floor, so as to make room for the general offices of the new American District Telegraph Company.

One of the Yetman sending machines has been installed on the Pittsburg wire and it is doing good work.

Workmen are busy painting the ceiling of the general operating room and otherwise improving the appearance of the apartment.

Traffic Chief Arthur M. Lewis while on his way home and near the Grand Central Depot, slipped on a piece of ice, and falling, severely strained his right arm.

The mother of Miss Nellie T. Calvert died December 9th.

Miss M. M. Browne who was recently taken ill while in the office was not yet returned to duty.

Dr. Lorenz, the eminent Austrian surgeon, with other prominent physicians visited the operating department under the guidance of President Clowry, on December 26th.

John Brant, the secretary of the Old Time Telegraphers' and Historical Association has prepared the report of the Salt Lake City reunion. It is now in the hands of the printer. It will be ready for distribution early in the new year.

Hon. W. C. Burton spent Christmas at the home of his parents in Canada.

Southern Wire Chief W. H. Jackson is spending his vacation at the home of his parents in Canada.

Alexander Crow, of Corning, N. Y., called December 24th and gave all of his friends Christmas greetings.

Mr. John A. Henneberry, formerly of this office, now chief clerk in the district attorney's office, was, on Christmas day, presented with a gold watch and chain, and diamond locket, costing five hundred dollars, which was presented to him by the fifty employees of his department.

POSTAL.

The fourth annual meeting of the superintendents of the Eastern division of the company, took place on December 16 and 17, under the direction of General Superintendent E. G. Cochrane. These gatherings are held yearly for the good of the service. The superintendents are given an opportunity to exchange views with each other, compare notes, look up new methods of transacting business and otherwise obtain all the new ideas possible which go to benefit the service. To make these officials feel that their work is not always the same old constant grind, they were given a dinner at the Arena, on Wednesday night, and on Thursday night they enjoyed seeing Richard Mansfield in Julius Caesar. Those who were present were E. B. Pillsbury of Boston Mass.; A. L. Edgecomb, Portland, Me.; A. C. Kaufman, Albany, N. Y.; H. D. Reynolds, Buffalo, N. Y.; G. H. Usher and G. W. Blanchard, New York. The absentees were: W. H. McCullum, New York; L. Lemon, Philadelphia, Pa.; and E. Jimmy, Pittsburg, Pa., who were absent on account of wire trouble. Mr. E. G. Cochrane, general superintendent of the Eastern division, stated that the service is greatly benefited by means of these annual meetings.

The company paid off on the Wednesdays preceding Thanksgiving and Christmas, instead of on Fridays, an act that was much appreciated by the entire staff.

One of the Kingston, N. Y., Postal operators while going home late one night recently, was seized by a powerfully built young woman, who grasping him by the wrist, and peering into his face, exclaimed in tragic tones: "You are not the one, you are not the one!" "When will I ever meet him?" The operator congratulated himself that he wasn't the "one," and immediately sprinted to the police station where he excitedly told his story which resulted in the arrest of the young woman who had been terrorizing the town for some months past.

Mr. Joseph Weighart, formerly an operator in this office, has been appointed house surgeon in full charge of the French Hospital "Societe Francaise De Bienfaisance" this city. His many friends and former associates here will be glad to hear of his success.

Christmas passed off pleasantly for the employees of this department. The check boys were not forgotten in the way of presents and went their way happier on Christmas eve.

Chief Chas. Morrell was absent on a vacation during the holiday, also J. A. Reagan and F. C. Yule.

H. E. Hesse is a new arrival. Departures: Miss J. L. Murray and R. J. Gray.

Miss Meta S. Jessen is absent on account of illness.

C. M. Hargis has been transferred from the extra list to the night force.

THE ASSOCIATED PRESS.

Mr. Melville E. Stone, general manager, sailed for Europe on December 15, to be absent six weeks on business.

Mr. P. A. Goulding, has been appointed to the Norwich, Conn., bureau, vice J. Newcomb, transferred to New York.

Mr. F. J. Gallagher of the Auburn, N. Y., bureau, has resigned, and Mr. F. A. Jayne, has been appointed to succeed him.

Mr. G. H. Boothby, of Portland, Me., has been added to the extra list in the New York bureau.

Mr. J. H. F. Walker of the New York bureau, is in a critical condition from inflammatory rheumatism and at one time his life was despaired of.

Death of John J. Dickey.

John J. Dickey, superintendent of the Western Union Telegraph Company at Omaha, Neb., died on December 29. He had been ailing for a few



THE LATE JOHN J. DICKEY.

days from an attack of grippe which suddenly developed into pneumonia, which was the immediate cause of his death. Mr. Dickey was one of the best known and most popular telegraph officials in the United States, and his sudden death came as a personal loss to his friends everywhere.

Mr. Dickey was born at Rushville, Ill., on April 11, 1839. The first four or five years of his business career he devoted to school teaching and bookkeeping, finally learning telegraphy in Ottawa, Ill., in 1860. In 1869 he became superintend-

ent of telegraph of the Union Pacific Railroad lines at Omaha. At the same time he was superintendent of the Atlantic and Pacific Telegraph Company, until its consolidation with the Western Union Telegraph Company in 1879. He constructed the lines of the American Union Telegraph Company, west of Chicago, and when the consolidation of that company's interests with the Western Union was effected in 1881, he became superintendent of the latter, with headquarters at Omaha, Neb., where he has since resided. He was one of the most respected citizens of that locality and his funeral was largely attended by telegraph and railroad officials, all of whom paid a high tribute to the memory of their departed friend. Messrs. B. Brooks, general superintendent of construction, of New York, were present, and C. H. Bristol, general superintendent at the funeral services.

Obituary Notes.

E. H. Rogers, an Associated Press operator at San Antonio, Tex., died in that city on December 19, aged about thirty-four years.

W. C. Flynn, for many years manager of the Western Union Telegraph Company at Petersburg, Va., died of heart disease on December 19, after an illness of several weeks.

James Gwatkin, aged forty-seven years, a native of Richmond, Va., and for the past six years in the employ of the Direct United States Cable Company in New York, died on December 27.

General Wager Swayne, of New York, a veteran of the Civil War, and a former attorney of the Western Union Telegraph Company, died on December 18, in the sixty-ninth year of his age. The interment was in Arlington Cemetery, Washington, D. C.

P. F. Trainor, aged forty years, a former telegrapher, for the past fifteen years active in New York City politics, died at Albany, N. Y., on December 25. Mr. Trainor began his telegraph career as a messenger boy for the American District Telegraph Company in New York, and soon became an expert telegraph operator. He worked for the Western Union and the Baltimore and Ohio Telegraph Companies, in New York and Washington. For seven years he represented the city of New York in the State Assembly at Albany, and he had served one term as senator and was re-elected for another term at the recent election.

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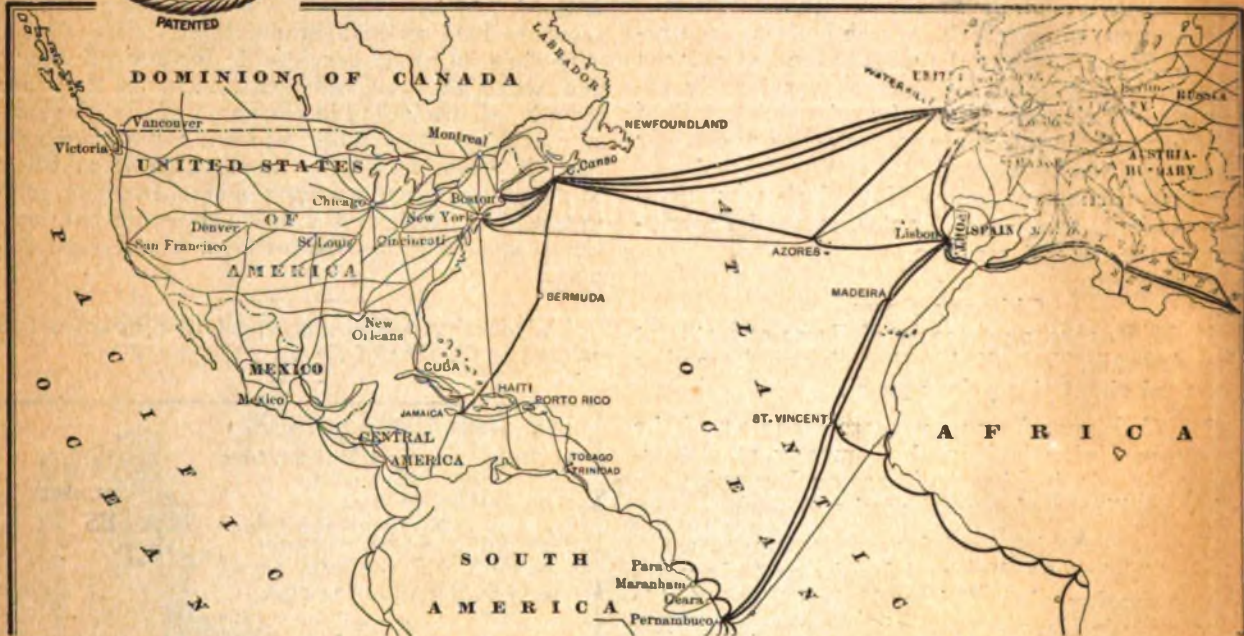
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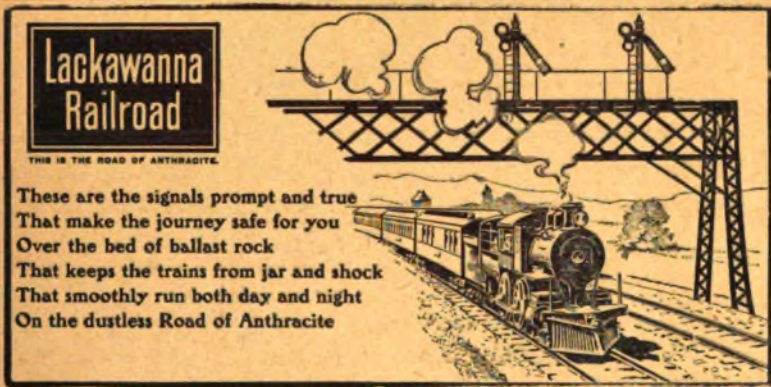
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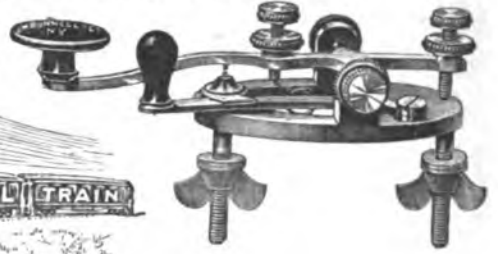
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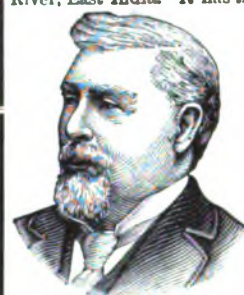
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THE TELEGRAPH AGE

No. 2.

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character of the resulting signals recorded on the receiving apparatus.

Now, it is well known that on account of what is known on quadruplex circuits as the period of "no magnetism," the retractile spring on the neutral relay succeeds in partially disturbing the solid contact of the lever connections at such times, with the result stated above.

All devices for surmounting this difficulty are called "bug-traps," a name humorously applied by Thomas A. Edison to his own repeating sounder method, one of the first schemes tried for the purpose of solving the problem. Later on Mr. Francis W. Jones, electrical engineer of the Postal Telegraph-Cable Company, invented the "inductorium," previously described in this journal, which accomplished the purpose by what might be called the "substitution" method; that is to say it substitutes its own electrical energy, or, in plainer words, sends a current of electricity through a third coil of the neutral relay at the very instant the moment of "no magnetism" on the line occurs, but at no other time. The result is that the substituted magnetic effect produced on the relay armature prevents the retractile spring from pulling the lever back by magnetically holding the latter steady until the normal line current is again restored.

