TELEGRAPH AGE

A Semi-Monthly Journal Devoted to Land Line Telegraphs, Submarine Cable Interests and Radio-Telegraphy

Office of Publication: 253 BROADWAY, NEW YORK

ESTABLISHED 1883

Single Copies 10 Cents — For Yearly Subscription Rates See Editorial Page

No. 15. NEW YORK, AUGUST 1, 1909. Whole No. 629.

TELEGRAPH AND ELECTRICAL TRADES DIRECTORY

CONDENSERS.

William Marshall, 709 Lexington Ave., N. Y.

FIRE-ALARM AND POLICE TELEGRAPH.

Gamewell Fire Alarm Telegraph Co., 19 Barclay St., New York.

INSULATORS.

Specify BROOKFIELD GLASS INSULATORS. THE STANDARD. BROOKFIELD GLASS COMPANY, United States Express Building, Trinity Place, Greenwich and Rector Streets.

DRY BATTERIES

Rock Island Battery Co., 909 Sycamore St., Cincinnati, Ohio.

PRIMARY BATTERIES.

Edison Manufacturing Company, Orange, N.J.

STORAGE BATTERIES.

The Electric Storage Battery Co., Philadelphia

TESTING INSTRUMENTS.

Weston Electrical Instrument Co., Newark, N. J.

TELEGRAPH AND CABLE COMPANIES.

Canadian Pacific Railway Co.'s Telegraph, E. M. Bender, purchasing agent, Montreal, Que.

Commercial Cable Co., Commercial Pacific Cable Co., German Atlantic Cable Co., W. D. Francis, purchasing agent, 14 Desbrosses St., New York.

Great North Western Telegraph Co. of Canada, Geo. D. Perry, purchasing agent, Toronto, Ont.

North American Telegraph Co., H. A. Tuttle, general manager and purchasing agent, Minneapolis, Minn.

Postal Telegraph-Cable Co., Executive Offices, 253 Broadway, New York; purchasing agent, W. D. Francis, 14 Desbrosses St., New York.

Postal Telegraph-Cable Co. of Texas, S. M. English, general manager and purchasing agent, Dallas, Tex.

Western Union Telegraph Co., Executive Offices, 195 Broadway, New York; purchasing agent, H. E. Roberts, 152 Franklin Street, New York.

DEAN RAPID TELEGRAPH CO.

Cheap Rates : : : : : Quick Service
Accuracy and Secrecy Guaranteed.
General Office : : : : Kansas City, Mo.

TELEGRAPH AND ELECTRICAL SUPPLIES.

J. H. Bunnell & Co., Inc., 20 Park Place, New York.

Central Electric Co., 264-270 5th Ave., Chicago.

Foote, Pierson & Co., 160-162 Duane St., New York.

W. R. Ostrander & Co., 22 Dey St., New York.

TRANSMITTING INSTRUMENTS.

Dunn Peerless Key, 1 Broadway, New York.

TYPEWRITERS.

Remington Typewriter Co., 327 Broadway, New York.

Smith-Premier Typewriter Co., Syracuse, N.Y.

Thom & Jones' Telegraphic Connections. 300 pages, illustrated by 20 plates with circuits distinguished by three different colors. Price, $1.50, postage prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

WIRES, CABLES, ETC

Kerite Insulated Wire & Cable Co., 30 Church St., New York.

Okonite Company, 253 Broadway, New York.

John A. Roebling's Sons' Co., 117-121 Liberty St., New York.

TELEPHONE TRAIN DESPATCHING SYSTEMS.

General Railway Signal Co., Rochester, N. Y.

Kellogg Switchboard & Supply Co., Chicago.

Sandwich Elec. Co., Sandwich, Ill.

Western Electric Co., New York.

PLEASE MENTION TELEGRAPH AGE
WHEN WRITING TO ADVERTISERS

TELEGRAPH AGE

No. 15. NEW YORK, AUGUST 1, 1909. Twenty-sixth Year.

CONTENTS.

SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

From Office Boy to Manager.

PART I.

It has been suggested that this journal point out the most direct route intervening between the position of an office boy and that of the managership of an important telegraph office which one should take in order to reach the latter goal.

Now, there are really but two roads leading between those points. On one the motive power is "influence" or "pull," as some prefer to call it, while on the other it is "qualification."

The first named, or shorter road, is built on trestle work and the latter on solid, rock-bottom, from which fact it is obvious that the respective endurances and value of each must be measured by the lasting qualities of the structural timber.

Obviously the life period of a position obtained via the short route is no longer that of the road's frail support. Finally, and this is the real point the writer wishes to emphasize, of two men who succeed in reaching the goal via these different routes, one only is a success in the true sense of the word. One becomes a real force and factor in the world and the other merely a parasite whose career ends with the life of the body that supports it.

OFFICE BOY.

The first position in a telegraph office one usually obtains is that of a "check" or office boy, a comparatively insignificant branch of the service, yet one which really covers a very critical period in the young man's career. It is during the early stages of his work that habits, good, bad or indifferent are developed, and which give indication in a measure of his final capacity, for "as the twig is bent so the tree will grow."

The duties of an office boy are not very difficult to perform, but if neglected or carelessly done may cause a great deal of trouble to others and ultimately depreciate his own value. He should therefore make every possible effort to learn how to avoid doing harm by thoroughly studying the requirements of his position and cultivating the habit of observation and other traits which naturally make for good. Habits grow with us and become fixtures for life, hence we shall suggest that the office boy's first and most important duty is to "cultivate the habit of forming good habits," such particularly as those of punctuality, observation, perseverance and methodical study. With these traits of character once acquired hard work becomes a pleasure and his future success assured.

AS AN OPERATOR.

As a rule the office boy learns the art of telegraphy while serving in that capacity.

As this is an age of progress he should therefore keep abreast of the times and endeavor to begin his new duties as a full-fledged operator with as much knowledge of up-to-date methods as is consistent with his experience. Nowadays the younger generation is expected to begin where our predecessors left off. In other words, he should include the art of typewriting, automatic transmission and Phillips' code, among his accomplishments, each, of course, in its proper turn and time. Last but not least, he should turn his thoughts to the study of electricity and acquire a satisfactory knowledge of the apparatus he uses, with a view to final promotion to fields more remunerative than that of an operator.

Most operators make the fatal mistake of putting off the acquirement of electrical knowledge until there is "something in sight" to stimulate study, and thus lose many opportunities for advancement. In fact, such operators lose many real chances they never even hear of. Managers seeking a competent man for a place in the quadruplex department, for instance, knowing the electrical caliber of the employes, as they usually do, pass over their names as ineligible and frequently have to appoint an outside

man in many respects less desirable, but who has made himself necessary to the company by means of a little preparatory work. Many old operators are still at the desk, when they might be holding higher positions had they but had their candles burning bright enough to be seen when unknown to themselves managers had secretly overlooked the field and reluctantly, perhaps, sought elsewhere for promising material.

The usual excuse given by such persons for not studying is, "I haven't time," but it will generally be found that they can always find fifteen or more minutes to spare two or three times a day for the purpose of having a quiet smoke or chat in the coat room, no matter how busy they otherwise might be. Now half that time daily devoted to study would soon give one a very good start.

An electrical library containing practically all the information that is necessary to know in order to become an expert electrician may be found in the following books, which may be accumulated gradually and for a comparatively small amount of money. We would suggest that they be read in the following rotation: "Elementary Lessons in Electricity," by Sylvanus Thompson; "Electricity in Every-Day Life," by Houston; "Electrical Engineering Leaflets," by Houston and Kennelly. These books read like a story, especially the second named, of which there are three volumes. No one can read these works without becoming very much interested in electricity generally.

For strictly up-to-date information concerning the latest developments in the telegraph field and detailed operation Maver's "American Telegraphy" and "Pocket Edition of Diagrams," by the writer of this article, should, of course, be added. Finally, in order to keep fully posted on all new developments as time goes on, Telegraph Age should be read by every operator interested in the telegraph service.

Another necessary qualification for advancement is to be known as a "hustler." An operator who tries to see how much work he can do in a day, instead of how little, is always in the limelight, and sure to be seen and remembered when opportunities arise.

(To be continued.)

Recent Telegraph and Telephone Patents.

A patent, No. 926,831, for a telephone jack, has been awarded to A. L. Sohm, of Whittier, Cal.

A patent, No. 926,950, for an automatic ringing circuit and apparatus for telephone exchanges, has been granted to R. H. Manson, of Elyria, Ohio.

A patent, No. 926,994, for a telephone connecting apparatus, has been secured by E. C. Molina, of Arlington, Mass.

A patent, No. 927,025, for a call distributing telephone exchange system, has been taken out by S. H. Browne, of Pittsburg, Pa.

A patent, No. 927,347, for a telegraphic instrument, has been issued to J. J. Ghegan, of Newark, N. J. Improved telegraph transmitting key with a switch lever insulated therefrom which may connect with the contact or with the key, as desired.

A patent, No. 927,395, for a telephone transmitter, has been awarded to C. Adams-Randall, of New York. Obtains increased voltage through the transmitter by supporting on the diaphragm a confined variable resistance conductor of uniform depth and large conducting capacity, under pressure.

The following patent has expired:

Patent No. 478,743, for a telephone repeater, held by Thomas A. Edison, of Menlo Park, N. J.

Personal.

The wife of Mr. F. J. Hickey, general agent of the Wells Fargo Express Company, New York, and a former telegrapher, died July 6.

Mr. L. C. Weir, who recently retired from the presidency of the Adams Express Company, is seriously ill at Bad Nauheim, Austria, where he has been for some time for the benefit of his health.

Mr. Alexander Craw, the well known old time telegrapher, now claim agent for the Baltimore and Ohio Railroad, at Youngstown, Ohio, was a recent New York visitor, spending part of his vacation in the metropolis visiting relatives and friends.

Mr. J. C. Murray has been appointed district sales engineer of the Kellogg Switchboard and Supply Company, Chicago, for the States of Illinois, Indiana, Ohio, West Virginia, Kentucky and the southern territory. Mr. F. C. King, of the Logansport Home Telephone Company, will continue Mr. Murray's excellent work in Indiana.

The Misses Gertrude M. and Lura H. Griffith, daughters of E. P. Griffith, superintendent of telegraph of the Erie Railroad, and superintendent of the Second District Eastern Division of the Western Union Telegraph Company, New York, together with Miss Florence J. Taltavall, daughter of the editor of the Telegraph Age, are visiting Miss Gladys Camp, daughter of Wm. J. Camp, electrical engineer of the Canadian Pacific Railway Company's Telegraph at Montreal.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Mr. Clarence H. Mackay, president of the company, New York, accompanied by Mr. John Goldhammer of the Commercial Cable Company, sailed for Europe on the Lusitania, July 28, on business connected with the service.