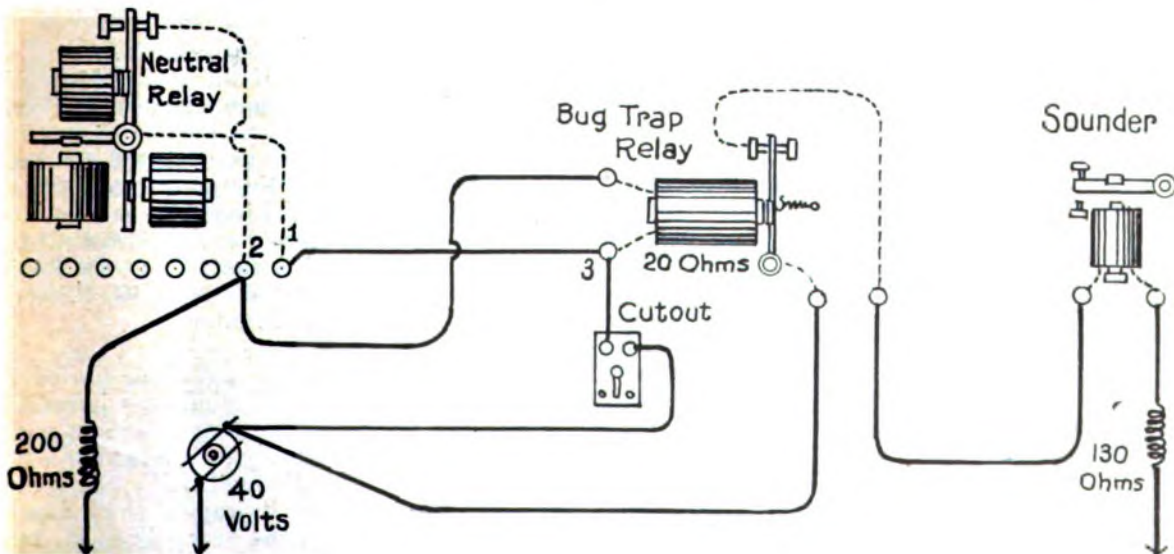
This method was used exclusively by the Postal Telegraph-Cable Company until recently when they discarded it in favor of the Diehl Bug-

SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

The Diehl Bug-Trap Arrangement.

When the local contact points of a relay open and close the receiving sounder circuit direct,



the slightest jar or unsteadiness in the firmness of the contact produces a like unevenness in the

Trap arrangement, which latter is a modification of Edison's repeating sounder device. It de-

rives its name from Charles E. Diehl, the inventor, of Harrisburg, Pa.

It is claimed that this method is noticeably superior to the two mentioned on account of the prolonged corrective effect derived from the addition of the electrical to the mechanical action.

To make this point clear let us first note the action of Edison's method. His device consists of a repeating sounder controlled by the local contact points of the neutral relay and a receiving sounder, in another local circuit, controlled by the lever of the said repeating sounder.

With this combination every impulse, false or legitimate, made by the lever of the neutral relay is faithfully reproduced in the coils and lever of the repeating sounder, but the jars and quivers, which are usually of exceedingly short duration, do not all reach the receiving sounder circuit, which latter, as previously stated, is in another circuit, for the reason that the repeating sounder lever must first cross over the air gap to the opposite contact point before it can close the local circuit containing the receiving apparatus. Before the transit is completed the normal main line current conditions usually obtain, and catch the lever before it succeeds in reaching the other side, hence no "kick." From this it will be seen that the main feature of the device lies in creating an air gap or space through which the lever of the repeating sounder must travel before delivering its signal.

Unfortunately, the duration of the period occupied by the lever's transit is hardly great enough to eliminate all such disturbances, and the Diehl method is arranged with the special view of prolonging this period to a maximum. The accompanying illustration shows the manner in which it adds electrical to mechanical inertia in attaining this end. It will be seen that, unlike the Edison method, both the repeating and the receiving sounders stand open when the neutral relay is open, the local battery, which feeds the repeating sounder when the relay is closed, being then shunted around the coils via the direct path 3—1—2, to the earth.

Under these conditions it is obvious that when the neutral relay breaks the connection through its contact point and thus forces the current through the coils of the repeating sounder, the magnetism in the core of the latter must first build up to a maximum strength before it will attract, efficiently, the armature, now at the greatest distance from the magnet. The retardation of the operation due to this cause, added to the time occupied in the lever's transit between the contact points, apparently just meets the requirements.

In the Edison arrangement, the repeating sounder is not only closed while the receiving sounder is open, and vice versa, but the action commences at the very beginning of demagnetization, instead of at the finish, and while the tension of the retractile spring is exerting the greatest strain.

Recent Telegraph Patents.

A patent No. 716,771 for a system of multiplex telegraphy, has been issued to H. Shoemaker, of Philadelphia, Pa.

Mr. John Burry, electrical engineer of the Stock Quotation Company, New York, an inventor of the self winding ticker and a page printing telegraph system, has been granted a patent No. 717,072, for a magnet otherapeutic apparatus.

Mr. J. C. Stewart, of the United States Army, has been granted a patent No. 717,046, for a sounding machine for telegraph offices. The device provides for the releasing of air pressure by the operation of valves thus causing a heavy blow to be struck on a bell, the ringing sound thus produced attracting the attention of the operator. The device is no doubt intended to be used in connection with the military telegraphs.

The Railroad.

Mr. E. E. Torry, former superintendent of telegraph for the Michigan Central Railroad Company, will accept a similar position with the Mobile and Ohio Railroad, vice Kenneth McKenzie, with headquarters at Jackson, Tenn.

President Harriman, of the Southern Pacific, has decided upon a plan for pensioning aged employes of his lines. The plan is practically the same as that established or now in operation on the Pennsylvania Railroad, the Illinois Central and Chicago and Northwestern Railway. Employes who have attained the age of 70 years or more are to be retired, and will receive pensions on the basis of 1 per cent. per annum of the average salary received for ten years prior to retirement. An employe whose pay averaged \$1,000 per annum for ten years prior to retirement and who had been in the service of the company thirty years would receive a pension equal to 30 per cent. of \$1,000, or \$300 per annum.

Eastern Telegraph Co.

The annual meeting of the stockholders of the Eastern Telegraph Company was held in Portland, Me., December 24.

The following officers were elected for the ensuing year: President, Frederick Robie; treasurer, C. E. Page; clerk, C. D. Livermore.

Directors—R. C. Clowry and B. Brooks, of New York; C. E. Page, of Boston; Frederick Robie, of Gorham; C. D. Livermore and J. W. Plaisted, of Portland; C. F. Ames, of Boston.

The Standard Underground Cable Co. of Pittsburg, one of the several Westinghouse interests, has just put in operation the largest copper rod and wire plant in the country in connection with its new works at Perth Amboy, N. J. The company last summer increased its capital stock from \$1,500,000 to \$2,000,000, the proceeds to go largely for the improvements at the Perth Amboy works, the first portion of which was started about three years ago.

The Cable.

The laying of the first section of the Commercial Pacific cable connecting San Francisco and Honolulu was successfully accomplished late in the afternoon of January 1. The cable steamer Silvertown made a quick run from port to port despite adverse winds and high seas which attended her entire voyage, causing keen anxiety to those on board as to the ultimate safety of the great undertaking entrusted to their care. Even after arriving off Honolulu, which occurred on December 26, it was impossible to complete the work of landing and the buoyed cable was permitted to lie for five days until the tempestuous weather abated. In the meantime the shore end had been laid, and when at last the Silvertown was enabled to pick this up and make the splice that finally established communication between the Hawaiian Islands and the United States, much relief was experienced and joy was manifest on all sides. It was decided that four hours must elapse before messages could be exchanged in order that the newly-laid cable might acquire the temperature of the ocean depths. At 8.43, Honolulu time, without waiting for the full time to expire, the first call came from San Francisco, and nearly an hour later the following messages were transmitted:

Honolulu, January 1, 1903.

The PRESIDENT, Washington:

The people of the Territory of Hawaii send their greetings to you and express their gratification at the inauguration of telegraph communication with the mainland. We all believe that the removal of the disadvantage of isolation will prove a strong factor in the upbuilding of a patriotic and progressive American Commonwealth in these islands. (Signed)

HENRY E. COOPER, Secretary of Hawaii.

The President's response was as follows:

White House, Washington, January 2, 1903.

HENRY E. COOPER, Secretary of Hawaii, Honolulu, Hawaii.

The President sends through you to Gov. Dole and the people of Hawaii his hearty congratulations upon the opening of the cable. He believes that it will tend to knit the people of Hawaii more closely than ever to their fellow-citizens of the mainland and will be for the great advantage of all our people. (Signed)

GEORGE CORTELYOU, Secretary to the President

Honolulu, January 1, 1903.

MR. CLARENCE H. MACKAY, President, New York.

We send this token of our high appreciation of the completion of the great enterprise undertaken by your company of laying a telegraphic cable from the coast of California to these islands. Mingled with our joy there is a feeling of deep regret that John W. Mackay did not live to see the completion of his project, and we assure you that his name will ever be cherished in fond remembrance by our people. (Signed)

HENRY E. COOPER, Secretary of Hawaii.

Honolulu, January 1, 1903.

GEORGE G. WARD, Vice-President and General Manager, New York.

To your untiring efforts Hawaii is indebted for an early consummation of the enterprise that means untold advantages to all her interests, and we tender our hearty New Year greetings and trust that the final completion of the entire project will be to your full satisfaction.

(Signed)

HENRY E. COOPER,
Secretary of Hawaii.

From HENRY T. GAGE, the retiring Governor of California, Mr. Mackay received this message:

The fortunate accomplishment to-day of the grand plan of laying the cable between California and Hawaii designed and promoted by your revered father, which has been well executed by you and your able and distinguished associates, marks an important epoch in the history of the world. The binding of the Hawaiian Islands and our State with the electric wires is another splendid instance of the triumph of American brain and industry, for which you, your father and your joint managers and assistants in the enterprise will be ever gratefully remembered by the people of this State.

Speaking relative to the enterprise, Mr. George G. Ward, the vice-president and general manager of the Commercial Pacific Cable Company said: "The Commercial Pacific Cable Company's cable to Hawaii was connected through to San Francisco at 8.43 P. M., January 1 (Honolulu time). The cable opened for public business on Monday morning, January 5. The widespread interest and enthusiasm created by bringing the Hawaiian Islands into electric touch with the Pacific Coast was evidenced by congratulatory cablegrams which were received at its opening. It was a particular satisfaction to us to have the cable completed on the first day of the new year, because it fulfills our promise to Congress. Rapid progress is being made in the manufacture of the sections to be laid between Honolulu and Manila, and over 3,500 miles of this cable have already been manufactured, and I fully expect messages will be exchanged with Manila by July 4 next. The laying of the remaining sections will commence from Manila the first week in May next."

The Direct United States Cable Company have removed their Boston office from the old State House to No. 27 Devonshire Street.

A suggestion has been made to re-name Bamfield Creek, B. C., the landing place of the trans pacific cable, Fleming, in honor of Sir Sandford Fleming who, for so many years, advocated the construction of the cable.

The Canadian Pacific Railroad telegraph department, says The Railway and Shipping World, in order to meet the requirements of the contract for the transmission of messages through Canada, for the new trans pacific cable, had to construct a line from Montreal to Riviere du Loup, via Quebec, thence

to Edmundston and St. John, N. B., so as to secure an ali-Canadian line. The new line is about 100 miles longer than the one over the Canadian Pacific Railroad through Maine.

Mr. Charles Cuttriss, electrical engineer of the Commercial Cable Company, New York, has returned from San Francisco, where he has been for several weeks past, engaged in work connected with the new Commercial Pacific Cable.

The official length of the recently laid Vancouver-Fanning Inland section of the Pacific cable is 3,457.76 nautical miles. The central wire of the conductor is surrounded by spiral copper strips, and the average weight per nautical mile of the completed conductor is 607 pounds, having a resistance of 1.990 B.A. ohms per nautical mile at a temperature of 75°F. The inductive capacity of the cores as laid (tested by the null method) is 0.419 microfarads per nautical mile.

The Emperor William telegraphed to Max Guileume, of the North German Sea Cable Works, of Stettin, relative to the cable steamer Vulcan, on December 30, as follows:

"I have learned with special pleasure of the launching of the first cable ship built at a German shipyard, and I express, in connection with the new German Atlantic cable, the hope that it will contribute toward strengthening more and more the good relations between Germany and the United States.
WILHELM I. R."

The next submarine cable of world interest will doubtless be south of our possessions in the Pacific, and probably will connect with them at Guam. This new system, if carried out, would require the co-operation of the Dutch Government and the German. The plan would be for the Dutch to connect Java, in their East Indies, with the westernmost island of the Caroline group, and for the Germans to carry a cable from the Caroline island to the eastern extremity of their possessions, at Bonham Island in the Marshall group. The connection with our cable at Guam would doubtless be made from the point in the Caroline Islands where these two cables meet.

Obituary.

The wife of Charles Trippe, superintendent of the Anglo American Telegraph Company, New York, died on January 13, at her home in Brooklyn. Mr. Trippe has the sympathy of his numerous friends.

S. A. Keyes, for forty years identified with the construction department of the Western Union Telegraph Company, at Rockland, Me., died on January 2, from the effects of a stroke of paralysis.