Mr. A. L. Edgecomb, superintendent at Boston, accompanied by his wife, is taking a trip to the Pacific coast. During Mr. Edgecomb's absence on vacation, Division Superintendent L. Lemon will have charge of affairs at Boston.

Among the recent executive office visitors were Mr. F. B. Travis, manager at Washington, D. C., and Mr. A. E. Zintl, assistant manager at Philadelphia.

Among executive office attaches on vacations are: G. W. Fleming, chief clerk in the office of S. B. Haig, superintendent of traffic, and W. H. Mathews, chief clerk to Vice-President Charles C. Adams.

This company has opened a well-equipped and up-to-date branch office on the concourse floor of the Hudson Terminal Building, 30 Church Street. Mr. A. S. Hunter is manager.

The new office at Columbus, O., of which mention has previously been made in these columns, was occupied on July 25. The move was made without a hitch and the new quarters give satisfaction to all concerned.

In accordance with the recent decision of the Court of Appeals of Maryland, and the law passed in Massachusetts, this company is now placing the filing time on all intra-state messages in the two states mentioned.

Mr. E. J. Nally, vice-president and general manager of the company, has endorsed the suggestion of Mr. E. B. Pillsbury, general superintendent, to set aside space in the basement and install shower baths for the use of the messenger boys at 253 Broadway. The space provided for this purpose will not only be ample, but the fittings will be modern in every particular, including marble wainscoting and tiled floor.

The office at Forty-second Street and Fifth Avenue has been entirely remodeled on account of alterations in the building and is now probably the most handsomely equipped branch office in the country. Being furnished throughout with solid mahogany, mosaic tiled floor and artistically lighted it presents a most pleasing appearance. The equipment is all arranged with an idea to convenience, as well as to neatness, and a large fac-simile of a telegram in the window addressed to "everyone, everywhere," attracts much attention from passers-by. Manager J. F. McNeil is to be congratulated upon his new quarters and takes just pride in showing them to visitors. He is assisted by Joseph Sheffery, F. W. Daley and T. J. McQuillan, operators, and A. J. Krapf and V. Pinto, clerks.

RESIGNATIONS AND APPOINTMENTS.

Mr. G. K. Hicks has resigned his position as manager at Rockford, Ill., to engage in the real estate business.

Mr. H. J. O'Donnell, manager at Bloomington, Ill., has been appointed manager at Rockford, to succeed Mr. Hicks.

Mr. J. G. Wolf, manager of the office at Lincoln, Neb., has been promoted to the management of the Omaha office, vice E. F. Williams, resigned to engage in the real estate business. Mr. F. A. Putnam, manager of the Omaha wholesale district branch, succeeds Mr. Wolf as manager at Lincoln. These changes are effective August 1.

Mr. William R. Hurst, whose appointment as manager of the Mobile, Alabama, office was noted in our July 16 issue, was born in Anderson County, Tenn., January 5, 1877, and entered the telegraph service as railway operator in Georgia. He served in Cuba as a private in the Signal Corps during the war with Spain and later as a civilian in the government service was telegraph manager at Matanzas, Cuba. From there he went to Dallas, Texas, where he became night manager at the general offices of the Texas and Pacific Railway. Before receiving his present appointment he had served this company as chief clerk and district cashier of the fourth district, Southern division, and manager at Knoxville, Tenn.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Mr. A. R. Brewer, treasurer of the company, will spend his vacation during the month of August in New Hampshire as is his usual custom.

Mr. H. J. Jeffs, chief operator of the San Francisco office, has been advanced to the position of assistant superintendent at Seattle.

Among recent executive office visitors were: Theodore P. Cook, general superintendent, and William J. Lloyd, superintendent at Chicago; Jacob Levin, general superintendent, L. J. Amsden, chief clerk in the general superintendent's office, and J. S. Calvert, assistant superintendent at Atlanta; T. P. Cummings, manager at New Orleans; F. E. Clary, superintendent at New Haven, Conn.

The filing time is now being placed on all intrastate messages in Maryland and Massachusetts.

Barclay printing machines have been installed on the Denver and Omaha, Cincinnati and Cleveland, and Cincinnati and Pittsburg circuits.

The company has moved its office at Gloucester, Mass., into larger and more commodious quarters. The new office is furnished in up-to-date manner, with a complete new set of oak furniture.

Mr. William C. Merley, an attache of the general manager's office, was married July 27 to Miss Elizabeth Horn, also of the executive offices.

RESIGNATIONS AND APPOINTMENTS.

Mr. J. F. Rawie, manager of the Portland, Ore., office has been appointed to a similar position in the Seattle, Wash., office, vice A. F. West resigned to engage in the telephone business. Mr. W. A. Robb, chief operator of the Portland office, has been advanced to the position of manager to fill the vacancy caused by the transfer of Mr. Rawie to Seattle.

Mr. J. E. Van Berschot, assistant superintendent of supplies at Chicago, has resigned, and that office has been abolished.

Mr. M. M. Rust has been appointed storekeeper of the company at Chicago.

The Cable.

As an outcome of the recent Imperial Press Conference in London, the Eastern and Indo-European Cable Companies have agreed to reduce the press rate from 1s. to 9d. a word between Great Britain and India, Australia and South Africa, provided the British and Colonial Governments are prepared to assume their share of the reduction.

The president of Brazil in his message recently presented to the Congress of that republic said: "In addition to the three telegraphic companies whose cables land on the shores of Brazil, a concession was granted in 1908 to the Felten and Guilleaume Company of Cologne for a cable which is to commence working within three and one-half years from the date of the concession. In addition, the department has in view the installation of a radio-telegraphic station of high power on the island of Fernando de Noronha. Here also will be located a small station in communication with Pernambuco. Another wireless station is being erected on Babylonia Hill, Rio de Janeiro."

The cable steamer "Relay," belonging to the Mexican Telegraph Company, is engaged in repairing the New York-Cuba section of the New York-Colon cable of the South American Telegraph Company, which was broken off Cape Hatteras some time ago. The water at this point is about two miles deep and much difficulty has been experienced in grappling for the broken ends. Owing to this fact the cable steamer "Cambria," a much larger boat than the Relay, belonging to the Telegraph Construction and Maintenance Company, left London July 18 for the scene of the trouble to assist in repairing the break.

The Telegraph Construction and Maintenance Company's cable steamer, "Colonia," which is engaged in the work of laying the cable for the Commercial Cable Company's line of communication between New York and Waterville, Ireland, by way of St. John's, Newfoundland, landed the shore end of the St. John's-Flemish Cap section July 12, and by July 14 had paid out 276 miles and buoyed the end of the cable. July 21 the Colonia commenced laying the St. John's-New York section, and although encountering foggy weather continued steadily to pay out the cable at the rate of 200 miles per day, she arrived off the hut at Manhattan Beach July 28. She will next lay the shore end and pay out toward the sea end which she buoyed 110 miles from New York. After the connection is made on the Flemish Cap with the old cable to Waterville, Ireland, by the steamer "Mackay-Bennett," communication will be direct from New York to Waterville, automatic repeaters being installed at St. John's. The Colonia will then pick up the section of the cable between the Flemish Cap and Canso, Nova Scotia, which will be cut out of service by the new route.

The Senate of Argentine has agreed to the proposal of the Western Telegraph Company for the construction of a direct cable between Europe and Argentine by way of Ascension Island. This proposal is in reality directed, a Government authority declares, against the efforts of Germany to establish a cable to South America. Nevertheless, the authority states that public opinion in Argentine is by no means agreed with the arrangement, by means of which the Argentine Government grants a monopoly to the company in question, and thereby binds its hands for the future. Thus the Prensa of July 1 remarked that "the monopoly clause in the contract proposed by the Western Telegraph Company must be excluded. The same is unnecessary, as the times are passed when the Argentine Republic must be induced to draw upon foreign capital by the granting of monopolies." According to an announcement made by another Argentine newspaper, the German South American Telegraph Company, with the support of the German Government, has lodged a protest against the proposal.

On July 1 the modifications and revisions made in the international telegraph service regulations by the Lisbon Conference of 1908, went into effect. The changes made are as follows:

Artificial words or groups of letters or trade-marks must not contain the accented letters ä, á, å, é, ñ, ö, ü.

In code words or trade-marks the letters ae, aa, ao, oe, ue are to be counted as two letters each.

In artificial code words or trade-marks the letters ch are to be counted as two letters.

Codes may be submitted to certain telegraph administrations designated, for the purpose of obtaining an assurance that the words contained in them are in accordance with the regulations. The administrations designated so far are the British, French, and German.

In cipher language the mixing of letters and figures in one group is not admitted.

Combinations or alterations of words concealed by reversing the order of the letters or syllables are not admitted.

Municipal Electricians.

The fourteenth annual meeting of the International Association of Municipal Electricians will occur at Atlantic City, N. J., September 14, 15, and 16. Mr. A. C. Farrand, of Atlantic City, chairman of the committee of arrangements, is preparing an interesting program for the instruction and entertainment of those in attendance. Mr. J. B. Yeakle, of Baltimore, is president of the Association, and Mr. Frank P. Foster, of Corning, N. Y., who is secretary, will give further needed information.

Radio-Telegraphy.

The Pan-American Congress, which meets at Buenos Ayres, in July, 1910, will consider means for providing international regulation of wireless telegraphy.

Some of the members of the Boston police force, who are mechanically and electrically inclined, have constructed a wireless receiving apparatus and installed it on the roof of the police headquarters in that city.

Paradoxical as it may seem, it is a fact, nevertheless, that a lineman working for a wireless telegraph company was killed a few days since by falling from the top of a telegraph pole. The company only had one pole and that was the one from which he fell.

The entire Italian navy has been equipped with wireless apparatus, and thirty-seven ships of the Italian mercantile marine have stations in daily operation. Eighteen land stations have been established in that country for communication with the ships.

A novel use of wireless was made recently by a New York woman who was returning from an extended European trip. Wishing to have everything in readiness for her home-coming she sent a wireless message to the gas company, instructing it to turn on the gas in her apartment.

Patents Nos. 926,933, for wireless telegraphy, 926,934, for a wireless telegraph tuning device, 926,935, for a wireless telegraph transmitter, 926,936, for space telegraphy, and 926,937, for space telephony have been taken out by Lee De Forest, of New York.

Patents Nos. 926,900 and 927,433, for transmitting apparatus for wireless telegraphy, have been granted to Harry Shoemaker, of Jersey City, N. J.

It is estimated that there are now over 5,000 wireless telegraph operators employed in this branch of the service. The number is increasing daily, and it is thought that within the next five years fully 25,000 first-class operators will be required to take care of the wireless interests of the Mercantile Marine and the shore stations.