Thomas H. Hannigan, forty-three years of age, an operator of Providence, R. I., was found dead in a street in New York city, on January 6. His neck was broken, but it is not known how Mr. Hannigan received his injuries. He was for many years press operator at Newport and Providence, R. I.

Col. A. B. de Frece, the well known newspaper man of New York, a former successful manufacturer, and a member of the Entertainment Committee of the Magnetic Club, died on January 9. Col. de Frece was well known to almost every member of the telegraph fraternity of New York, and his assistance in managing entertainments, whether for social or charitable purposes, was ever ready. He was a versatile genius in this respect. The Governing Committee of the Magnetic Club issued the following: The Governing Committee of the Magnetic Club, of which Colonel A. B. de Frece has been a most useful and beloved member, has learned with sorrow of his death, and in behalf of the committee and the members of the Magnetic Club desires to attest to the high and lovable character of deceased and to their sorrow at his loss, and also to convey heartfelt sympathy to his sorrowing widow and family.

FRANCIS W. JONES, President.

R. J. MURPHY, Secretary.

New York Visitors.

Mr. Oscar M. Olsen, at one time chief operator of the Western Union Telegraph Company, Chicago, Ill.

Mr. John F. Wallick, superintendent of the Western Union Telegraph Company, Indianapolis, Ind., accompanied by his wife, while en route home from his European trip.

Mr. Charles A. Tinker, formerly general superintendent of the Western Union Telegraph Company, New York, on his way from Vermont to California where he expects to remain a month or two. Mr. Tinker shows no evidence of his fall which occurred about two weeks ago and which resulted in the breaking of one of his ribs.

Mr. F. Hamilton, who was electrician on the United States Government cable steamer "Burnside" during the laying of the cables connecting the different islands in the Philippine Archipelago, and for many years electrician on the cable steamer "Minia." Mr. Hamilton was en route from Manila to his old home in Nova Scotia.

Mr. J. Maxwell, for the past fourteen years in charge of the American District service of the Western Union Telegraph Company, at Buffalo, N. Y., and who was recently appointed assistant superintendent of the American District Telegraph Company and inspector of the Western Union Telegraph Company, with headquarters at Buffalo, N. Y.

Mr. George E. Reily, an old time telegrapher, and for the past few years with the government pension bureau at Washington, D. C., is now special pension examiner with headquarters at Kingman, Kans., and with territory including Kansas and Oklahoma.

TELEGRAPH AGE will furnish operators with just the kind of practical information they need.

Pupin's Static Capacity Neutralizing Coils.

BY FRANCIS W. JONES.

The Electrical Review, London, recently published a translation of a very interesting account by Dolezalek and Ebeling of experiments of Dr. Pupin's inductance coils, made in Germany by Siemens & Halske upon the wires of the German Imperial Post and Telegraph Bureau.

Two tests were made, one upon an underground cable between Berlin and Potsdam, and the other upon overhead wires between Berlin and Magdeburg. The cable between Berlin and Potsdam is 20 miles long of 28 pairs of No. B. & S. gauge paper insulated conductors with air spaces, lead armored and for the most part the lead enclosed in an asphalt coating. Fourteen of these pairs of circuits were used in the test. The Pupin apparatus, to secure distributed inductance, was placed in every second manhole which brought the apparatus about 4,264 feet apart. A coil was placed in each wire of the pair, each coil being 4.1 ohms in resistance and about .062 Henry inductance. Resistance of one mile of wire, including coils, was 38 ohms, and the electrostatic capacity about .059 microfarad.

The self-induction of the simple metallic circuit measured with an alternating current of 900 frequencies, 00048 Henry per mile, the attenuation constant for the simple circuit was therefore .06 at 900 frequencies, the coils increasing the inductance two hundredfold.

It was found necessary to provide each Pupin coil with a lightning protector. One pair of wires equipped with the Pupin coils and one pair used in the normal condition showed a most decided improvement in favor of the Pupin. With the unequipped pair of wires, 20 miles long, speech was not intelligible 20 inches from the receiver. With the pair of wires side by side the same length between Berlin and Potsdam equipped with the Pupin coils, speech was clearly heard a distance of 33 feet from the receiver using the ordinary telephone outfit in both cases.

A circuit was then made up of a pair of wires three times through the cable making a circuit about 60 miles long from Berlin to Potsdam, back to Berlin and returning to Potsdam again.

The results upon two such circuits with and without the Pupin coils, gave even more marked effects in favor of the Pupin system than previously obtained over the 20 miles. It was barely possible to hear the voice without the coils, but with the coils everything could be clearly heard a considerable distance from the receiver.

The metallic circuits were then increased by joining five lengths through the cable which made 100 miles. On the wires without the coils the faintest sound from the voice could just be detected upon the diaphragm of the receiver, while with the coils very clear speaking was possible. In fact, over the 100 miles the talking was almost as loud as in the first test over 20 miles of metallic circuit without the coils.

Intelligible transmission was obtained over 13 lengths of 261 miles through the same cable, but the volume of sound had considerably weakened owing, I presume, to the fact that the coils were not properly distributed and adjusted to equally balance the electrostatic capacity of the wires.

On the overhead wire between the two places, namely: Berlin and Potsdam, 20 miles, using bronze wires of No. 12 B. & S. gauge, without the coils the loudness of the voice in the 'phone in the apparatus was nearly the same as it was by using the coils through the cable, thus going to show that the use of coils upon the underground cable wires, having a resistance of 34 ohms per mile, was equally as good, if not better, than the voice upon a pair of overhead bronze wires of No. 12 B. & S. gauge.

The 14 coils for each manhole, 4,264 feet apart, were enclosed in an iron case, the terminal wires being lead out in the manhole to special connection boxes where they were connected to the cable conductors, both the connection boxes and the coil boxes being carefully sealed up to prevent access of moisture.

The Imperial Postal Bureau then gave Siemens & Halske Company a No. 12 gauge overhead metallic circuit between Berlin and Magdeburg, 94 miles, and also another overhead metallic circuit of No. 8 gauge bronze wires, between the same points but by a different route, 112 miles, for purposes of comparison. Without any coils on either circuit the speaking was not as clear over the smaller wires as over the No. 8 gauge.

The No. 12 gauge circuit was then equipped with Pupin coils, each coil having 6 ohms resistance and an inductance of .08 Henry, placed upon the poles 3,280 feet apart. After these coils were introduced the transmitted voice was much louder upon the small wires than upon the No. 8 gauge wires without coils.

Some more scientific tests were then made by the use of alternating currents of small intensity but high frequency, imitating as nearly as possible the average conditions which prevail in a telephone circuit when speaking, the alternations being from 400 to 900 frequencies with a very few milliamperes, using the underground cable for the tests, and making measurements upon a very sensitive mirror dynamometer.

With a pair of wires in the above mentioned underground cable between Berlin and Potsdam, 20 miles long, equipped with the Pupin coils, the value of the received current was 1.2 milliamperes, and without the coils it was only .17 of a milliampere, showing an advantage of over 7 times in favor of the use of the coils, and with properly adjusted coils upon 60 miles of cable, the transmission of speech is 48 times better with the coils than without them.

The adjustment of the coils for this purpose is something highly technical and has to be governed by the mathematical formula which Dr. Pupin has worked out. For instance, if coils of the proper resistance and inductance are not

placed an exact distance apart upon a given cable or wire, they will introduce greater impediment to the transmission of electrical signals, either for telegraph or telephone purposes, than if the coils were not in circuit at all.

On the bronze overhead wires the No. 12 gauge wire between Berlin and Magdeburg, 93 miles, registered on the dynamometer at 900 frequencies without coils, .53 milliampere; with coils 2.2 milliamperes or over four times the quantity received without coils. The insulation of the overhead wires was about 15 megohms per mile.

The conclusion the German experts have drawn from these tests, is, that for telephone conductors the Pupin system would reduce the weight of copper to about one-fourth that now required for the same speaking efficiency, providing there are no mechanical obstacles to the use of small wires.

No definite information has yet been published as to what extent the loss of insulation upon overhead wires and a lowering of their static capacity in times of rain or fog, will prove detrimental upon circuits loaded with the Pupin inductance coils.

Seeing at a Distance by Electricity.

The interesting problem of electric vision at a distance has been occupying the attention of scientists for some time. In a recent issue of the *Comptes Rendus*, J. H. Coblyn, who is experimenting along this line, gives the following:

"The problem of the electric transmission of an image to a distance is based upon the variation of electric resistance experienced by a selenium cell inserted in the circuit. The variable current so produced, which depends upon the brightness of the point explored at the instant under consideration, must be transformed at the receiving station into the variations of intensity of a luminous source. The author proposes to leave the brightness of the source constant, in contradistinction to the gas telephone of M. Lazare Weiller, which acts direct upon the flame; the current transmitted stops more or less the beam emitted by this source, in accordance, with the principle discovered by Messrs. Ayrton and Perry. For this it suffices to use the soft-iron oscillograph of M. Blondel and to let the movable piece consist of a hollow tube oscillating in the field.

"It remains to 'explore' the image, and the manner in which this is done forms the subject of the present note. Referring to the theory of M. Lazare Weiller, who explores the image by means of parallel bands, it must be pointed out that the original image must be described in a uniform manner, and that no point must be described several times in a tenth of a second, in order to transmit every point with its proper brightness.

"To obtain this result we employ the following system: A diaphragm with a very small hole is placed at the principal common focus of two converging lenses. One of these lenses is placed in front of the image. Thus, those luminous rays of the system are isolated which come from the image in a direction parallel to the general axis of the

system. The other lens is in front of a hollow cylinder, pierced with helical slits, and turning in a direction perpendicular to the optical axis of the system with a velocity of five turns per second.

"Matters are so arranged that the diaphragm and the slits of the cylinder only allow a single ray of a point of the image to pass, that ray being normal to the axis of the system. If the rotation is constant, the point explored is displaced along a series of horizontal bands with a uniform motion. Furthermore, on replacing the diaphragm by the mirror of a tuning fork vibrating vertically, the series of horizontal lines is changed by optical composition into a system of sinusoidal curves, which, by means of a special device, form a kind of a rectangular network. This exploration is the most rational, for it decomposes the image into a series of patches having all the same area."—*Western Electrician*.

The Harnessing of Electricity in the Unknown Ethereal Regions.

Chicago capitalists are backing a Chicago man's scheme, which, on its surface, appears more impossible of attainment than did wireless telegraphy.

The scheme involves the harnessing of electricity in the unknown ethereal regions, high above the earth's surface. This electricity, the originator asserts, will furnish power and light in inexhaustible quantities. Chicago is to be the scene of the first experiments, and eight acres of land at Devon avenue and Clark street has been purchased for the erection of a plant or experimental station.

The scheme worked out by Albert G. Whitney to his own satisfaction and that of the capitalists backing him financially, is to project a wire cable 250 miles above the earth. He says that atmosphere extends to a height of about 17 miles above the earth's surface.

Above the atmosphere, Mr. Whitney says, the ethereal regions are reached, and at this point the force of gravitation is away from, instead of toward the earth. The projection of forty miles of cable, if Mr. Whitney's theories are correct, would cause the whole cable to gravitate from the earth, so that he could unwind any quantity of cable, and the wire would maintain its rigidity. Mr. Whitney claims that experiments have shown that ethereal regions are surcharged with electricity, and that this force will be transmitted to the earth's surface through the long wire cable.

This cable is to be three-fourths of an inch in diameter at the base, narrowing to one-eighth of an inch at its top.

The problem of projecting the cable is Mr. Whitney's secret. He asserts that in a lifetime of scientific investigation he has discovered a means of projecting the cable, which will be shown to be as simple as the principles involved in wireless telegraphy. The other theories, as to the gravitation in the regions of ether and the presence of electricity there are common property, he says, as scientific men long ago, through experiments and tests, gained ideas to conform with these theories.

Telegraphic Bookkeeping.FIRST ARTICLE.
BY W. H. DOHERTY

[Mr. W. H. Doherty, the author of this article, is an expert in telegraph bookkeeping, and in response to a request made by many of our readers, he has consented to prepare a few consecutive articles treating on the subject for the benefit of those who may need information in keeping books, such as are found in telegraph offices. General bookkeeping rules differ so far as they apply to the requirements of the telegraph, and Mr. Doherty has had the necessary experience in bookkeeping methods both as adapted to small railroad stations and to large commercial houses, and he is prepared to enlighten our readers on both.—Editor.]

Before entering upon the subject of bookkeeping and accounts, permit me to make a few suggestions on the manner of handling a message to the best advantage from the time it is taken over the counter. At the outset I would suggest that a careful study be made of the rules in the Tariff Book on the three departments, namely: Receiving, Operating and Accounting, for the reason that many of us are not as familiar with them as we should be. These rules are brief and to the point, and are, of course, placed in the book for a purpose.

As a message originates in the receiving department let us start there, and follow it to the operating table. When a message is offered, written on note paper, for instance, the receiver should proceed at once to paste it on a regular form in the presence of the sender. (The rule says to have the sender perform this duty, but for many reasons this may be found impracticable.)

Now, enter the date, if not already there; you may count the words and before recording the check, learning from the patron whether the message goes paid, collect, or deadhead. Erasures in the check of a message frequently lead to disputes about the tolls, and if the above rule be carefully followed much trouble may be avoided. While counting the words, the message can be read at the same time. This may be difficult to do at first, but a little practice will make it easy. In large offices, this method becomes really necessary, as it is a time saver. When you have completed the checking you should make all words plain by means of marginal notes, so that the sending operator will not misread it. Many serious delays and mistakes will thus be avoided, and I venture to say that if this point of the service was practiced rigidly, one half of the complaints and claims now made, would be avoided.

Do not forget to ask for the full address as it insures the more prompt delivery of a message.

The amount of tolls should in every case be entered after the check, whether paid or charged, as it will save time when messages are being posted in the ledger, especially in large offices, when the total receipts for the day are being made up before posting. On charged messages,

where the signature does not disclose whom to charge to, a proper notation should be made after the check, but the word "Charge" should appear in all cases, when the message is to be charged. Some managers also use the word "Cash" on cash messages, but that is hardly necessary.

Another important feature in handling a message, and one that has been provided for by the company, is to insert in the upper left corner the receiver's number or initial, either with stencil stamp or pencil. This is important as in case of shortages, or for any other reason the receiver can easily be found.

We are now ready to enter the filing time, which should be correct, and not carelessly recorded 5 or 10 minutes ahead of or behind time.

It may appear to our readers that too much time may be consumed in this detail; but it will be found that a minute is ample time to handle a message of ordinary length, and as the filing time is entered the last thing before sending a message to an operator, no delay shows against the company. Night messages are treated in precisely the same manner as day messages, and receivers should see that the word "night" or "nite" appears in the check in every case.

There are other points in the service which come properly under this department, such as forwarded messages with the extra words "Msgs" and "Free" and "Half Rate" messages; and I will have occasion to refer to them in future articles.

I should like to impress on the minds of my readers the importance of getting a message checked correctly, and all words or figures in it made plain, so that it may be started right. This is a vital point in the service, and one that can be greatly improved on in nearly every office, large or small; the result would be to reduce the number of service messages to a minimum, which in turn provides more time for the handling of paid business.

Vacuum Tubes as Lightning Arresters.

At a meeting of the Dublin, Ireland, section of the Institution of Electrical Engineers, Mr. A. T. Kinsey described some observations he had made in connection with the testing of the vacuum tubes used as lightning arresters. The tubes used in the telegraph department of the Post Office are about 1 1/4 inches long with 1/32 inch air-gap, and they are tested by means of a Ruhmkorff coil, the resistance of the primary winding of which is from 0.1 ohm to 0.15 ohm and of the secondary 350 ohms, the condenser having a capacity of 0.02 microfarads. The coil is adjusted to a 1/8 inch spark-gap, and is worked by a single Leclanche cell. Used as a lightning arrester, the tube is connected with one end to earth and the other to the line, and on being tested when in good order the colors of the glow at the two ends are blue and green respectively.—London Electrician

Reminiscence of The Associated Press.

At a recent banquet in Boston of the Merchants' Club, at which newspapers and the early history of The Associated Press formed the principle theme, Mr. Stephen O'Meara a director of The Associated Press told of the development of The Associated Press from the time when there were no European cables, and when a pony express from Halifax to New York brought the European papers, from which the papers of the metropolis culled the foreign news.

After a time this association of newspapers sold news to other newspapers whose fields did not interfere with their own. By and by these New York papers sold this news for more than it cost them, and still had the news without cost to themselves.

Then came the organization of the New York Associated Press, followed by the New England Associated Press, which included sixteen or seventeen of the more important New England newspapers. He then described the organization of the New York State Associated Press, the Western Associated Press, the Southern Associated Press and the Pacific Coast Associated Press.

Against these associations was arrayed what was known as The United Press, which conducted its business so well that a dozen or fifteen years ago it absorbed The New York Associated Press. He then described the breaking away of the Western Associated Press from The United Press and its undertaking to cover the news of the world for itself.

This western association, instead of setting up a money-making concern to distribute profits among its members, started an absolutely co-operative system, and it is on that plan that The Associated Press of to-day operates. The headquarters of this association were removed from Illinois to New York.

This association, Mr. O'Meara said, now spends about \$2,000,000 a year for news, and has about 30,000 miles of leased wires. In emergencies like the Spanish War it assesses its members to defray the increased cost of such emergencies. The cost of that war to this organization during the six months that it lasted, as well as during the succeeding six or twelve months in the Philippines, was an additional assessment of \$500,000. For tugboats alone, in Havana and Santiago, the cost was about \$1,000 a day.

General Taylor, who presided, introduced Mr. Frank A. Munsey as a man who twenty-five years ago was a telegraph operator in Augusta, Me., and who, desiring to enlarge the scope of his energy, went to James G. Blaine and outlined to that great statesman a plan he had to go to New York. Mr. Blaine told him the plan spelled suicide, and advised him to remain right in Augusta, and that in time his opportunity would come.

Mr. Munsey did not heed this advice, which General Taylor said, subsequent events proved was not worth a cent. He succeeded in the magazine field, and now has entered into journalism.

To this field General Taylor welcomed him, and called for three cheers for him, which were given.

Mr. Munsey advocated the application of the trust method to newspapers and said that in his judgment it will not be more than five or ten years before the publishing business of this country will be done by three or four concerns. There will be a chain of papers representing each of the great political parties, and another which will be independent.

Under these conditions of combination Mr. Munsey predicted a newspaper that would be of a much higher grade of excellence than any now in the market, and that would attract a staff of writers which would make the paper a treasure-box of news and intellectual expression in various fields.

Mr. Munsey then discussed organized labor and organized capital, said the one had caused the development of the other, and that either, without opposition, would be sure to become tyrannical. He thought that both, however, properly developed, would become great powers of good in this country.

He also spoke a good word for the trusts, and advocated their improvement and control rather than that they should be checked altogether.—Fourth Estate.

United States Military Telegraph Corps.

On January 6, Congressman Fordney introduced the following bill which was referred to the committee on invalid pensions:

"Amending the Act of Congress approved January twenty-sixth, eighteen hundred and ninety-seven, for the benefit of telegraph operators who served during the War of the Rebellion.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Act of Congress approved January twenty-sixth, eighteen hundred and ninety-seven, for the benefit of telegraph operators who served during the War of the Rebellion, be amended by striking out that part of such Act which reads as follows: 'Provided, That this law shall not be construed to entitle the persons herein mentioned to any pay, pension, bounty, or rights not herein specifically provided for,' and inserting in place thereof the following: 'And all persons so holding such certificates of honorable service shall, from and after the passage of this Act, be entitled to the full benefits of the pension laws of the United States as though he were a regularly enlisted soldier thereof.'"

All telegraphers should write to their congressman to pass this bill for the operators for doing such patriotic and heroic work in the army during the Civil War.

The articles, "Some Points on Electricity," published regularly in TELEGRAPH AGE, are filled with practical information for the up-to-date operator. Send for a sample copy.

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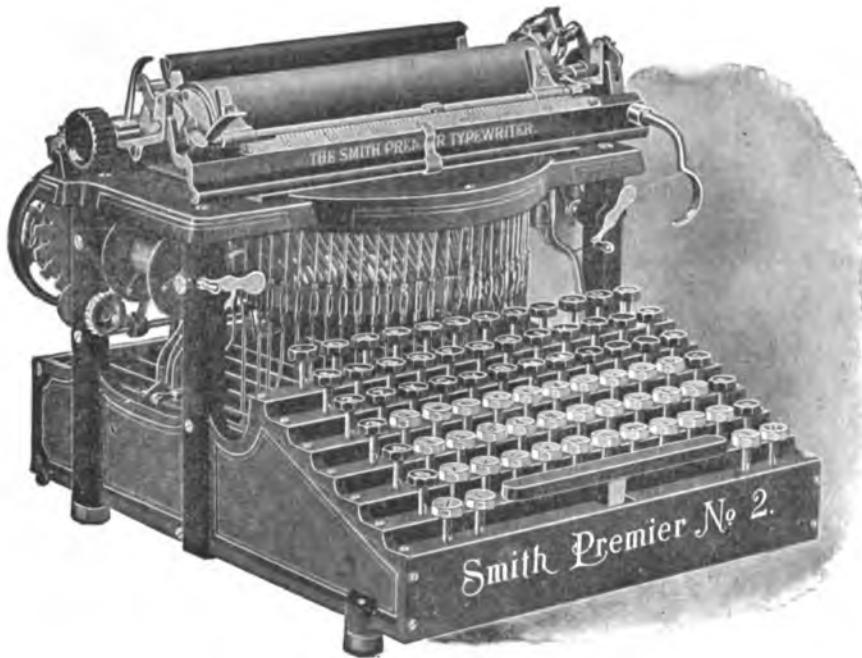
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NEW YORK, January 16, 1903.

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.

With this issue there is published an index of volume nineteen of TELEGRAPH AGE, embracing the year 1902, from January 1 to December 16, inclusive. The convenience to our readers of such an index will be apparent, and as it will steadily increase in value as time passes its careful preservation will be simply a matter of self interest. While the index is furnished to subscribers without additional charge, to all others copies may be procured at ten cents apiece. Only a limited extra edition of the index has been published, so that agents who may require additional papers should send in their orders promptly.

There is nothing like starting a brand new year on time. To insure that 1903 should be exact in this particular time signals were transmitted from the Observatory at Washington over the Western Union wires for five minutes

immediately preceding midnight, meridian time, on December 31st, and repeated during the five minutes immediately preceding one, two and three o'clock, A. M., meridian time, on January 1st, so that all points using Eastern, Central, Mountain and Pacific Coast time received direct from the Washington Observatory a local midnight time signal on December 31st, and thus were informed of the exact instant of the beginning of the new year.

The Commercial Pacific Cable.

The successful laying of the first section of the Commercial Pacific Cable between the United States and the Hawaiian Islands, is a magnificent achievement. To Mr. Clarence H. Mackay and his able associates, headed by that master of cable undertakings, George G. Ward, hearty praise is due for the manner in which the great enterprise, a worthy legacy from John W. Mackay, has been carried forward. Yet what has been accomplished is but the beginning, for the cable is to be continued over the longer stretch to the Philippines, and subsequently to China. When the original design shall have been completed, and the men who have been instrumental in stretching electric bands over both the Atlantic and Pacific oceans, and who have, with the aid of collateral interests, crossed the continent with their wires, thus placing all under one vast connecting system, they will receive the acclaim of all patriotic Americans whose respect and enthusiasm is unbounded for those who "do things."

The linking of the United States and our several insular possessions, ultimately to reach Asia itself, means more for the dominancy and welfare of this country, whether in peace or in war, than full credit at this time is apt to be given. It is a great work in which its promoters are engaged and well are they executing the trust reposed in them.

Resignations and Opportunities in the Telegraph Service.

As we have already stated in previous issues it is remarkable how many resignations are taking place of late among telegraphers who are anxious to try their future with railroad and telephone companies. In almost every issue of the paper we record the resignation of some prominent telegraph man to enter the fields mentioned, where they hope to have better opportunities to earn promotion. In the January 1 issue we printed no less than seventeen names of chief operators and managers who had recently resigned to enter the railroad service alone. In this issue we record the resignations of two of the brightest telegraph men in the profession, one of them to accept the telegraph superintendency of a railroad and the other to take a position on the engineers' staff of a telephone company.

While these numerous resignations are in a sense robbing the telegraph of some of its most capable men, at the same time it should be remem-

bered that there never was a time in the history of the telegraph when there were so many competent men available to fill the places of those who the stepping higher. That other and analogous fields needing expert service should turn to the telegraph for the necessary material, is not without its significance. At the same time it should not be forgotten that the telegraph itself, to an extent perhaps never before equalled, is creating new positions of responsibility, requiring a higher standard of intelligence, a broader and more thorough knowledge of technique, and is looking within its own ranks for the right personnel wherewith to fill them. The situation is offering greater encouragement to aspiring men and the awakened and growing desire for individual betterment is being earnestly fostered by the officials.

The prospects certainly begin to appear as though there was something more tangible to look forward to in the telegraph service than has been the case heretofore; that merit will be rewarded and that the time is rapidly approaching when every telegraph student will be invited to step to the front and be measured as to his capabilities to determine his worthiness of promotion.