The main station of the wireless telegraph system connecting the Canary Islands with Europe, South America and Africa, mention of which has been made previously in these columns, will be located at Santa Cruz de Teneriffe. From there communication will be established with all the adjacent islands; with Cadiz, and thence to Paris; with Casa Blanca, and thence to Paris direct; with Pernambuco, and thence to Buenos Ayres; and with a station in Senegambia, probably Dakar, and thence to Cape Town. The work is to be undertaken by two companies, one of them being registered in Paris with a capital of $250,000, and the other in Madrid with a capital of $200,000.

A patent, No. 927,314, for a current indicator or detector, has been awarded to Clifford D. Babcock, of New York. A Hertzian wave detector depends for its action on the property of a chemical salt which changes its conductivity as its temperature arises until a critical temperature is reached, and then increases its conductivity at a different rate for further changes of temperature.

The United States Government has obtained permission from Catholina Lambert, the silk manufacturer, to establish a wireless station on the observatory above his picturesque home on Garret Mountain, New Jersey. This will be the highest of a number of stations to be established near the Atlantic coast. It is about 1,000 feet above sea level, and in a direct line about fourteen miles from the ocean.

In an article published recently, Mr. J. A. Fleming suggests a novel method of utilizing the entire radiation from an inductively coupled antenna. It is a well known fact that when a radiating antenna is coupled inductively and not very loosely to a spark condenser circuit, a compound radiation which may be resolved into waves of two-wave lengths is radiated from it. Such a system can be made more efficient if we absorb at the receiving end both of the waves radiated simultaneously from the transmitter. This can be done by employing two receiving sets coupled independently to one receiving antenna, one of these syntonized to one of the wave-lengths of the inductively coupled transmitting antenna and the other one to the second wave-length. The oscillation detectors employed must be of a type suitable for telephonic reception, such, for instance, as a rectifying contact-detector, a glow lamp detector, or a magnetic detector. Associated with these two receiving sets a double-wound telephone should be employed, one circuit of which is in connection with the detector of one receiving set and the other with that of the other. In this manner the telephone would be simultaneously affected by the two trains of waves of different wave-lengths emitted by the transmitting antenna, each train affecting its own receiving set attached to the receiving antenna.

From reports just received remarkable results are being obtained abroad with the Telefunken Company's new "singing" or "quenched spark" system recently described in these columns. During the preliminary tests upon the completion of the twenty-kilowatt station at Pola on the Adriatic, which is one of three similar stations now being built for the Austrian Government, it was found that the signals were so strong at both the Norddeich (on the North Sea coast) and the Copenhagen station that perfect coherer reception—i. e., signals printed on tape—was possible at both stations. It was also possible to copy everything in Berlin with an ordinary portable set with a twenty-five-meter

mast. Even better results were obtained with an eight-kilowatt set installed on the Austrian battleship "Erzherzog Karl." The tests with this set were made with the vessel at anchor at Pola and in this case everything sent was copied at Kiel. Very interesting results showing the immunity from atmospheric interference with this system were also obtained with three vessels of the Black Sea fleet. These vessels were equipped with two-kilowatt sets, and while one vessel remained at anchor at Sebastopol the other two steamed out to sea. The transmitters of all three sets were adjusted for the same wave-length, but for different tones, and although atmospheric—which is always troublesome on the Black Sea—was particularly strong, perfect communication both ways was maintained up to a distance of 600 kilometers. It was also possible to receive two messages simultaneously from the moving vessels on the stationary one at Sebastopol and over the entire range and on one and the same receiver and detector, but with two differently adjusted telephone receivers. In this connection it is also interesting to note the remarkable fact that the signals from an old type fifteen-kilowatt station near Sebastopol, which was also used in this test, became absolutely unintelligible on board the moving vessels on account of atmospheric long before the extreme effective range of the new type two-kilowatt sets had been reached.

A New Invention for Measuring Small Currents.

According to a Paris exchange Ricardo Arno has invented a galvanometer for measuring feeble currents which is more sensitive than that devised by Dudell. M. Arno had observed that when an iron or steel disk or cylinder is placed in a rotary magnetic field and subjected at the same time to the action of periodic currents, even of feeble intensity, a considerable variation in the hysteresis is produced. This action is the greater the higher the frequency of the currents, other conditions being equal. Therefore, with the high-frequency telephone currents or those produced by Hertzian waves the variation is still noticeable, even though the currents be very feeble. In order to utilize this phenomenon, Arno employs two magnetic fields rotating in opposite directions, of the same intensity and frequency, each acting on a hollow steel cylinder. The two cylinders are mounted on a common vertical axis, constituting the movable part of the apparatus. One of the two cylinders may be subjected at the same time to the action of a secondary magnetic field produced by telephone or Hertzian wave currents traversing a coil surrounding the cylinder, and having the same axis as the latter. Under these conditions the hysteresis of the cylinder undergoes a certain variation, and the movable portion, which is normally in equilibrium, begins to deflect. The coil used for measuring telephone currents has a resistance approximately equal to that of a telephone receiver. If the currents of Hertzian waves employed in wireless telegraphy are to be measured, a coil is employed with a sufficient number of turns to present an impedance such that the entire system and apparatus at the receiving station are in resonance with those at the generating station. The apparatus is so sensitive that a considerable deflection will be produced by speaking into a telephone even if a resistance of 100,000 ohms is connected in the circuit.

Old Time and Military Telegraphers.

Just as we are going to press the committee of arrangements for the joint reunion of the Old Time and Military Telegraphers, at Pittsburg, August 17, 18 and 19, announce the following events on the program in addition to those given on page 546 of this issue:

Tuesday evening, theatre party; Wednesday morning, automobile tour of parks and city; Wednesday evening, dance and lunch at Country Club; Thursday afternoon, National League baseball game. The following rates obtain at the various hotels:

FORT PITT HOTEL (European).

Room, no bath, for one, $1.50 per day.
Room, no bath, for two, $2.00 per day.
Room and bath, for one, $2.00 per day, and up.
Room and bath, for two, $3.00 perday, and up.

HOTEL SCHENLEY (European).

Room, no bath, for one, $2.00 per day.
Room, no bath, for two, $2.50 per day.
Room and bath, for one, $3.00 per day.
Room and bath, for two, $3.50 per day, and up.

HOTEL HENRY (European).

Room, no bath, for one, $1.50 per day.
Room, no bath, for two, $2.00 per day.
Room and bath, for one, $2.50 per day, and up.
Room and bath, for two, $3.00 per day, and up.

SEVENTH AVENUE HOTEL (European).

Room, no bath, for one, $1.00 to $2.00 per day.
Room, no bath, for two, $1.00 to $1.50 per day, each.
Room and bath, for one, $2.00 to $3.00 per day.
Room and bath, for two, $1.50 to $2.50 per day, each.

SEVENTH AVENUE HOTEL (American).

Room, no bath, for one, $2.50 to $3.50 per day.
Room, no bath, for two, $2.50 to $3.00 per day, each.
Room and bath, for one, $3.00 to $4.00 per day.
Room and bath, for two, 3.00 to $3.50 per day, each.

MONONGAHELA HOUSE.

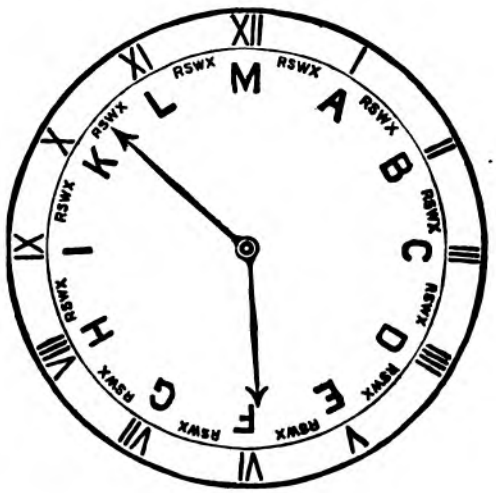
Room, no bath, for one, $1.50 per day.
Room, no bath, for two, $1.00 per day, each.
Room and bath, for one, $2.50 per day.
Room and bath, for two, $2.00 per day, each.

Those desiring to reserve rooms in advance should communicate at once with the chairman of the Committee on Hotels, Mr. E. T. Whiter, superintendent of Pennsylvania Lines, Pittsburg. Secretary F. J. Scherrer states that as no concessions can be obtained from any of the railway companies each member will have to arrange for his own transportation.

Message Filing Time.

The recent action of Massachusetts in passing a law requiring telegraph companies to place the time of filing on all messages and the fact that this is the third state to pass such a law, together with the decision of the telegraph companies not to contest the Massachusetts law, makes of interest the system used in England for transmitting the filing time on messages.

In many quarters the actions of the Legislatures, in the matter of time filed, are regarded as impositions on the telegraph companies, but they are sustained by the practice of Europe and some cable companies. The code time was originally a clumsy device to secure turn of transmission and it seems remarkable that the simpler and more reasonable and efficient device of numbers was not thought of. Evidently the idea of time so fastened itself in the minds of the early telegraph officials that they could not get away from it. It was found later that the time did not render the same service as numbers. A message bearing only a time might be lost and its loss remain undiscovered. The loss of a numbered message is almost certain of discovery. The European telegram is frequently loaded down with both number and time.



The accompanying diagram, showing an ordinary clock dial, illustrates the formation of the code used by the English government service.

The hours from one o'clock to twelve o'clock —both night and day—are denoted by the first twelve letters of the alphabet (J being omitted), thus:

Letter		Time, p.m. or a.m.	Letter		Time, p.m. or a.m.
A	denotes.....	1	G	denotes.....	7
B	"	2	H	"	8
C	"	3	I	"	9
D	"	4	K	"	10
E	"	5	L	"	11
F	"	6	M	"	12

The fact that M is the initial letter of midnight and midday will cause one to remember that M is the code letter for twelve o'clock.

The twelve letters stand not only for the twelve hours but for the twelve periods of five minutes each, of which each hour is composed. Thus, A stands for one o'clock and for one period of five minutes; B stands for two o'clock, and for ten minutes; F stands for six o'clock and for thirty minutes.

If the letters be used singly they show the hours only. If they be used in combination they show the hours, and some number of periods of five in addition to the hour.

Thus, M by itself denotes 12h., and M A denotes 12h. 5m.; A by itself denotes 1, and A A denotes 1h. 5m.; C by itself denotes 3h., and C H, 3h. 40m.

In order to denote the four intermediate minutes in every complete period of five minutes, the letters R, S, W, X, are employed, R denoting the first, S the second, W the third and X the fourth minute after each hour or after each complete period of five minutes.

Thus, M R means 12h. 1m., or one minute past twelve; M S means 12h. 2m., or two minutes past twelve; M W means 12h. 3m., or three minutes past twelve; and M X means 12h. 4m., or four minutes past twelve. So again M A R means 12h. 6m. or six minutes past twelve; F F S means 6h. 32m., or thirty-two minutes past 6; and so on.