Annual Meeting of the Magnetic Club.

The Magnetic Club held their annual meeting in the directors' room of the Western Union Telegraph Company, New York, on January 8th. The treasurer's report was most satisfactory, showing 231 members in good standing, no delinquents and no loss of members by death during the year, as well as a balance in the treasury after the payment of all bills.

The choice of Mr. Francis W. Jones, for still another term as president, was a unanimous expression of the club's high opinion entertained for Mr. Jones personally and for the splendid work he has accomplished in advancing the best interests of the club, a continuance of which under his skillful guidance is deemed to be assured by this decisive action. The following were elected officers for the ensuing year: F. W. Jones president; W. C. Burton, 1st vice-president; M. J. O'Leary, 2d vice-president; Jno. Brant, 3d vice-president; F. D. Murphy, 4th vice-president; R. J. Murphy, secretary and treasurer.

Governing Committee: M. R. Cockey, T. E. Fleming, M. W. Rayens, D. W. McAneeny, all four holding over; F. J. Scherrer, M. H. Kerner, R. E. Fagan, George F. Fagan.

The president appointed the following committees:

Membership: John Brant, Jos. L. Edwards and T. A. Brooks. Finance: W. L. Ives, J. W. Connolly and J. K. Calvert. Entertainment: T. A. Brooks, D. W. McAneeny, Geo. F. Fagan and Col. A. B. de Frece. Reception: Thos. E. Fleming, Theo. L. Cuyler, Jr., Marston R. Cockey, M. J. O'Leary and R. J. Murphy.

The club dinners and outings have been so enjoyable that the Governing Committee will en-

deavor to arrange for a dinner in the spring with some specially attractive features.

The Western Union and Pennsylvania Railroad.

The fight between the Pennsylvania Railroad system and the Western Union Telegraph Company was carried into the Federal Court, at Chicago, Ill., on January 7, the telegraph company filing a bill for an injunction to restrain the Pittsburg, Cincinnati, Chicago & St. Louis Railroad Company from carrying out an expressed intention to prevent the operation of the complainant's telegraph business on the railroad's lines after June 2 next. The telegraph company asserts that such action will cause great injury to its business and inconvenience to the public.

Wireless Telegraphy.

The British Post Office Department has recognized the commercial value of Marconi's system of wireless telegraphy, and has removed the restriction preventing its application for commercial purposes within three miles of the shores of Great Britain and Ireland.

The Marconi Wireless Telegraph Co. announces that it has concluded contracts for a daily service of etheric news telegrams to a British mail steamship sailing from Liverpool for New York at the end of the current month. The vessel will be equipped with a complete staff and plant, which will enable the publication of a daily newspaper on board during the voyage.

Marconi at a recent dinner said that it would not surprise him to see the rates reduced to one cent a word for wireless messages transmitted across the Atlantic ocean, although his contract called for a rate of ten cents per word at present. Mr. Marconi stated that the cost of establishing a trans-Atlantic wireless telegraph plant was less than \$200,000, against \$4,000,000 to lay a cable.

An idea of the extraordinary power that is used at Marconi's Table Head station for transmitting messages across the Atlantic by space telegraphy is given by Dr. Parkin, who sent to the London Times the first complete message a few days ago. He says the apparatus is of such remarkable power that the sound, as each letter is transmitted, is so great in volume that it is necessary to use cotton as a protection for the ear-drums. He compares the sending of a message to a miniature thunderstorm. A spark, fully half an inch in width, is shot out upon the air when the key is pressed.

Open Board Quotations.

The Western Union Telegraph Company and the Chicago open Board of Trade have entered into an agreement whereby the former will carry the latter's grain and provision quotations as it does those of the Chicago Board of Trade.

Subscribe for TELEGRAPH AGE, \$1.50 a year.

Phil G. Kern Goes to Memphis.

Phil G. Kern, who as previously announced, has been appointed manager of the Western Union Telegraph Company, at Memphis, Tenn., where he succeeded Emmet Howard, resigned, was born at Louisville, Ky., September 22, 1869. He entered the telegraph service of the Western Union in his native city, April 24, 1884, beginning as a messenger. His advancement to the po-



PHIL G. KERN.

Manager Western Union Telegraph Company, Memphis, Tenn.

sition of operator came January 22, 1887, and was followed, on June 27, 1892, by promotion to the office of night traffic chief. On October 1, 1900, he was made general superintendent of the American District Telegraph Company, of Kentucky, with headquarters at Louisville, from which position he has gone to Memphis, as above stated.

Mr. Kern, who has always been a student, has shown excellent executive ability, and, while serving as an operator, this was recognized by his official superiors, who frequently selected him to visit other offices in the company's interests. He was in charge of the office at Frankfort for several weeks after Gov. Goebel was shot, and although correspondents were there from all over the country he had no trouble in handling the news. Over 100,000 words of press, besides 1,000 private messages, were sent over the Western Union wires from Frankfort the day of Gov. Goebel's assassination, and not a correspondent complained of even having his matter delayed in transmission.

Mr. Kern was selected at different times as the Western Union representative to accompany the special trains conveying President McKinley, President Roosevelt, Governor Bradley and William J. Bryan, respectively, through the State.

Start your telegraph career right by subscribing for TELEGRAPH AGE.

Morse Registers Still in Use.

On the Philadelphia, Reading and Pottsville Telegraph system there are still twelve Morse registers employed in the transaction of the business of the company. They are located at Burnside Colliery, Centreville, Eagle Hill Colliery, Frackville Station, Jonestown, Keffer, Leesport, Lenhartsville, Abrams, Swatara, Stony Creek and Lickdale.

Among the old timers who still use paper are M. F. O'Gara, Mrs. B. Tonor, H. D. Berkheiser, John Desh, C. T. Maloney, L. F. Schock, G. F. Huey, G. H. Seiler and E. E. Arnold. Some of these men have been in the business many years, and, while a majority of them can read a little by sound, they prefer using the registers as a matter of safety.

Forty years ago the Reading Company did not have more than 150 operators all told. To-day it employs in the neighborhood of 1,000 on the different divisions and branches including the commercial men in the towns and cities.

Among the little army of men employed in the telegraph department, there are but few women. Among them are: Mrs. B. Tonor, at Centreville, on the Downingtown branch; Miss Annie Barnett, Tamaqua; Miss M. A. Brosnahan, Branchdale; Miss Brosnahan, Mahanoy City; Miss R. R. Lynch, and Miss Lizzie McNutt, Willow st., Philadelphia, and a few others in the main office at the Reading Terminal, Philadelphia.

Recently the Reading Company sold 100 of the old style registers to the Bunnell Telegraphic & Electric Company, New York, as scrap. These instruments originally cost the company about \$60 each. A few of these old-time instruments are being bought up as relics. They are being nickel plated and will be kept as ornaments.

Perhaps the oldest operator in the service of the company to-day, but who does not follow the business, but keeps in touch with it, is Charles A. Homan. He started out with the company in 1858. He learned the business at 7th and Chestnut streets, Philadelphia. He received and delivered the telegram calling out the Ringgold Light Artillery, in April, 1861. Mr. Homan was a member of the United States Military Corps.

Convention of Cedar Pole Men.

Cedar pole men from all over the country wended their way to Minneapolis Minn., for the seventh annual convention of the Northwestern Cedarmen's Association, which was held there on January 12. This association includes every prominent firm in the country who deals in cedar poles, railroad ties, etc., To the vast majority of people interested, the importance and enormous extent of the pole business is not realized. There are over sixty-five firms members of the association, and in 1901 their cedar product sales were approximately \$10,000,000. It is hard to estimate in figures the approximate amount of sales during 1902, but the figures have more than doubled those given for 1901.



GENERAL VIEW OF THE OPERATING DEPARTMENT OF THE COMMERCIAL CABLE COMPANY,
20 BROAD STREET, NEW YORK.



GENERAL VIEW OF THE OPERATING ROOM OF THE WESTERN UNION TELEGRAPH COMPANY,
DENVER, COL.

Cement Butt for Poles.

The rotting away of the butts is a common cause of the deterioration of a line of telegraph poles. A new way of getting around this difficulty, and one which is said to be very effective, consists in sawing off the butt of the pole which may have rotted and replacing it with a durable cement butt.

These cement butts are cast or molded into any desired shape or length, as necessity may re-

to fit a butt to a standing pole, the pole is first sawed off square and holes are bored to correspond with the holes in the side straps. The pole is scored to fit between the side arms, and then the pole is slid off the rotten butt. The old butt is taken out of the ground and the cement butt placed in the hole. The cement butt is allowed to project at least six or eight inches above the ground, the iron nearest the pole is pulled aside, and the pole slid onto the cement



GENERAL VIEW OF THE OPERATING ROOM, POSTAL TELEGRAPH CABLE COMPANY, BUFFALO, NEW YORK.

See Descriptive Account in Issue of January 1.

quire. If it is desired to make a present line higher, and if the butts are not thoroughly decayed, the poles may be simply raised by setting these durable cement butts beneath them in the old holes.

The connection of these cement butts to the poles is very simple. If the butt is to be connected to a new pole, the pole is simply scored to receive the iron straps, of which there are four, and the cement butt brought into contact with the end of the pole. The butt is then securely fastened to the pole by means of these iron straps, by passing bolts through and making the proper connections. When it is necessary

butt. The bolts are then driven in firmly and the nuts tightened up on the straps, when the hole is filled in and the earth tamped, as is usual with the ordinary construction. This operation has been performed entire in twenty minutes, without in any way interfering with the overhead construction.

In these days when technical knowledge is of such value to the telegrapher who would master his profession, its acquisition becomes of supreme importance. A subscription to TELEGRAPH AGE will supply the information every operator needs.

Underground Telegraph Lines.

Extract from a letter from Mr. Arthur H. Johnson, London.

The British post office authorities are gradually completing an underground telegraph cable, including a number of separate circuits, from London to Liverpool, Glasgow and Edinburgh. They have already some of the sections in working order and the cast-iron pipes are laid practically over the whole route.

The operation of underground telegraphs for long distances has become practicable owing to the invention of what is technically known as the "dry-core" cable. The difficulties formerly contended with may be classified under two heads, namely, (1) huge expense and comparatively short life of gutta-percha insulation for long lengths, and second, the high "capacity" of a gutta-percha-insulated wire when laid in the ground. The speed of working a telegraph line is governed by what is technically known as the "K. R.," that is, capacity \times resistance. Capacity is less as a wire is isolated from other masses of material, consequently an aerial wire has about the least possible capacity.

Capacity may be likened to hydraulics in this sense that supposing one has a long pipe and wishes to deliver power at the end, it is first necessary to fill the pipe before it will transmit and deliver force at the further end. The analogy is far from complete, but this gives the idea.

A dry core cable consists of bare copper wires loosely wrapped with manilla paper so as to insulate one from the other. The insulation thus consists partly of paper (which when dry offers a very high resistance to the passage of an electric current), and partly of the air, filling the interstices of the loosely assembled paper and wires. It is, of course, absolutely necessary to exclude even a trace of moisture. This is effected by covering the cable with a sheath of lead. Ordinary "wiped" plumbers' joints are used where one length of cable joins another, say every quarter of a mile, and at these points a screw nipple is so fixed that the air-tightness of the cable may be tested by air pressure up to say 30 pounds to the inch. Also, if by accident the cable should happen to get slightly damaged the air pump is used to dry the paper, precaution being taken to pass the air through a desiccator (consisting of bags containing chloride of calcium) which thoroughly dries the air before admission to the cable.

It is not contemplated at present to rely upon underground cables for anything but emergency working, that is when overhead lines are down. They are not suitable for long distance telephone work owing to their high capacity compared with an aerial line, nor are they suitable for high speed telegraph transmission, which in England is usually done by the Wheatstone automatic, an instrument whose average capacity is about 400 words a minute, but which at a pinch and on a suitable line can transmit 600 words a minute.

I am just completing some miles of a 38-wire

dry core cable for the London & South Western Railway from Waterloo Station toward Clapham Junction, where it is practically impossible to erect poles.—Railroad Gazette.

[A brief description of this now famous cable will no doubt be appreciated by many. It consists of an underground paper cable of 76 conductors, extending from London to Birmingham, a distance of 120 miles. Work was started in July 1897 and completed on April 13, 1900. Each conductor is of about 10 1-2 gauge, 150 pounds copper to the mile. Each set of four conductors is separated by a cross-shaped paper core held in place by a lapping of paper. The nineteen sets are again lapped by a broad paper band with 1-2 lap, the whole being enclosed in a thick lead sheath and drawn in a 3-inch cast iron pipe. It is intended to use the dry air system to keep up the insulation. There is the smallest possible contact between the copper conductors and the insulation material. The capacity is guaranteed to be less than .08 microfarads per statute mile with dry insulation or .10 microfarads per mile with impregnated insulation.—Editor.]

The Altitude of Real Property.

The recent decision of the Court of Errors and Appeals of New Jersey to the effect that a land owner has title to a strip of air whose diameter is equal to that of his land and whose height is limited only by the extent of the universe in that direction is of vital importance to the possessors of real estate. It was not a very important case, to be sure, only that of a telegraph company that wished to string its wires through the air above an objecting gentleman's residence, but a moment's thought convinces one that its adjudication adds infinitely to the value of property everywhere in the country.

Just at present this may not be especially significant from a practical standpoint. Mr. Mulcahey, who owns a bit of land in Hoboken, may lie down on his back in the centre thereof and felicitate himself on the fact that his property stretches up in a long streak, which no doubt intercepts and includes some sections of a billion or so of planets, asteroids, comets and suns, but beyond the satisfaction of figuring it out, he will derive no more benefit from it than he does from the various strata of dirt, rock, clay and lava which lie at the other end of his possession.

Winter Telegraph Line Building in Alaska.

The Government telegraph line in Alaska from Fort Gibbons, up the Tanana River, through Chana City, a distance of 240 miles, and on to join the Eagle City line, will be pushed along this winter, and it is expected to be completed about April 1. Lieut. Gibbs and his party will work all winter, in spite of the difficulties. His party is composed of Signal Corps men and soldiers, and they fully expect to have a hard time during the winter months.

You can't afford to be without TELEGRAPH AGE.

Mr. Timberlake Appointed Assistant Superintendent.

Thomas Wood Timberlake the new assistant superintendent of the American District Telegraph Company, with headquarters at Cincinnati, O., the territory of which covers the State of Ohio, under Superintendent I. N. Miller, and the



THOMAS WOOD TIMBERLAKE.

Assistant Superintendent of the American District Telegraph Company, Cincinnati, O.

States of Kentucky and Tennessee, under Superintendent James Compton, was born in Cincinnati on April 8, 1858. At fourteen years of age he started on his telegraphic career by becoming a messenger boy for the Pacific and Atlantic Telegraph Company in his native city. Naturally bright and quick he was soon made a check boy. While in this position he learned telegraphy developing into a proficient operator. Later the Western Union Telegraph Company offered him the managership of the bankers' and brokers' branch office situated in the financial district of the city, a responsible post he held for ten years. On December 23, 1892, he was appointed chief clerk of the Ohio Messenger and Telegraph Company, and in the early part of 1900 he was advanced to the managership. His promotion to the position of assistant manager dates from December 1, 1902. Mr. Timberlake was trained in his work under the tutorage of Superintendent C. E. Page of Boston, who at the time mentioned was manager of the Western Union Company at Cincinnati, as well as secretary and treasurer of the Ohio Messenger and Telegraph Company. To Mr. Page, Mr. Timberlake pays a hearty tribute of respect and affection in recognition of unselfish interest and patience shown in his behalf. Mr. Timberlake's capacity for executive work covering wide territory has proved his fitness for promotion, and merit has won.

Mr. Doherty as a Branch Office Manager.

William H. Doherty is the name of another bright telegrapher who has been called to New York by the Western Union Telegraph Company, from the West. He has been given charge of the important branch office at 319 Greenwich street, located in the heart of the produce district. Mr. Doherty is 38 years of age, having been born at Baraboo, Wis., May 2, 1864. In the Fall of 1887 he became a night operator for the Chicago and Northwestern Railway, at Lodi, Wis. He remained in this position about two years, later serving as extra agent, when in 1890 he was given entire charge of the Lodi station. Resigning in the spring of 1893 he went to Chicago entering the service of the Western Union as an operator in the Pennsylvania State Building on the World's Fair Grounds. From that time he has been continually in the service, holding various positions in the Western Metropolis, managing one of the largest branch offices; night receiver in the main office under former manager E. M. Mulford; in the collecting department; and claim clerk in the office of the superintendent of city lines, until in November, 1898, he was sent to the Milwaukee office as cashier and transfer agent, from which place and position he has now been transferred to New York. Mr. Doherty has undertaken to write a series of articles for TELEGRAPH AGE on Tele-



WILLIAM H. DOHERTY.

New Manager Western Union Branch Office, 319 Greenwich Street, New York.

graphic Bookkeeping, a subject very much in need of elucidation, and which should prove a welcome contribution to our columns. The first article appears elsewhere in this issue.

Send for a free sample copy of the next issue of TELEGRAPH AGE.

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.]

MONTREAL, QUE., GRAND TRUNK RAILWAY.

The new building for the Grand Trunk Railway general offices was occupied on June 6th last, and is doubtless one of the finest, if not the finest office of the kind in America, up-to-date in every respect. Frequent visitors from the United States railways and others remark that it has no equal. The telegraph office staff in this structure is composed of J. S. Corner, manager; G. A. Snyder, chief operator; F. W. Holman, first trick; J. R. Leroux, N. W. Ross, days; J. F. Mara, A. E. Fontaine, nights. The Grand Trunk Railway Company is building a new wire from Portland to Chicago a considerable portion of which is already finished.

QUEBEC, QUE., GT. NORTH WESTERN.

Mr. L. J. Power has resigned and accepted a position with the Metropolitan Stock Company in Three Rivers City, Quebec.

Thomas Medley, night chief, paid a visit recently to Montreal.

MONTREAL, GREAT NORTHWESTERN.

John Moore has replaced Frank Cochrane, resigned, at the Merchants' stock exchange office.

Herbert Keating has resumed full duty here.

Ernest Pare has returned to Boston.

Louis Goyette is on half trick.

Hugh Lyle has returned, after subbing several days at the Windsor Hotel office.

Miss Katherine Beck is indisposed.

Our sympathy is extended to William and Frank Cochrane of this office in the death of their brother.

Extra list: Messrs. Wood, Currie, Storey, Snyder and Sheppard.

David Dungan has resigned to accept a position with a broker in Brockville as operator.

Julius Scriver has returned from subbing at Bonaventure depot, commercial branch.

Theo. Lefebore has returned from the Windsor Hotel branch, where he replaced the regular operator, absent through sickness.

Geo. Moss has been placed on the regular staff. Mr. Dalgleish is still indisposed.

The telegraphers' hockey team played the Gaults on January 8th, at the Victoria Rink. The game was very close and a large number of the fraternity were present.

CHICAGO, ILL.

Mills on easy terms; lowest prices. Renting and repairing. Agency "AGE." Word-counters, Phillips' Codes and all electrical works. Dept. 11, Telegraphers' Typewriter Co., 122 La Salle street, Chicago; O. T. Anderson, Manager.

POSTAL.

All metropolitan wires at the Board of Trade have been transferred to the main office and six men were assigned to the main office on this account.

Several new tables have been put in here to take care of the steadily increasing volume of business.

Preparations have been made to handle the Pennsylvania business which is now coming to the Postal.

C. G. Simpson is now working a bonus wire, days; L. Trockey is working third Omaha vice Mr. Wood who is assisting Division Chief Wilder

John Harrington is assisting Division Chief Bohrer in the Metropolitan Division.

J. B. Wood, formerly of the main office is now manager of the South Chicago Office.

WESTERN UNION.

J. A. Heffernan is now located at Kewanee, Ills., with a brokerage firm.

W. H. Sievert, until recently manager at Elgin, Ills., has been appointed manager at Marshalltown, Iowa, succeeding C. A. Gillette, who has resigned. Mr. Sievert is a young and industrious gentleman and his choice is a judicious one. Mr. Sievert's efficient aids are Messrs. Hickey, Edwards, Brush and Dewey.

Morse Council, No. 347 of the National Union held its annual election on Saturday evening, December 13, when the following officers for 1903 were elected: Henry Jahn, president; A. J. Fuller, vice-president; G. R. Thornton, speaker; James Leary, ex-president; F. M. Crittenton, secretary; J. S. McCurdy, financial secretary; Henry Behl, treasurer; H. G. Laird, usher; M. W. McLean, chaplain; G. W. H. O'Brien, sergeant; A. Dorion, door keeper; J. J. Seidscheck, E. D. Bangs and G. J. Schoenfeld, trustees; F. M. Crittenton and A. J. Fuller, delegates to cabinet. The Council has a membership of 162 composed almost exclusively of telegraphers.

The following well known Chicago telegraphers were selected at the annual meeting on Saturday evening, December 20, to conduct the affairs of Ohm Court, No. 673, Catholic Order of Foresters, for 1903: W. A. Schollian, chief ranger; J. J. O'Brien, past chief ranger; W. J. Thompson, vice-chief ranger; A. J. McGrath, recording

secretary; C. L. Snifka, financial secretary; E. F. Lavery, treasurer; A. R. McDonald, physician; W. J. Gerathly, J. J. Weigel and J. J. Patton, trustees; A. J. McGrath, delegate to State Convention; W. J. Thompson, alternate; W. E. Martin, S. C.; J. B. Landry, J. C.; F. W. Campson, inside sentinel; P. J. Cummings, outside sentinel. This lodge is progressing finely and their record for the past year is excellent.

At the annual meeting of Section 2103, Endowment Knights of Pythias Insurance Rank, E. W. McMahon, who operates the Pittsburg local, was elected financial secretary for the fifth term. Mr. McMahon has been a member of K. of P, fraternal order for past 29 years, he is also past chancellor commander of Princeton Lodge 464, Chicago.

George W. Tucker, an ex-telegrapher, formerly of Boston and elsewhere in New England, is now in the jewelry business in this city, and is the watch inspector for Chicago Junction and Chicago and Eastern Illinois railways.

A recent visitor to this office was Mr. Frank E. Buchanan, en route from Dixon, Ill., to Streater, Ill., where he goes to assume the management of the Western Union interests. Mr. Buchanan is young but has great executive ability and will no doubt score a hit in his new assignment.

PHILADELPHIA, PA.

My motto—Honorable Dealing—D. A. Mahoney, special representative, operating department Western Union Telegraph Company, Philadelphia.

Have You Seen the "Fox"?—Send for catalogue, special price and easy terms. "Club" now forming. All makes rented three dollars per month. Specialties: Remodeled Remington's and Smith's, \$45 and \$50.

WESTERN UNION.

The new manager at Williamsport, Pa., Mr. J. H. Kenney, has already succeeded in bringing order out of chaos at that place, and is fast becoming more than popular with the employes and patrons of that office.

Another new manager who is achieving great success and popularity, is Mr. G. R. Daniels at Allentown, Pa. Mr. Daniels' varied experiences in telegraph work makes him well fitted for his present responsible position in which we wish him much success.

Messrs. McBride, Kelley and Makin were sent to Dover, Del., to handle press during the opening of the Legislature there.

Mr. Chas. E. Yetman, accompanied by Mr. G. W. Conkling, both from New York, were recent visitors. Mr. Conkling gave us an exhibition of fast sending on the Yetman machine while Mr. Yetman himself explained its many good points.

Mr. F. R. Rose of this office, is the proud father of a son.

Mr. H. G. Robinson, of Denver, Colo., has been appointed manager of the 3d and Chestnut streets branch office, vice J. A. Chapman, transferred to the main office. Mr. Robinson comes to us highly recommended and will no doubt make a creditable showing in more ways than one.

What mammoth strides Philadelphia has made is best shown by the following advertisement which appeared in the North American, one hundred years ago: "Horace Binney wishes to rent a large and commodious dwelling house, etc., at the southwest corner of Chestnut and Tenth streets." The Western Union Building now stands on the spot named, the very heart of the business district.

Miss Grace Leopold, daughter of Manager Leopold, at Norristown, Pa., was married recently to Mr. James Reinholds, of this city. The wedding was a social event of note in Norristown, and was largely attended by society people from New York and Philadelphia.

H. A. Givin of this office, has been confined to his home several weeks by illness.

Mr. F. G. Lamb, chief clerk to Superintendent J. P. Altberger, attended the funeral of his former chief, Superintendent J. J. Dickey, at Omaha, Neb. Mr. Dickey's sudden death was a severe shock to Superintendent Altberger, Manager Reed, Chief operator McCammon, and Chief Clerk Lamb, all of whom held Mr. Dickey in the highest esteem.

T. J. Dougherty and H. Woerner have resigned and will try their fortunes elsewhere.

A full account of the 15th annual meeting of the Electrical Aid Society of Philadelphia, which was held January 12, will be found in the next issue of TELEGRAPH AGE.

POSTAL.

All the employees in the city received the season's greetings over our officials' signatures. The announcement was conveyed to the main office staff through the customary medium of the Bulletin Board while every branch office was reached by a personal letter. The appreciation of this formal greeting was noticed in all places, where remarks indicative of the general feeling of harmony were freely expressed.