At 1 p. m. exactly the code becomes A, and it remains A until a complete minute has expired; that is, until one minute past one, when it becomes A R.

The cable companies use the twenty-four-hour system instead of the twelve-hour clock, as used in England. Owing to the great difference in time the system used by the cable companies would most likely have to be adopted in this country. In this system the hours from noon to midnight are designated by other letters, as follows:

N	denotes.... 1 p. m.	T	denotes....	7 p. m.	
O	" .... 2 "	V	"	8 "	
P	" .... 3 "	W	"	9 "	
Q	" .... 4 "	X	"	10 "	
R	" .... 5 "	Y	"	11 "	
S	" .... 6 "	Z	"	Midnight	

The letters designating the hours before noon, five-minute and one-minute periods in this system remain the same as in the English code, thus N A R would mean 1.06 p. m., or V E X would mean 8.29 p. m. This system is used generally by cable companies throughout the world, though the filing time does not appear on the messages as delivered to customers.

At the last International Telegraph Conference the Belgian administration advanced a proposal to make the transmission of the time filed optional. It supported its proposal by the statement that telegrams from lines, not adhering to the International Convention, do not trasmit times filed and that the public does not complain, although

the number of telegrams coming from the lines is considerable. The administration deduced from this fact that correspondents as a rule do not need the time filed, and that there would be no inconvenience in ceasing to transmit it.

That is the experience of the companies and administrations who from the beginning have used consecutive numbers to denote the priority of telegrams and to protect them in their transmission. The consecutive number is necessary to the existence of the message, the time filed is information which should be paid for like any other part of the message.

The Robert W. Martin Fund.

In our July 16 issue we published an appeal written by Walter P. Phillips for financial assistance to make comfortable, if possible, the last days of Robert W. Martin, who in years gone by was one of the well-known figures in telegraph and newspaper circles in New York, but who for the past three years has been confined to his house as a result of two paralytic strokes. We announced also that a committee to take charge of the remittances on account of the Martin fund had been selected, consisting of Charles W. Price, of the Electrical Review, and John B. Taltavall, of Telegraph Age. To this committee has since been added the names of T. Comerford Martin, of the Electrical World, and T. A. McCammon and Fred Catlin of the Western Union Telegraph Company. All contributions should be addressed to J. B. Taltavall, 253 Broadway, N. Y.

The first to respond to Mr. Phillips' appeal on behalf of his old friend and associate, Robert W. Martin, was Albert L. Suesman, of Oak Bluffs, Mass., formerly general western manager of The United Press (No. 1), with headquarters at Chicago.

Mr. Suesman writes the following:

"In response to Mr. Phillips' appeal for aid for our old friend, Bob Martin, I take pleasure in sending the enclosed $5.00 and trust that it will be the forerunner of many more remittances much larger. In forwarding this offering to our afflicted comrade, please convey to him my heartfelt sympathy and regard."

Mr. William Maver, Jr., of New York, says:

"I have just finished reading about the illness of R. W. Martin in the article by Mr. Phillips. I remember Mr. Martin very well as one of the old boys of 145 and 195 Broadway, and am sorry to learn that he has been so seriously afflicted. I had no idea until I read this article that he was any older than myself, whereas it appears he is nearly three-score and ten. I enclose a contribution of $5.00 to the fund and trust sufficient will be raised to tide him and his family over their difficulties."

Mr. J. B. Yeakle, of Baltimore, Md., sends the following:

"Kindly drop this $5.00 in the fund for the relief of Bob Martin."

Mr. J. W. Beckwith, of Owosso, Mich., writes: "Herewith please find $1.00, which is given with a heart full of sympathy for Mr. Martin and family. Although I never have had the pleasure of meeting Mr. Martin, yet I feel that I should be uncharitable should I pass unnoticed an opportunity to assist one in distress."

Mr. G. H. Groce, superintendent of telegraph of the Illinois Central Railroad Company, Chicago, sent the following letter:

"I take pleasure in forwarding herewith check for $10 to be applied to the R. W. Martin fund."

Remittances received to date are as follows: A. L. Suesman, Oak Bluffs, Mass., $5.00; William Maver, Jr., New York, $5.00; J. B. Yeakle, Baltimore, $5.00; J. W. Beckwith, Owosso, Mich., $1.00; G. H. Groce, Chicago, $10.00; M. M. Davis, New York, $2.00; G. J. Wittle, Buffalo, N. Y., $5.00; L. H. Moore, London, England, $10.00; Mary J. Macaulay, Lockport, N. Y., $5.00; Mary Agnes Byrne, Pittsburg, Pa., $1.00. Total, $49.00.

The Miniature Sounder at the Carnegie "73" Dinner.

The miniature telegraph sounder presented to each of the guests at the "73" dinner tendered last Fall by telegraphers to Mr. Carnegie, in New York, in honor of his seventy-third birthday, aroused much enthusiasm. The device was regarded as an eminently fitting souvenir of an occasion which drew together in the spirit of auld lang syne so many distinguished members of the craft, past and present, especially so as it was a perfect piece of mechanism and fully capable of performing the work required of a like instrument of normal size. The little affair, which is beautifully finished, was highly prized by the recipients at the dinner as being emblematic of the profession. Indeed, such was the interest shown that numerous inquiries have since reached Telegraph Age requesting to know if it was possible to procure duplicates of the same.

In recognition of the sentiment that has prompted these inquiries, the utility of the device itself, and its appropriateness as a valuable gift to and by a telegrapher, Telegraph Age has made arrangements by which it can fill all orders for the same. The key alone, the smallest ever manufactured and which is the same as the one presented at the memorial reunion of the Old Time and Military Telegraphers in New York in 1905, will be sent in a box to any address, carrying charges prepaid, on receipt of $1.50; the sounder at $2.50, or both at $4.00. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York. An advertisement of this key and sounder appears elsewhere in this issue.

Mr. W. P. Cline, superintendent of telegraph of the Atlantic Coast Line, in renewing his subscription says: "Enclosed is my check for two dollars for renewal of my subscription to Telegraph Age, the indispensable. Long may it wave."

The Military Telegrapher in the Civil War.

PART XXIV.

Mr. Frank S. Van Valkenburg, at present living at Saltillo, Mexico, served his country for five years, first enlisting in the army in 1861 and afterward joining the Military Telegraph Corps, with which organization he was connected until 1866. In the pursuit of his duties he had many interesting experiences, as well as some narrow escapes from capture by the Confederates. In writing to Colonel William R. Plum, historian of the United States Military Telegraph Corps in 1878, he tells the following graphic and historical story of some of his experiences while serving with that body:

"In March, 1861, I was employed by the Western Union Telegraph Company at St. Louis, Mo. In April, 1861, I left St. Louis and went to Terre Haute, Ind., and on the twenty-fourth day of April, 1861, enlisted as a private in Captain Hagar's company, which was mustered into the United States service as Company F, Fourteenth Indiana Volunteer Infantry, when I was promoted to be a sergeant of said company. In May we were ordered to Clarksburg, Va., where we joined General McClellan's army and participated in the battle of Rich Mountain. Shortly after I received a telegram from Major George H. Smith, of St. Louis, Mo. (who had been commissioned by General Fremont to organize a battalion of telegraph engineers) to come to St. Louis and take a position under him. Receiving the consent of our colonel and General Reynolds, commanding the brigade, I proceeded to St. Louis and was assigned to duty as third lieutenant, Company A, telegraph engineers, who were then constructing a line of telegraph from St. Louis to Pilot Knob, Mo., over the Iron Mountain Railroad. After completing this line we proceeded to St. Louis, where we remained in camp, organizing and drilling, until General Fremont was ready to advance from Jefferson City, Mo. Our corps joined his army at Jefferson City and, proceeding with the advance, repaired and reconstructed the telegraph lines where necessary. We remained with General Fremont's army until he was relieved by General Hunter, when I was ordered to move the corps to Sedalia, Mo., and go into camp for drill and instruction, where I remained in command for a few weeks.

"In the winter of 1861 General Halleck, having relieved General Hunter in command of the army in Missouri, ordered us into camp at St. Louis, and not being able to find any warrant in the army regulations for such an organization as ours, directed that we should be mustered out of the service as a telegraph engineer corps, which was done. It was about this time that General Stager arrived in St. Louis and placed Major Smith in charge of the military telegraph in that department and assigned him to duty as a quartermaster. Our next move was the repairing of the line and opening of offices on the North Missouri Railroad, from St. Louis to Macon City. Early in the spring of 1862 we were ordered to Paducah, Ky., to construct a telegraph line from Smithland, Ky., to Fort Henry, working from both points, Captain Hewitt and party working from Smithland and myself with another party working from Fort Henry. Before completing this line this territory was decided to be in Colonel J. J. S. Wilson's department, who directed Captain J. C. Van Duzer to take charge of the construction and working of this line.

"In the spring of 1863, while visiting my parents, I received a telegram from Colonel Van Duzer at Nashville, Tenn., to come to him at once. I started for Nashville the same day, and arriving there, was told by Colonel Van Duzer that General Rosecrans, commanding that army, had called upon him for two operators to go inside the Confederate lines, tap their wires and take whatever despatches of importance might be passing over them. Colonel Van Duzer designated for this service P. Mularkey and myself. We were directed to report to Colonel William E. Truesdell, chief of General Rosecrans's scouts, for further orders. Calling on Colonel Truesdell, he informed us that he wished us to go through the mountains of Kentucky and east Tennessee to a point near Knoxville, on the line of the Knoxville and Chattanooga Railroad, and there tap the Confederate wires and try to ascertain if General Bragg, in command of the Confederate forces in front of General Rosecrans at Murfreesboro, Tenn., was weakening his force to reinforce General Johnson, in command of the Confederate forces at Jackson, Miss., who was endeavoring to draw General Grant from the siege of Vicksburg. After this work was accomplished we were to endeavor to burn the railroad bridge across the Tennessee River at London, Tenn. Colonel Truesdell assigned to duty with us as guides four citizens from the mountain districts of east Tennessee. Dressed in butternut uniform, each armed with a revolver, with a small quantity of line and relay wire, a set of pulley blocks, two Caton pocket relays and two quarts of alcohol (with which to fire the bridge), we left Nashville the next morning, arriving at Lebanon, Ky., that evening. Here we were arrested by a provost marshal's guard as Confederate spies. On being taken before General Manson, commanding the district, we presented our passports from General Rosecrans and he immediately ordered our release and furnished us with horses to continue our journey.