Plasterers and painters have taken temporary possession of the operating room, while making needed repairs to the ceiling. The consequent prevalence of ladders and scaffolding is striking terror in the hearts of the superstitious.

A visit from his mother was the cause of much satisfaction and pleasure to Mr. Jay A. Thomas.

After a term of service with The Associated Press, Mr. James A. Hagan returns to this office.

Mr. J. F. Nihen is another late arrival.
OKLAHOMA CITY, OKLA., WESTERN UNION.

The personnel of the Oklahoma City force has changed considerably in the past few months. Under the management of Mr. O. N. Dailey this point has grown from a "station" to an office of the first importance in the Southwest. In June, of 1902, five operators, viz.: P. F. Meigs, R. N.

Long, S. E. Hurlbut, J. A. Dailey and L. D. Friend, handled the business, with Earl Welch at the counter and Miss Eva Walker handling the delivery. Since that time several wires have been added, including the McDermott lease, "Choctaw," "Frisco," and Southwestern wires, making necessary a quadruplex to Dallas, and more new wires are to be added as soon as they reach the city, off the "Katy" and Frisco.

O. A. Smith was the first man added to the increasing force and was given the "night report" trick and now handles the Dallas wire.

Oda Pickle, of Perry, O. T., and A. C. Hendley, of Waco, Tex., were the next additions, the former resigning shortly afterward and going to Kansas City, and later, to Elk City, Kansas, his home, where he intends to remain until Spring. Mr. Hendley handles the Kansas City quadruplex with Mr. P. F. Meigs.

Mr. R. W. Ellsworth was sent to us from Omaha, upon our manager's request for another man. Then followed in regular order, F. H. Newell, W. S. Ward from the "Choctaw" at this point; S. A. Perryman from St. Louis; T. R. Howard from El Reno, O. T.; and George Millard. F. H. Newell resigned and is now in El Reno; W. S. Ward followed suit and is now in Dallas.

Mr. L. D. Friend, who for some months, acted as night chief, resigned to accept a position with the Choctaw in this city as chief operator and was succeeded by W. W. Glaze from Ft. Smith, Ark.

S. E. Hurlbut is still day chief and Mr. J. A. Daily, recently appointed traffic chief, assists him.

Mr. E. L. Chenoweth, more recently from Frederick, O. T., is the latest addition to the force and handles the report circuit.

Miss Stella Neal, who succeeded Miss Eva Walker as delivery clerk, the latter being appointed cashier, resigned the first of the New Year. She was succeeded by Ed. Hickman who was night clerk, he being relieved by Cecil Anderson who comes from Guthrie, O. T.

The force here, as a mark of esteem, presented Manager Dailey with a fine office chair on Christmas.

Our present quarters are entirely too small and a new location is being sought. Owing to the crowded condition of this thriving city, however, a desirable location is very hard to find.

Quite a number of the operators that we work with in the larger offices think that the force here is composed of Indians but they will find the AGE, in our "Wigwam" and it is the main feature of our "Pow-wows."

NEW ORLEANS, LA., WESTERN UNION.

Mr. and Mrs. W. D. West have returned from their trip to California. Mr. West is the picture of health, the trip having done him a world of good.

J. B. Mobley has been appointed traffic chief and Geo. Lonergan way traffic chief at the main office, and Jos. Gilthorpe traffic chief at the Cot-

ton Exchange. Resigned: Jos. Meynier, B. Paterson, J. C. Wright.

Mr. Meynier is working for a pool room in New Iberia, La. Latest additions to force; Operators—Messrs. J. M. Smith, J. F. Smith, L. E. Holmes, A. E. Carroll, P. A. McGriff, R. L. Goss, Wm. Porham, J. H. Young, John A. Kelly, Jr., W. E. McEwen, J. D. Johnson, M. L. Schwinger, E. W. Werkerfield, J. A. Guerrenger, H. Hermann, Thos. P. Flynn, J. D. Weir, Jr. Clerks: Misses Kate Grace, Etta Englelmann, E. Bechtel, J. M. Bonney, M. Gasot and Mrs. McCrary.

Henry Hyanis Smith, an old time telegrapher, for the past twenty-five years secretary of the Board of Trade, of this city, and one of New Orleans' foremost and most influential citizens, died on January 3, aged forty-nine years.

ST. LOUIS, MO., WESTERN UNION.

Thos. Phelan, who went to Hot Springs some six weeks ago spent the holidays at his home in this city. Mr. Phelan has a deep scar near his right temple as a result of the terrible explosion in the pool room, where he was employed.

Messrs. Goeringer and Willis have gone to Jefferson City during the legislative session.

Miss Annie McLaughlin spent the holidays in St. Louis, coming from Atlanta, Ga., where she has worked the past year.

Miss Barnett has returned after a two weeks' vacation.

Moe Frankel, who is employed by the Nelson Morris Packing Company, at St. Joseph, spent the holidays in St. Louis.

Mr. Tessman for a number of years foreman of the clock department at this point spent the holidays here. He now has charge of the Southwestern territory in the same department with headquarters at Dallas, Tex.

A number of pleasant social events have taken place during the past ten days at the Telegraphers' Athletic Club. The club rooms, numbering five in all, are handsomely fitted up. The officers are Thomas Grady, president; A. J. Frey, vice-president; Fred Jacobson, secretary, and Harry Keever, treasurer. The club maintains the Way City Quartet, a musical organization which has gained a fine reputation.

Mr. O. L. Turner, assistant chief, has been appointed chief of the claim department.

Mrs. Alice Coyle and Miss Hickey have returned from their holiday vacation.

Miss Kavanaugh of the wheatstone department, has quite a local reputation as a skater having won several prizes this winter.

SAVANNAH, GA., WESTERN UNION.

We now have a force of twenty-five operators, and a small army of clerks and messengers, and there isn't an idle moment for any of them.

Our new manager, Mr. H. M. Killian, has become very popular with the force, consequently everything is "smooth sailing" as it were. The force presented former manager L. J. Maxwell, now assistant superintendent, with a hunting gun as a token of esteem in which he was held. Mr. Maxwell's friends in this city are many.

The Cotton Exchange office under the management of Mr. P. F. Curry, and assisted by Messrs. Stanton, Harry McEwen, White, Hancock and Von-Newton, has become a very busy point.

The following are the members of the operating department at the main office: Joseph Marshall, chief operator; J. P. Rivers, night chief operator; L. M. Walker, assistant chief operator. Messrs. Nance; Potts, Hays, Armstrong, Hampton, Allen, Ledlie, Jones, Raiford, Partridge and Lewis, operators.

Mr. Mike Galvin is at the head of the clerical force. At the receiving window, days, Mrs. Smith; nights, W. P. Rivers; dead-head clerk, H. M. Martin; cable clerk, Miss Stella Pacetti; delivery, John McGrath; American District and Call Bell Service, Eugene Kelly; office boys, Willie Maher and Chas. Von-Newton; city branches, Desoto Hotel, Geo. McEwen; Union station, Miss Mecks; Central depot, W. M. Morrissey, George Haygood and Willie Zeigler; linemen, M. Raines and U. S. Grant; batteryman, Ned Lake.

DETROIT, MICH., POSTAL.

F. B. Rudolph, who has worked on the New York quad for a number of years, has resigned to accept a position in the South, where he hopes to be much benefitted in health by the change in climate. Mr. Rudolph is a first class operator and leaves many friends in Detroit who wish him the best of luck and health.

OMAHA, NEB.

The funeral of J. J. Dickey, superintendent of the Western Union Telegraph Company, at this point, which took place on Friday, January 2, was largely attended by representative telegraph and railroad people from all over the country. The floral tributes contributed by old friends were numerous and completely covered the grave of Mr. Dickey and that of his son, John Jay, Jr., who died last fall.

The active and honorary pall bearers were:

Active.—Edward Porter Peck, Luther Drake, J. K. Chambers, Charles B. Horton, John C. Nelson, John E. Wilbur.

Honorary.—Count Creighton, E. M. Morsman, George F. Bidwell, Senator Millard, Belvidere Brooks, Theodore P. Cook, General Manderson, Guy C. Barton.

Among those in attendance were:

Theodore P. Cook, Morris T. Cook, L. Mc Kisick, S. C. Mason, F. H. Tubbs, W. J. Lloyd, W. W. Ryder, and D. S. Anderson, Chicago, Ill.; I. N. Miller, Cincinnati, O.; Belvidere Brooks and C. H. Bristol, New York; G. J. Frankel, George Gudgeon and C. W. Hammond, St. Louis, Mo.; I. McMichael and J. Levin, Minneapolis, Minn.; C. B. Horton, F. E. Clary, J. G. Lay, W. A. Duell, P. J. Nichols, John E. Jenkins, A. A. Gargan, C. A. Parker, W. B. Glardon, S. W. Daily, H. T. McDowell and J. E. Preston, Denver, Col.; G. M. Hohl, I. T. Dyer, and Rodney Smith, St. Joseph, Mo.; C. E. Yates, A. H. May, and F. F. Shipley, Lincoln, Neb.; George H.

Nicoll, Council Bluffs, Ia.; W. C. Carswell and C. H. Gaunt, Topeka, Kans.; F. W. Heindel and H. G. Chipchase, Hutchinson, Kan.; W. A. Rudd and H. C. Hope, St. Paul, Minn.; M. D. Wood and John W. Murphy, Kansas City, Mo.

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.

The employes of the Western Union Telegraph office at 319 Greenwich street, presented, on December 21, Mr. J. B. Korndorfer, their retiring manager, with a silver loving cup, bearing the inscription: "Presented to J. B. Korndorfer, by the employes of the Western Union Telegraph Company, 319 Greenwich street, on December 31." Beneath this inscription was the symbol, "73." Mr. Korndorfer leaves the telegraph service to become identified with the New York National Exchange Bank.

The Yetman Telegraph Transmitter, whose offices are located at 220 Broadway, has secured the services of two more of New York's finest operators. They are G. R. Allhands, for many years in the employ of The Associated Press, and W. R. Ryan, who worked the New York end of the Chicago Record-Herald leased wire, which had the reputation of being the fastest worked wire out of the Metropolis. Both of these gentlemen are valuable acquisitions to Mr. Yetman's force.

Mr. Wm. Shone, for fifteen years a prominent operator in this department, and who for the past three months has acted as relief manager of the first district, is doing excellent work in connection with his new office.

The wife of Mr. F. W. Gregory, formerly chief operator and now of the construction department, died on January 8.

A son was born to Harry B. Rathbone, at Chicago, on January 1, and Mr. John Rathbone, the old timer of this office, in consequence becomes a grandfather.

The annual reunion of the Signal Corps Veteran Association of the Spanish-American War was held on Saturday evening, January 10, and the following officers elected: Harry H. Wells, commander; Day F. Wait, senior vice-commander; Charles E. Barto, junior vice-commander; George A. Marshall, adjutant; Eugene V. Kean, quartermaster; Isidore Weill, historian; Francis N. Lawton, chaplain and Thomas Z. Franklin, sentinel.

Mr. P. Collins, the veteran telegrapher of New York, has once more assumed the management of the Rockledge, Fla., office for the season.

F. J. Nurnburg, Charles S. Pike and John F. King have been assigned to duty at Riverhead, L. I., during a noted trial at that place.

The annual meeting of the Gold and Stock Life Insurance Association will take place on January 19 at 195 Broadway.

Mr. M. F. Gaffney is acting chief operator of the Race Bureau during the absence of Senator Burton at Albany.

POSTAL.

Mr. John Mearns, formerly assistant city chief, days, has been appointed night city chief.

Mr. L. M. Harding, of the second Philadelphia bonus wire, is absent on a vacation of thirty days.

W. W. Ward is a new arrival.

The following named clerks have been promoted to be operators: Miss M. R. McGinty, M. M. Sherin, C. McCabe, J. Duffy and A. Ward.

The annual ball given under the auspices of the Order of Railroad Telegraphers, was held at the Murray Hill Lyceum, 34th street and 3rd avenue, New York, on Wednesday evening, January 14th. M. W. Jones was general chairman and E. M. Thurston general secretary and treasurer. The committee consisted of D. H. Hanrahan, J. Moriarty, T. J. Sheridan, J. P. Masterson, J. Gerraghty, M. J. Wade, W. E. Brown, B. R. McFadden, O. A. Hudson, W. S. Conklin and H. K. Howland.

THE ASSOCIATED PRESS.

Mr. G. H. Boothby, of the New York bureau, has been detailed to Albany, N. Y., to look after the interests of the Legislature.

Mr. L. B. Tobin, of the Postal Telegraph-Cable Company, Kansas City, Mo., has accepted a position with The Associated Press, New York.

Mr. P. S. Goddard of New Haven, Conn., has been transferred to the New York bureau, to look after the Albany legislative work. Mr. J. R. Powers relieves Mr. Goddard at New Haven, Conn.

Mr. E. D. Moore, who carried off one of the championship prizes in the telegraphic tournament held in New York in 1893, represented The Associated Press on the cable steamer Silver-town, when it laid the cable connecting San Francisco and Honolulu. Mr. Moore's graphic story of the stormy voyage will long be remembered as a clever piece of literary work.

NEW ASSOCIATED PRESS QUARTERS IN BOSTON.

The Boston office of The Associated Press was moved on December 27 from its quarters on School street, which it has occupied for the past eight years, to more commodious rooms in the remodelled building at No. 293 Washington street. The transfer of the wires and other adjuncts of news service was accomplished with no more than ten minutes delay, and Manager J. H. Fahey and his staff now have the best accommodations they have ever had in the "Hub." All the fourth floor of the building is given up to the uses of the great news gathering bureau, and every modern device for furthering the purposes of the institution is found. Pneumatic tubes whisk copy to all of the local newspapers, a specially arranged telephone service has been installed, and the telegraph wires enter the building in new cables. The operating room, the editorial room and the manager's room are closely

connected, and every provision has been made to afford prompt and convenient service.

Serial Building Loan and Savings Institution.

The 36th semi-annual statement of the Serial Building Loan and Savings Institution for the six months ending December 31, 1902, is as follows:

ASSETS.	
Cash on hand	\$13,085.23
Loans on mortgage	440,026.85
Loans on shares	26,643.00
Real estate sold on contract	14,414.36
Real estate	66,551.93
Advances to members	865.10
Total	\$561,586.47
LIABILITIES.	
Installments paid in	\$367,626.00
Matured shares	41,600.00
Full paid shares	30,800.00
Borrowed money	23,391.82
Due on loans	2,700.00
Earnings credited	71,422.75
Surplus	24,045.90
Total	\$561,586.47

Amendments to the articles of association have been laid before the members and will come up for action at the annual meeting of the corporation, which will be held on Tuesday, January 20. It is proposed to admit members at all times instead of in quarterly series, and in other respects to keep the corporation in the front rank of building loan associations.

Electric Building Loan and Savings Association.

The Electric Building Loan and Saving Association of New York has rendered its twenty-fourth semi-annual report for the six months ending December 31, 1902. It is as follows:

Assets:	
Bonds and mortgages	\$62,774.17
Stock loans	2,375.00
Real estate contracts	2,031.25
Real estate	11,089.08
Advances to members	228.27
Cash	830.26
Total	\$79,328.03
Liabilities:	
Subscriptions	\$75,228.88
Dividends unpaid	557.50
Suspense account	392.75
Borrowed money	1,500.00
Contingent fund	1,648.90
Total	\$79,328.03

The books of the association have been examined by John Doran, who found them correct.

True friends visit us in prosperity only when invited, but in adversity they come without invitation.—Theophrastus.

Resignations and Appointments.

In our January issue we recorded a number of appointments as Assistant Superintendents of the Western Union Telegraph Company which were not strictly correct. The parties mentioned do not hold any official position in the Western Union Telegraph Company, but are entirely in the employ of the American District Telegraph Company.

Mr. H. F. Hawkins has been appointed Superintendent of the Leased Wires Postal Telegraph-Cable Company, New York.

Mr. M. J. Madden has been appointed manager of the Western Union Telegraph Company at Lockport, N. Y., vice W. T. Griffin, resigned.

Mr. E. H. Hogshead, manager Western Union Telegraph Company, Meridian, Miss., has resigned. Mr. A. C. Fonville, of Anniston, Ala., will assume the managership.

Mr. Lloyd B. Beazley, manager Postal Telegraph-Cable Company, Charlottesville, Ga., has resigned. He is succeeded by Mr. Ernest E. Robertson, of Richmond, Va.

Mr. George R. Carter, an operator in the Western Union Telegraph office at Springfield, Ohio, has been appointed manager of the company's interests at that point, vice George Getches, resigned.

Mr. J. H. Wentworth, cashier of the Western Union Telegraph Company, at Boston, Mass., has resigned to accept a similar position with the Postal Telegraph-Cable Company, vice G. H. Patterson, resigned.

Mr. W. E. Athearn, assistant electrical engineer of the West Union Telegraph Company, New York, has resigned, to take effect February 1, to accept a position on the engineer's staff with the American Bell Telephone Company.

Mr. J. A. Cahoe, of the Western Union Telegraph Company, Louisville, Ky., has been appointed all night chief of the Postal Telegraph-Cable Company at that point. Mr. Cahoe was in the Postal service up to three months ago.

Mr. Charles C. Witt, cashier of the Western Union Telegraph Company, at Atlanta, Ga., has been promoted to the management of the office, vice Dr. P. E. Murray, appointed assistant superintendent. Will S. Hess, head bookkeeper of the same office, has been appointed cashier.

Mr. Charles B. Horton, assistant superintendent of the Western Union Telegraph Company at Denver, Colo., has been promoted to be superintendent of the same interests with headquarters at Omaha, Neb., vice J. J. Dickey, deceased. An engraving and sketch of Mr. Horton appeared in *Telegraph Age* on May 1, 1902.

Mr. I. N. Miller, Jr., who was recorded in the January 1 issue as having been appointed a district superintendent of the Western Union Telegraph Company, at San Francisco, Cal., will in reality act as superintendent of the American District Telegraph Company, with headquarters

at that point, covering the same territory as that of General Superintendent Frank Jaynes, of the Western Union Telegraph Company. Mr. Miller will also continue to act as chief clerk to Mr. Jaynes.

The Passing of the Old State House Telegraph Office, Boston.

Day and night since 1863, until the opening of this new year, the basement of the old state house at Boston, an historic building, situated in the heart of the financial district in that city, has been vocal to the clatter of telegraph instruments.

They are silent now, the creeping along under ground of the new subway to connect with the East Boston tunnel having forced the Western Union, the messenger service and the Direct Cable company to seek new quarters.

Old "Bn" as the office was telegraphically known, will, when time rolls around for the opening of the underground way to the other side of the harbor, take on a new identity. It will be a waiting room for passengers of the elevated road.

"Bn" was a famous office in its day, and its day was previous to the opening of the stock exchange, when brokers and men from the street who thought they knew a thing or two about whip-sawing the market used to gather in the famous "gold room" to study the quotations.

There were no tickers then, no telephones; everything was straight "Morse," without even the abbreviations of the Phillips code. Fast men, "fly" men they called them, were selected for the hot "Bn" stock wires, and every day from 10 a. m. to 3 p. m. the receivers in the old state house were urged to top speed.

All messages over the stock wires were fast and brief, and operators who could not receive without frequent breaking were not at all desirable. Men sent from the main office to take the places of regular men, at times when the regulars were temporarily laid up for repairs, approached the place with a sensation of inner goneness; for while straight commercial business might have been easy to them, the vision of fractions in figures and letter combinations with which they were unfamiliar made them feel like beginners.

Some famous old press receivers have figuratively sweated blood on these bygone stock wires, and many who have since given up telegraphing for other occupations remember the "roasts" provided for them by fast senders at the New York end.

Old "Billy" Kettles was one of the few who was never upset by the speed at "Bn." "Billy" was sent there occasionally when he worked at 109 State street, years ago, but his nerve was such that no new combinations or unusual symbols, and there were many of them employed by the brokers, were sufficiently fast or "woozy" to make him open his key.

The record receiving accomplished at "Bn" office is credited to Thomas Roche, who after-

ward became superintendent of the Western Union Telegraph Company. Mr. Roche was manager at the time, and one day when business was abundant and the market active he received 600 short messages between the hours of 10 and 3. Efforts were made by several well-known expert receivers to push the Roche record back to second place, but the trick was never accomplished.

The old state house basement was first opened for telegraph purposes in 1863, when the United States Telegraph Company nailed up its sign. Six years later this company was absorbed by the American Telegraph Company, and for several years the office was managed by Benjamin G. Winter, who signed "Bg," which the funny men at the other ends of circuits interpreted as "B'gosh" and "B'gee." He was well known to the old generation of telegraphers, and was succeeded by "Tom" Callaghan, who in the early 80's was traffic chief at 109 State street.

The Mutual Union had the place for a while, and in '84 of '85 the Western Union obtained control and held the office until a few days ago, when new quarters were secured at 16 and 18 Devonshire street. The District Telegraph Company, which after a few years' existence consolidated with the Mutual District Messenger Company, was also an occupant, opening for business in 1883. These consolidated companies continued business there under the management of D. J. Hern, after a short "vacation" from the place while repairs were in progress, until January 1, when their new quarters were occupied.

Another tenant was the Direct Cable Company now in the Devonshire building. Business men will miss this old telegraph stand, for it was convenient, and service was prompt, but the Western Union Company has in "Tommy" Devine, well known to the street and to newspaper correspondents, a manager who will make up in diligent attention for any loss in convenience incurred by the change.

The Claim Was Allowed.

A man in Mississippi telegraphed for ten gallons of whiskey and the telegraph company failed to deliver the message.

The man brought suit against the company in the sum of \$25.00 for non-delivery and consequent damage.

The claim case in due course, came into the possession of the Superintendent of Telegraph who understands the characteristics of the Mississippi citizen.

The Superintendent's endorsement ran something like this: "I recommend that the amount

claimed, be paid in full; when a man in Mississippi telegraphs for ten gallons of whiskey, and the message is not delivered, he has full and sufficient grounds for a Mental Anguish suit."

A Permanent Injunction Granted.


In the United States Circuit Court, in Newark, N. J., on January 14, Judge Andrew Kirkpatrick made permanent the temporary injunction restraining the Pennsylvania Railroad Company from disturbing the present wire system of the Western Union Telegraph Company in operation on the railroad's lines in New Jersey. No action, however, is taken by the court in the matter of condemning land along the railroad's thoroughfare, a right to do which the telegraph company claims. This latter action will no doubt be made a cause for further judicial decision.

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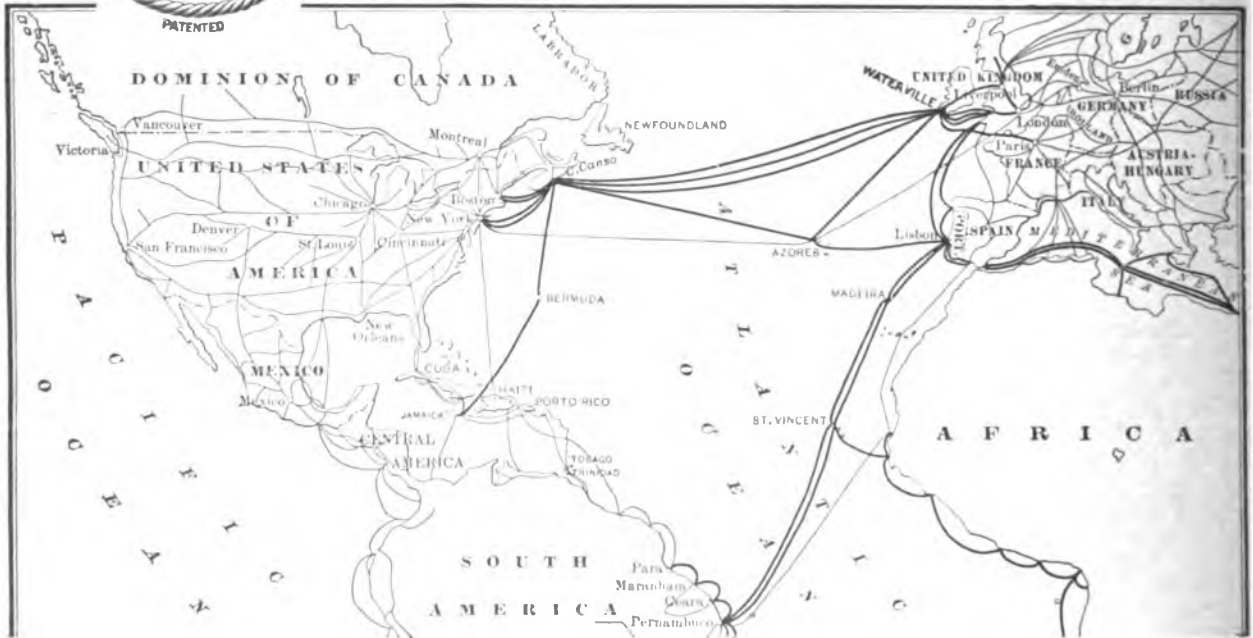
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