"Starting on horseback early the next morning, we arrived that evening at Liberty, Ky., where we decided to remain during the night. After supper, while sitting in our room, we were startled by the ringing of the bell on the hotel, and on looking from the window we saw people gathering from all directions. Shortly after, hearing a rap at the door of our room, I opened it, when in filed twenty-five or thirty people armed with rifles, shot guns, revolvers and scythes. The leader informed me that they were a committee appointed by the citizens of the place to ascertain who we were and where we were going. They also informed us that they were

Union men, and as we were dressed in the butternut uniform they proposed to ascertain the object of our visit to that section of the country. Looking through the crowd I saw one man in the undress uniform of an officer of the United States army. Calling him aside and questioning him, he informed me that he was a captain of loyal Kentucky infantry at home on sick leave. Feeling satisfied of this, I gave him our passports from General Rosecrans, requesting him to satisfy the committee that we were all right. He promised to do so and, turning to the party who were regarding us with menacing looks, he said: 'Boys, these fellows are all right. They are Union men and are of our stripe.' This apparently satisfied them, for the landlord of the hotel, who appeared to be the leader of the party, turned and said: 'Sorry we have troubled you, boys; but you see you were strangers in these parts, and being dressed in butternut uniform, we thought you were a scouting party of Confederates and we don't propose to allow any of those critters around these parts, but the captain says it's all right, so if you will just come downstairs, I have some peach and honey that will make us all think more of each other.' We went with him and did ample justice to his hospitality.

"Leaving Liberty the next morning at daylight, we reached Somerset, Ky., that evening. Early the next morning General Carter, commanding the post, supplied us with fresh horses and we crossed the Cumberland River into Southern territory. From this point we avoided the traveled highways, following the mountain paths. That night we reached Jack Harris's house in the mountains, where we remained overnight. The next morning, leaving our horses with Jack Harris, we continued our journey on foot, and that night slept in a hut on the top of Brimstone Mountain. The next morning we descended Brimstone Mountain and, taking to the woods and fields, we reached a point on the Clench River near Kingston. Here our guides left us and went to the houses of Unionists near by, returning with provisions and the information that the country was full of straggling Confederate soldiers of Colonel Flood's Seventh Florida Cavalry, who had been defeated in a fight on the Cumberland River. We remained here until dark, then swimming the Clench River, we proceeded to Parson Howell's house on the banks of the Tennessee River near London. We remained in the woods near this house the next day, being supplied with provisions by the parson's daughters.

"That night our host's son guided us through the woods to a point near John West's house, opposite London, where we remained all day. About ten o'clock in the evening we proceeded through the woods to a point on the Knoxville and Chattanooga Railroad between Lenoir and London, about fifteen miles from Knoxville, where the railroad runs through a cut close to the banks of the Tennessee River. We decided to commence operations here. The wire ran over the top of a bluff between the river and the railroad. Going to the top of this bluff, we cut the wire at the pole, making a short hoop connection and placed pieces of leather in the point to break the circuit, then placing the wire on the insulator. Again we ran a fine relay wire down the back of the pole to the ground and through the bushes down the side of the bluff to about midway between the railroad and river, and connected our pocket instruments in circuit. Business on the line had closed for the night, but early the next morning we heard Knoxville calling Chattanooga, and not being able to raise him he commenced testing for a heavy escape, which he located between Lenoir and London. This escape was caused by the dew falling on our wires lying on the bushes. Before he could start out a repairer the sun had dried the dew and the line was clear.

"We laid at this point all day, copying off whatever passed over the wires, obtaining nothing of importance. That night the dew falling again caused a heavy escape. Knoxville located it at the same point and ordered out the repairer from London on the first train in the morning. In the morning as the train passed I lay concealed on the bluff and saw the repairer with his tools pass by on the rear end of the train. During the day we discovered a ferry that crossed the Tennessee River, with the landing directly beneath us, and from this time on squads of Confederate troops were constantly crossing to the opposite shore. This cut us off from water. In the woods on the opposite side of the track a party of Confederate soldiers were cutting timber for a block house at London.

"The next morning and every morning after during our stay at this point Knoxville located an escape between London and Lenoir and ordered out the London repairer. The repairer reported that he would go out afoot and examine every pole. I told our guides that he was coming afoot when one of them quietly took the rope from the pulley block, made a slip noose in one end and fastened a large stone to the other. On asking him what he was doing, he replied: 'If that fellow comes up here he will see us; if we let him go the Johnnies will have us and inside of twenty-four hours we will have been tried by a drumhead court martial and the whole six of us sentenced to stretch hemp. Now, it is better, in my opinion, that he should stretch hemp than we six, so if he comes up here I'll put this noose around his neck and the first chance we get we will jump him into the river.' In the course of an hour from my position on the bluff I saw the repairer walking along the track, examining each pole as he came. When he reached the bluff he stood on the track and looked at the wires attentively for a few minutes and then went on to Lenoir and reported to Knoxville that the wire was all clear.

"Several days after this we heard an order going over the wires signed by General Pillow to the commanders at Lenoir and London, directing them to station men between those two points and search the woods to the river for Yankee spies. This was about three o'clock in the afternoon. We immediately disconnected our instruments, connected the

wire through, crossed the railroad track and started through the woods, hoping to get outside of the line that we knew would be formed to capture us. We barely succeeded in this. About seven o'clock that evening we reached John West's house and decided to lay concealed in the woods until the excitement should subside.

"The next day John West brought to us in the woods a man who he said came to him with letters from Union men in Philadelphia, Tenn., stating that he was a Union man and was desirous of reaching the Union lines and requested West to introduce him to any party of Union men that he might know of going out. West asked us if we were willing to take him with us. One of our guides was well acquainted in Philadelphia, and questioning the man closely became confident that he was not what he represented himself to be. After consulting together, it was agreed that we should keep him with us for the present and that one of our party, whose home was in London, should go there and ascertain what he could about the stranger. The next night on his return from London he stated that this man had been a beef contractor in the Confederate army. Our guides were for disposing of him at once, but before we had decided what to do with him it was discovered that he had quietly slipped away in the darkness. Knowing that it would not be safe to remain here a moment longer, we took to the woods and at daylight reached Parson Howell's house. That day the Parson's daughters rode through the surrounding country, ostensibly calling on their friends, but in reality for the purpose of finding out what arrangements were being made by the Confederates for our capture. That evening they returned and reported that scouting parties were searching the houses and that pickets had been placed along the bank of the Clench River and that Champ Ferguson with his band of guerrillas was searching the woods for us. We decided to try to pass the Clench River and reach the mountains. That night about ten o'clock we started, and reaching the banks of the river we saw the Rebel pickets posted to intercept us. Waiting until their backs were turned we quietly slipped past and swam the river. On leaving the river bank we were greeted with a volley of musketry from a squad of cavalry. We immediately took to the woods, the cavalry following the road, hoping to head us off. They passed and repassed us several times between Clench River and Waldon's Ridge, we, lying concealed in the brush until they were out of hearing. We crossed Waldon's Ridge into the valley, where, just before daylight we were surprised by a squad of Champ Ferguson's guerrillas, with whom we exchanged shots. We kept steadily on all that day, confining ourselves to the woods and mountain paths, and that night reached a place of comparative safety near the foot of Brimstone Mountain, having walked fifty-four miles in twenty-four hours, crossing Waldon's Ridge, Brushy Mountain and Brimstone Mountain. Mularkey and myself had worn the soles off our boots and were now barefoot.

"After resting a few hours, we again started, and the next day found us at Jack Harris's house, where we had left our horses. Remaining here over night, we started the next morning on horseback, riding all that day. The next morning about ten o'clock we reached our pickets on the bank of the Cumberland River, having been inside of the Confederate lines thirty-three days. The third day after we arrived in Nashville, completely worn out and ill from fatigue and exposure. Here we learned that the Confederate authorities had been apprised of our visit and its object almost immediately upon our arrival in the vicinity of Knoxville and that this information had been furnished them by spies who drew pay both from the Confederate and Union armies. Colonel Truesdell afterwards informed me that after he knew the Confederates were aware that we were inside of their lines he had given up all hope of our returning, and indeed had it not been for the aid rendered us by the Union people in that section we would have been added to the list of Champ Ferguson's victims.

"Just before the close of the war at Nashville I saw hung as a Confederate spy the person who came to us at John West's.

"In the fall of 1863 I was appointed chief operator of the Nashville office. In the spring of 1864 I was assigned to duty as cipher operator with General Sherman and accompanied him on the Atlanta campaign. In the winter of 1864 I was appointed superintendent of the United States Military Telegraph Corps for the District of Middle Tennessee. This district embraced the lines over the Nashville and Johnsonville, Nashville and Decatur, Nashville and Chattanooga and the Memphis and Charleston railroads. In 1865 I accompanied General Thomas in his campaign against General Hood, and resigned my position in the military service in the spring of 1866."

For breaking certain telegraph wires with the grappling hook of his balloon, an English aeronaut has been held for sixteen shillings damage. This comes under the head of adjudicating the question of trespass by air, a matter which in these days of high-tension power transmission and of aeroplanes is becoming one of no small importance.

This is the third case of the kind which has arisen within the last few months. One community has used this as an argument for placing the wires underground. If they place the wires underground what will they do with the trees, houses and other structures which are the source of so much trouble to balloonists, airships, etc.?

Telegraph Age.

Entered as second-class matter at the New York, N. Y., Post Office.

Published on the 1st and 16th of every month.

TERMS OF SUBSCRIPTION.

One Copy, One Year, in the United States, Mexico, Cuba, Porto Rico and the Philippine Islands . $2.00
Canada 2.50
Other Foreign Countries 3.00

ADDRESS ALL COMMUNICATIONS TO
J. B. TALTAVALL, - Editor and Publisher,
253 BROADWAY, NEW YORK.
H. E. DUNHAM, Associate Editor.

W. N. GATES, Special Adv. Agent, Garfield Bldg., Cleveland, O.

CABLE ADDRESS: "Telegage," New York.
Telephone: 6657 Barclay

CHANGES OF ADDRESS.—In ordering a change of address the old as well as the new address must be given.

REMITTANCES to Telegraph Age should be made invariably by draft on New York, postal or express money-order, and never by cash loosely enclosed in an envelope. By the latter method money is liable to be lost, and if so remitted is at the risk of the sender.

AUGUST 1, 1909.

The Book Department of Telegraph Age has always been a prominent and carefully conducted feature of this journal. The desire has been and is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished; promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientage. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same.

Organization.

The paper found elsewhere in this issue upon "Efficiency of Office Organization," by Mr. J. B. Sheldon, superintendent of telegraph of the Union Pacific Railway, is a valuable contribution to the literature upon this subject, and one which may be studied to advantage by anyone connected in an official capacity with a railroad or telegraph company. Unfortunately this is a question, the importance of which is not always realized by those having the oversight of large and widespread interests, and as a result there is a needless loss in the efficiency of the force working under their direction. The methods employed by Mr. Sheldon in his department seem to us to be remarkably well planned and applicable to existing conditions in any public utility corporation. His method of filing papers in envelopes properly marked and indexed as well as his card index system for keeping a record of all employes which can be referred to instantly when needed, is well adapted to meet the conditions existing in all railroad and telegraph companies. We have personally seen cases where the force of an entire office has spent an hour or more looking for a paper, which, if taken care of by Mr. Sheldon's method, could have been located by a clerk in less than a minute.

Another strong point in the organization outlined is the provision of a chief clerk to take charge of the details of the daily routine in connection with the regular operation of the department. Many men holding important executive positions burden themselves with the entire mass of detail incident upon the execution of the work in their charge and do not have time to investigate any improvement which may be made in the carrying out of that work. Hundreds of failures of executive officials to make good, we believe, may be traced directly to this cause. As Mr. Sheldon very aptly states in his conclusion, however, the success of any organization depends largely upon the degree of excellence in which it is maintained. To insure success then those in charge must devote their time and energy to see that the entire system operates smoothly and efficiently in every respect. One weak link in their organization may weaken and eventually ruin the whole structure.

The Value of Telegraph Age.

That the value of Telegraph Age to the profession is appreciated by many is shown by the numerous letters which we receive commending the results of our labors to produce a journal that will be both interesting and valuable to everyone connected in any way with the telegraphic industry. In one of these letters which we received recently a subscriber in renewing his subscription for another year stated that he had obtained more information of value to him from our paper during the previous twelve months than he had secured from a correspondence school course which cost him $50. That its worth is recognized in official telegraph circles is indicated by the fact that we have subscribers in the telegraph administrations of every country in the world from whom we receive numerous words of commendation. We feel as do our thousands of subscribers that no one connected with the telegraphic profession can afford to be without their official paper and bespeak the assistance of our readers to help us in our efforts to make every one identified with the service realize the great value of Telegraph Age to him.

Taxes on Corporations.

Many telegraph officials are inclined to believe that the companies they represent are singled out as special objects of taxation by State, county, town and municipal authorities, as they have to pay local franchise taxes and State franchise taxes; taxes on property in the State and taxes on property in other States; a tax before they can set a pole, an annual tax on the pole after it is set, a tax on the wire on the pole, and taxes

in some States on the gross business which they do in the United States. That they are not alone in this distinction, however, is shown by a recent editorial in the Railway Age Gazette, which says in part: "It has been said with truth that, taking the country through, there is hardly a tax device invented by wit of man that has not been tried on the railways, and many of them remain in one State or another. There are taxes direct, and taxes indirect; taxes on plant, taxes on equipment, taxes on traffic; taxes on stock and taxes on bonds and other debt; taxes on gross income, taxes on net income; State taxes and local taxes; taxes which the State collects and holds; other taxes which the State collects and distributes to localities, and taxes which the localities collect and hold. There is no system, no consistency, no theory even, except as that theory may here and there be crudely localized to a State. Sometimes we find the railway treated on the basis of a 'going' and prosperous concern whether it is so or not, and sometimes as though it were a mere plant in the nature of a land value—that is to say, by a kind of market realty value. And, again, we find that vague and indefinite factor expressed by 'franchise' separated as a tax objective; and, yet, again, such a system adopted, based on market value of the securities of a railway corporation, that the franchise is taxed as a component in the appraisal."

The Boston Wire Department.

The report of the Boston Wire Department for the year 1908 which has just been issued, contains much interesting information in regard to the removal of wires from the streets of that city. By virtue of a municipal ordinance passed in 1898 this department has power to order to be placed underground each year all wires on two miles of the city streets. During the past year over 660 miles of overhead wires distributed among eighteen companies, were removed, though only 46 miles of this amount was upon the streets ordered cleared by the department, the remainder being removed voluntarily by the various companies. This work has been carried out under the efficient supervision of Mr. James E. Cole, Commissioner of Wires. From these figures it is evident that the work of the department is being pursued in entire harmony with all of the companies concerned, and other cities might profit in this respect by the example of Boston. Unfortunately it too often happens that there is a clash of interests at the outset and trivial questions that arise between the contending parties have to be threshed out in court, necessitating a great waste of time and money.

Old Time and Military Telegraphers.

The twenty-eighth annual reunion of the Old Time Telegraphers' and Historical Association and the Society of the United States Military Telegraph Corps, which takes place at Pittsburg, August 17, 18 and 19, will open at 10.30 a. m., August 17, with the business meeting of the Military Telegraphers, followed an hour later by that of the Old Timers. In the afternoon the visitors will inspect the famous Heinz pickle factories. Wednesday, August 18, at 1.00 p. m., a special train will be taken on the Pittsburg and Lake Erie Railroad for a sightseeing trip along the Monongahela River and an inspection of the plant of the Pittsburg Steel Company at Monessen. Thursday morning Carnegie Institute and other points of interest will be visited, and the reunion will come to a close with the banquet Thursday evening at the Fort Pitt Hotel. All those who contemplate attending should communicate at once with Mr. A. C. Terry, American Telephone and Telegraph Company, Pittsburg, of the committee on hotels, in order that ample accommodations for all may be reserved.

Book Reviews.

"Practical Armature and Magnet Winding," by Horstmann and Tousley (Frederick J. Drake and Company, Chicago, 231 pages, 128 illustrations) is a practical treatise on armature and magnet winding, giving only enough theory to enable the workman to understand why the construction should be carried out as it is, and why certain precautions are necessary. Describes different types of windings and methods for calculating same, faults in armatures and how they may be discovered and remedied. The book is pocket size, with flexible leather binding, and contains much information of value to the practical worker. Price, $1.50. Orders may be addressed to J. B. Taltavall, Telegraph Age, 253 Broadway, N. Y.

"The Telephone," by Professor A. E. Dolbear (Lee and Shepard, Boston, 128 pages, 17 illustrations) is a practical and interesting work upon this subject, explaining in simple language the phenomena of electricity, magnetism and sound involved in the action of the telephone. The author having played an important part in the development of the telephone, is especially well qualified to write upon this subject. Price, 50 cents. Copies of this valuable work may be had by addressing J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

For the convenience of our readers we have prepared and published in our catalogue, together with prices, a carefully selected list of standard books treating on wireless telegraphy. These volumes furnish the best information on the subject obtainable, the kind giving the most efficient aid and direction to the student. Orders for the books enumerated, or indeed for any others that may be required, which must be accompanied by the cash, will be filled on the day of their receipt, and sent with all the carrying charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

The Original Telegraph Line.

Mr. P. V. DeGraw, fourth assistant postmaster-general, Washington, D. C., and a former well-known telegrapher and journalist, has transmitted to us the accompanying historical matter copied from official records relating to the establishing of the original telegraph line and its operation, all of which, at this time, is of great historical value, and most of which is undoubtedly now published for the first time.

"An act to test the practicability of establishing a system of electro-magnetic telegraphs by the United States."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the sum of thirty thousand dollars be, and is hereby, appropriated out of any moneys in the treasury not otherwise appropriated, for testing the capacity and usefulness of the system of electro-magnetic telegraphs invented by Samuel F. B. Morse, of New York, for the use of the government of the United States, by constructing a line of said electro-magnetic telegraphs, under the superintendence of Professor Samuel F. B. Morse, of such length, and between such points, as shall fully test its practicability and utility, and that the same shall be expended, under the direction of the Secretary of Treasury upon the application of said Morse.

Sec. 2. And be it further enacted, That the Secretary of the Treasury be, and he is hereby, authorized to pay, out of the aforesaid thirty thousand dollars, to the said Samuel F. B. Morse, and the persons employed under him, such sums of money as he may deem to be a fair compensation for the services of the said Samuel F. B. Morse, and the persons employed under him, in constructing and in superintending the construction of the said line of telegraphs authorized by this act.

Approved, March 3, 1843.

"An act making appropriations for the civil and diplomatic expenses of the government for the year ending the thirtieth June, eighteen hundred and forty-six, and for other purposes."

For defraying the expenses of the magnetic telegraph from the city of Washington to Baltimore for the current year, ending on the first day of February next, the said sum to be disbursed under the direction and superintendence of the Postmaster-General, eight thousand dollars.

Approved, March 3, 1845.

The following is an excerpt from the annual report of Postmaster-General Johnson for the year 1845:

"The electro-magnetic telegraph, invented by Professor Morse and put in operation between the cities of Washington and Baltimore, under appropriations made by Congress, was placed under the superintendence of the Postmaster-General, by a clause in one of the appropriation acts of the 3rd March last. It had been in use the previous year under the direction of the Secretary of the Treasury, but had been conducted more with reference to the testing of its capabilities, and such experiments as tended to perfect and improve its operations. Having been transferred to the Post Office Department, I at once adopted regulations to bring it into constant service as a means of transmitting intelligence accessible to all, and prescribed the rates of postage. The copy of the order, which accompanies this report, marked No. 11, will show the regulations and the rates of postage adopted. One-half of the rates of postage suggested by Professor Morse was adopted by me, under the hope that it would greatly increase its revenue. It went into operation on the 1st of April, having expended $680.15 before the charge of postage commenced. From the first of April to the first of October, the expenditures amounted to $3,244.99, making the whole expenditure $3,925.14, while the revenues for the six months amounted to the sum of $413.44.

"In estimating the expenditures of this line, the salary of Professor Morse, perhaps, ought not to be added. It was fixed by the regulations of the treasury, and continued in estimates upon which the last appropriation was founded; and his time has been devoted to the general interests and improvements of the telegraph, and a portion of it spent in Europe, where, in his judgment, it could be more successfully done than here.

"I deem it my duty to bring to your notice the fact that the subject of telegraphic communications, in their fullest extent, as made available by means of this extraordinary invention, is forcing itself upon the attention of the public. The proprietors of the patent securing the exclusive use of the telegraph, have, since the last Congress, taken the most active measures to establish lines of communication between the principal cities of the union. Their success will introduce a means of communicating intelligence amply sufficient for a great variety of purposes, and greatly superior in despatch to those of the public mails, and must secure to itself much of the business that has heretofore been transacted through them, and, to that extent, diminish the revenues of the department.

"It becomes, then, a question of great importance, how far the government will allow individuals to divide with it the business of transmitting intelligence—an important duty, confided to it by the Constitution, necessarily and properly exclusive? Or will it purchase the telegraph and conduct its operation for the benefit of the public? Experience teaches that, if individual enterprise is allowed to perform such portions of the business of the government as it may find for its advantage, the government will soon be left to perform unprofitable portions of it only, and must be driven to abandon entirely, or carry it on at a heavy tax upon the public treasury. In the hands of individuals or associations, the telegraph may become the most potent instrument the world ever knew to effect sudden and large speculations—to rob the many of their just advantages, and

concentrate them upon the few. If permitted by the government to be thus held, the public can have no security that it will not be wielded for their injury rather than their benefit. The operation of the telegraph between this city and Baltimore, has not satisfied me that, under any rate of postage that can be adopted, its revenues can be made to equal its expenditures. Its importance to the public does not consist in any probable income that can ever be derived from it; but as an agent vastly superior to any other ever devised by the genius of man for the diffusion of intelligence, which may be accomplished with almost the rapidity of light to any part of the republic, its value in all commercial transactions, to individuals having the control of it, or to the government in time of war, could not be estimated. The use of an instrument so powerful for good or for evil cannot with safety to the people be left in the hands of private individuals uncontrolled by law."

The following is the memorandum accompanying the annual report of Postmaster-General Johnson for the year 1845:

March 29, 1845.

The appropriation of $8,000 to meet the expenses of the magnetic telegraph between Washington and Baltimore being placed under the charge and direction of the Postmaster-General, and it appearing that, under a previous appropriation embracing the same object, which was made for the purpose of testing the practicability and utility of said telegraph, the Secretary of the Treasury, under the authority conferred by act of Congress, had appointed S. F. B. Morse, superintendent, at a salary of $2,000 a year, and two assistants, Messrs. Alfred Vail and Henry J. Rogers, together with keepers of laboratory and inspectors of wires, at a further allowance of at least $3,000 a year.

Ordered, that said amount be disbursed out of said appropriation to wit:

To said S. F. B. Morse, superintendent, at the rate of $2,000 per annum.

To said Alfred Vail, assistant, at the rate of $1,400 per annum.

To said H. J. Rogers, assistant, at the rate of $1,000 per annum.

To said two keepers of laboratory and inspectors of wires, $300 each, $600 per annum.

And that salaries be paid the officers monthly from the time of their qualification, by the Chief Clerk of the Department, as the clerks are now paid, and that said superintendent and assistants take the oath required by the act of 1825, section 2.

It is further directed that the offices of the said superintendent and assistants be kept in the post offices at Washington and Baltimore, and that the magnetic line be extended from the depot in Baltimore to the post office as early as practicable, and that it be used at its present location until that is effected.

That the offices in Baltimore and Washington be kept open, for the reception and transmission of despatches, from eight o'clock in the morning until ten o'clock, from one p. m. until three o'clock p. m., and from five until seven p. m. each day, Sundays excepted.

For the transmission of each despatch there shall be paid in advance at the office from which it is sent by the applicant one quarter of one cent for each telegraphic character. Upon the reception of a despatch at either office, it shall be the duty of the officers to have same translated in a fair handwriting, carefully enveloped and sealed, and the magnetic character immediately destroyed and to place the despatch in the hands of the penny post for delivery, who shall be entitled to receive the same compensation therefor as for the delivery of letters transmitted now by mail.

It is further ordered, That the said superintendent and assistants in no case communicate to or permit to be seen by any person the contents of any despatch except the individual or individuals to whom it may be addressed.

It is further ordered that the expenses attending the extension of the telegraphic line to the post office at Baltimore, as well as all other contingent and incidental expenses, be paid, upon a statement of the expenses and a certificate of the correctness thereof by the superintendent, upon the order of the Postmaster-General.

It is further ordered that the superintendent keep an accurate account of the income as well as the expenditures, and report the same at the end of each fiscal quarter to the Postmaster-General, to be applied to the payment of the expenses of the establishment, or so much as may be necessary, and that the superintendent pay the same under the same rules and regulations now applicable to payments by postmasters.

In consideration of the facilities allowed by the railroad company to the superintendent and his assistants in attending to the business of the telegraph, it is further ordered that the free use of the telegraph be conceded to said company, for the transmission of communications relating to the business of their road.

A Simple Method of Distributing "C. N. D's."

BY W. G. PEEBLES, JACKSONVILLE, FLA.

The question of distributing commercial news department matter over local wires has always been somewhat of a problem to me, and after giving the matter much attention, I believe that the plan shown in the accompanying diagram is the best which can be had.

Two years ago I installed this system, consisting of a key and six repeating sounders, in our Cotton Exchange office, at Savannah, Ga., and after two years' trial I believe that the service is the best which has ever been given; being practically instantaneous with that sent out from New York, and our patrons generally are quite well satisfied with it. In fact, on my rounds, I have received quite a number of compliments on the rapidity with which commercial news department matter is sent out, and the service generally is pronounced first-class in every respect.

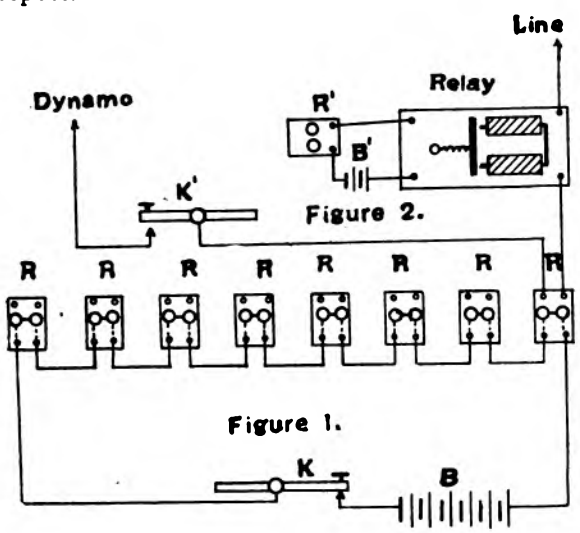


Figure 2.

Figure 1.

I estimate that during the cotton season, the time of two regular operators and a clerk is saved at Savannah through the employment of this device, to say nothing of the great advantage to the service generally. In these strenuous times it is necessary always to give quick service in order to realize the best results, and there is no question of this as applied to the speculative side of the cotton business. In fact, it may be well applied to almost any business, and anything which will facilitate our service should be looked upon as a good thing.

Figure 1 shows eight repeating sounders with points reserved and one key connected in series, operated by a local battery of sufficient strength. The key is closed when not in use.

Figure 2 shows a single Morse set connected into a single line which is looped into one of the repeating sounders.

When the operator desires to send the commercial news department matter on the various wires he simply opens the key in Figure 1, calls "C. N. D." six or seven times in order to attract the attention of the offices being served, and then goes ahead with the quotations.

Some objection may be raised to this method because of the fact that the offices cannot break. To overcome this we have required an operator on one of the circuits in the main office to make at the time they are first sent out, as many copies as may be necessary, of the quotations, placing one on each of the wires being served; and if it should happen (as is sometimes the case) that an office misses on the first transmission, all that office has to do is to call and ask for it. They soon learn the plan and drop into it quite readily, and so far as I know up to the present time, there has been practically no complaint in the territory served in this manner by Savannah.

This plan is also especially advantageous to the railroad operator, for the reason that he knows exactly what time to expect "C. N. D's." and will invariably be on hand to receive. Usually four or six active months are furnished, and as it takes about a minute to receive them, they much prefer being on hand rather than call the main office for any length of time. I have made special visits to railroad offices for the purpose of seeing this plan in actual operation, and to learn whether or not same was satisfactory; and in no case have I heard anything but the highest praise.

I believe that every large office serving commercial news department matter ought to employ this plan, as a facilitator and moneysaver, as well as a time saver. It can be amplified to almost any extent, and will be just as effective on a hundred wires as on four or five.

Business Notice.

Thomas J. Dunn and Company, of 1 Broadway, New York, the well-known manufacturers of the Peerless Transmitters, have devised a most unique and novel method of bringing their new Model "B" transmitter to the notice of the telegraph profession. Through their agents in the various cities they are distributing a very useful vest pocket diary, designed for the convenience of operators wishing to keep a correct record of their extra time.

The front cover bears the words "What's Coming," and the inside pages are ruled in columns with headlines giving the date, week, and beginning time of the extra service. The back pages carry cuts and descriptive matter of the new Model "B" Peerless.

Altogether it is the most original and useful advertising novelty that has ever been employed in exploiting transmitting devices, and proves the artistic ability of the man in charge of the publicity department of this enterprising concern.

Recent severe storms in Iowa broke down thousands of telegraph poles, causing a loss estimated at over a quarter of a million dollars.

The Atlantic Cable of 1858.

To the Editor of Telegraph Age:

Sir—I have lately read Mr. William Maver's article in your issue of October 16, 1908, upon the subject of "The Atlantic Cable of 1858."

There are a number of inaccuracies in this article, as I can readily prove from official documents in my possession. The article gives, indeed, internal evidence of no direct contact with the subject, if only from the misspelling of names and the repetition of matter from sources that are now known to be inaccurate.

It would take too long to deal with the entire article. I would, however, point out that I hold in my possession, among numerous other official documents, the agreement between John Watkins Brett, my father (Sir Charles Bright) and Cyrus W. Field, signed, in this order, as equal projectors of the first Atlantic cable. Field came over to England after he had secured the Newfoundland landing rights from F. N. Gisborne, but his ideas had all been preceded by Brett and my father over here. Moreover, nearly all the capital was subscribed for in the end on this side of the Atlantic.

Mr. Maver is good enough to tack my father's name last but one in a list of "Engineers," whereas he was in reality the engineer-in-chief. In the same list are the names of Whitehouse, an electrician, who was not an engineer in any sense, and Thomson (Lord Kelvin) the greatest of electricians, but who was connected with the enterprise as a member of the board and consulting electrician, rather than as an engineer.

Altogether the article is one not at all in accord with the facts, and is quite out of keeping with what Telegraph Age says in the review of my father's biography, printed in its issue of March 1.

I take particular exception to the following paragraphs in Mr. Maver's article:

"But, alas, like the first cable between Great Britain and France, this first Atlantic cable was also doomed to a very short useful existence. After the transmission of the messages to and from the Queen, the signals over the cable became weaker and weaker until, August 31, 1908, when they failed utterly. C. F. Varley, the electrician of the company, was sent to Valentia to ascertain the cause of the non-working of the cable. He made a number of tests and reported that a fault of great magnitude existed at a distance of about two hundred and sixty miles from Valentia. W. T. Henley, telegraph engineer, and Professor W. Thomson, also carefully tested the cable during the month of September, but without success so far as obtaining readable signals through the cable was concerned.

"It has been thought, and perhaps correctly, that the injury to this cable may have been due to the employment of high-tension currents from induction coils in signaling, and the view has been expressed that had only low-tension currents been employed, their utility for this purpose having been demonstrated by Latimer Clark, the injury to the cable might have been avoided. There is, however, no proof that the fatal faults in the cable were due to these high-tension currents, and it is not difficult to imagine that the inexperience in cable making at that time, together with the more or less crude methods of paying out the cable on shipboard may have been sufficient to account for the cause and development of the faults in question. Furthermore, it is to be remembered that at this early period of long-distance submarine working, variable earth currents practically debarred the use of very weak currents for signaling. It probably was not until Varley's interposition of the condenser in the cable circuit, thereby obviating the disturbing effects of the earth currents, that recourse could be had to weaker signaling currents."

In the opinion of practically everybody Whitehouse, the electrician, was alone responsible for the gradual breaking down of the cable, by the use of a generating power of immense intensity in conjunction with the rest of his apparatus.

Mr. Maver's favorite authority (Cromwell Varley) himself stated that "had a more moderate power been used the cable would still have been capable of transmitting messages," and Professor Thomson (afterwards Lord Kelvin), the highest electrical authority, expressed himself still more definitely.

Mr. Maver speaks of the "more or less crude methods of paying out the cable," but he is apparently unaware of the fact that what he is pleased to so term is still in everyday use in all essential particulars.

The subsequent complete electrical (and therefore commercial) successes were mainly due to the introduction of Lord Kelvin's delicate receiving apparatus, first employed by my father on the first cable to India of 1863-4, long before the second and third Atlantic cables of 1865-6, and subsequently on all the lines that followed.

Charles Bright.

London, England, June, 1909.

The Hudson Word Counter Again on the Market.

Every telegrapher who operates a typewriter should have it equipped with a Hudson Word Register, which is now placed on the market by a manufacturing house which has the reputation of producing the very best material and goods of a superior quality. This simple yet accurate device for counting words written upon the typewriter is easily read, instantly set and has a recording capacity up to 1,500. It unerringly registers the number of words written and thus obviates entirely the necessity and annoyance of counting checks. It can be supplied with attachment for any standard make of typewriter. The device is made in compact form, carefully finished and is an ornament as well as a labor saver. The price is $5.00 and orders may be sent to J. B. Taltavall, Telegraph Age, 253 Broadway, New York. Orders should state what make of machine it is to be used on as attachments differ.

The Comparison of New Telegraph Systems.

BY DONALD MURRAY, OF LONDON.

The "Comparison of New Telegraph Systems," by M. Joseph Hollos, of Buda Pest, published in the June 16 issue of Telegraph Age, appears to me to call for a few words of comment in addition to those that have been made upon it. In the first place, so far as the Murray automatic system is concerned, I may say that I have never exhibited it in Hungary, and it is not used there, and M. Hollos has no practical experience with it whatever. I also believe I am right in saying that he has no practical knowledge of any of the other systems he has criticised except the Hughes and the Baudot. As for the tables of figures contained in his paper, they are purely theoretical, except in the case of the Hughes and the Baudot. In the other instances the figures are merely calculations based on the maximum speed of the various systems. In the case of the Murray automatic system they bear no resemblance to the practical results obtained by various administrations. In the notes at the end of the paper attention is called to some miscalculations and discrepancies in regard to the number of operators required on several of the systems and the amount of wages paid. Perhaps I may be allowed to point out a few more misapprehensions under which the author of the paper is laboring. M. Hollos says correction of errors is more difficult with automatic systems than with multiplex systems. That depends entirely on circumstances. In the case of the Murray automatic system corrections and inquiries (or RQs, as they are called in England) are obtained by the Morse key and sounder, admittedly the most rapid and efficient of all methods of dealing with RQs. Multiplex systems cannot use the Morse key. With an automatic system worked in this way the difficulty about RQs does not exist. Furthermore, the Murray automatic system is provided with an arrangement for instant and invisible correction of errors before transmission. Also the percentage of RQs with a printing telegraph in good working order is surprisingly small. I have seen 101 successive messages transmitted without a single mistake, and in 285 successive messages there were only three trifling RQs. That was on an underground cable. On long aerial lines errors are more numerous, but experience extending over some years has shown that the percentage of errors with a good printing telegraph is considerably smaller than with the Morse key and sounder. That is the European and, I believe, also the American experience.

M. Hollos says: "If it is admitted that ten minutes are required for perforating and the prepared tapes are transmitted every ten minutes, an effective loss of time is shown. If following this the transmission requires ten minutes, and ten minutes more are necessary as an average for verifying the telegrams received and to get them into order, a total loss of thirty minutes is shown to the disparagement of the systems for automatic transmission." My answer is that "If" is a wonderful word. Shakespeare says "There is much virtue in if," and there is an old saying that "If ifs and ans were pots and pans there would be no need of tinkers." Against this bombardment of "ifs" I can fortify myself with the results obtained with my own automatic system, and I believe also with the results obtained with the Barclay automatic system in America. Messages can be perforated and transmitted one by one if necessary, and the operator who cannot perforate one message a minute on a keyboard after one month's practice is not worth his salt. Punching the messages in batches of three, including signing and timing does not take more than three minutes. Transmission at one hundred words takes one minute, and at the receiving station there is no appreciable delay. Ten minutes for "verifying" the messages has a delightful smell of red tape about it. I have never seen it done anywhere. M. Hollos goes on to say: "In addition to this, these systems require a more numerous and a more expert personnel." The answer to that is that the number of operators depends entirely on circumstances, but I believe there is an undoubted advantage in this respect with the multiplex compared with the automatic principle. On the other hand, multiplex systems will not work on very long lines. On long lines the saving of wire is more important than the saving of labor, and the automatic principle is then superior to the multiplex. M. Hollos is quite wrong when he assumes that more skill is required on the part of operators with the automatic systems. The exact reverse is the case. The Hughes and the Baudot both require at least one year of careful training before the operators are really expert. In the Murray automatic system, and also in other keyboard perforator systems, the operators become expert in one month, and in the Murray system, at any rate, the other operations can be learned by any intelligent person in one hour.

M. Hollos says: "Beyond 600 kilometers the working is difficult with the automatic systems, and if relays are inserted in the circuit there are new difficulties to surmount." So far as the Murray automatic system is concerned the facts do not bear out M. Hollos's contention. The Murray automatic system is being worked duplex between St. Petersburg and Omsk, in Siberia, a distance of 2,400 miles of iron wire, with three repeating stations. The speed is about fifty words per minute in each direction. The speed with the Wheatstone on this line was only about thirty words a minute. No other telegraph system can approach such a record. Hence M. Hollos is writing under a complete misapprehension when he says that beyond 600 kilometers (375 miles) the working is difficult with automatic systems. I have an impression also that the Barclay system finds no difficulty in working over much greater distances than 375 miles. That M. Hollos has very little knowledge of these new printing telegraph systems that he has criticised so

freely is amusingly illustrated by his assumption in the last paragraph in his paper that the Barclay is a multiplex and not an automatic system.

In one broad respect M. Hollos is correct. For all ordinary distances up to 500 miles and possibly even 1,000 miles, the multiplex principle is better than the automatic. I don't admit that. I assert it, and I have done so for years. The new Murray multiplex system that has been developed with the assistance of the British Post Office and is now being tried practically between London and Birmingham, strikingly confirms the impression that the multiplex principle is the best for average lines and average traffic. The field for automatic systems is long-distance work, and the Murray automatic system is specially suited for long-distance work.

M. Hollos says that his figures do not pretend to be absolutely correct. but that they "explain why these brilliant and ingenious inventions have not up to the present time been adopted." My answer to that is that the Murray automatic system has been adopted, and is being used commercially by the German Post Office between Hamburg and Berlin, between Berlin and Frankfurt, and between Hamburg and Frankfurt. An agreement has been made for its use in the German Empire, and substantial royalties have already been paid. The German and Russian governments have put the Murray automatic system into regular commercial use on the line between Berlin and St. Petersburg (1,000 miles). The Russian government has it working between St. Petersburg and Omsk, in Siberia. In Sweden it has been working for nearly two years between Stockholm and Gothenburg, and in Norway it is being started between Christiania and Bergen. It is also in use between Vienna and Prague, and the Austrian Administration has recently proposed terms, which I have accepted, for its use in Austria. The British Post Office likewise has agreed to the same terms as Germany for its use in Great Britain. In the case of England, however, the distances are so short that the multiplex principle is preferable in nearly all cases. The Murray automatic system is being worked daily between London and Berlin, but in this case there is a 250-mile four-wire cable across the North Sea, and the inductive interference and other line troubles are so great that I doubt if it will be permanently employed on this line. Working alone simplex between London and Berlin, the Murray system reached a speed of 113½ words per minute, compared with seventy-nine words a minute, the best speed of the Wheatstone, but in practice these speeds have to be reduced by half to avoid inductive interference. The Murray automatic is being worked at sixty words a minute each way duplex between London and Berlin (125 miles London to North Walsham, where there is a repeater into the cable, then 250 miles of four-wire cable to Emden, where there is another repeater, and then 300 miles of aerial line to Berlin). But even with the Hughes at thirty words a minute trouble is experienced on this line. In my opinion American operators with the Morse key and sounder would get better results on this circuit than any printing telegraph system. These multiple wire North Sea cables give such wretched service at times that arbitrage houses in Berlin and London sometimes find it preferable to communicate with each other by the Atlantic cables via New York. They can communicate in a few minutes that way, whereas messages sometimes take as much as two hours from London to Berlin across the North Sea.

It may be of interest to mention that messages can now be sent automatically by the chain of Murray circuits from London through Berlin and St. Petersburg to Omsk, in Siberia, a distance of about 4,075 miles, including 250 miles of ocean cable.

"The New Telegraphy."

Under this title the London Daily Telegraph booms the Pollak-Virag system, under the aegis of Mr. Henniker Heaton. We have no wish to depreciate the merits of this beautiful and exceedingly clever invention (which, by the way, has been well known to the electrical world for some nine years); but, in view of the continued efforts of Mr. Henniker Heaton to thrust it down the public throat, we are compelled once more to emphasize the truth about this matter.

The Pollak-Virag system cannot be used over long submarine cables.

The Pollak-Virag system requires two wires; therefore its maximum speed per wire is (half 46,000 =) 23,000 words an hour, = 384 words per minute.

The Wheatstone automatic system, which has been used in the British postal service for 35 years, requires only one wire, and sends 400 words a minute, or 24,000 an hour, on one wire; it has been run at 36,000 words an hour.

The Pollak-Virag system, therefore, is slower than the well-known and well-tried system in general use on the British lines. It cannot be used where there is only one wire; and even where there are two it is put out of action whenever one of them is broken.

Both systems can be used with a typewriter at the sending end. The only point in favor of the Pollak-Virag is that at the receiving end the message is "written" by the apparatus, while the Wheatstone has to be transcribed or put through a typewriting mechanism.

We have said enough to show that the Pollak-Virag system has no bearing whatever upon the question of Imperial intercommunication. It serves Mr. Henniker Heaton, however, as an admirable device for tickling the imagination and imposing upon the credulity of his supporters and the lay press.—Electrical Review, London.

Efficiency of Office Organization.*

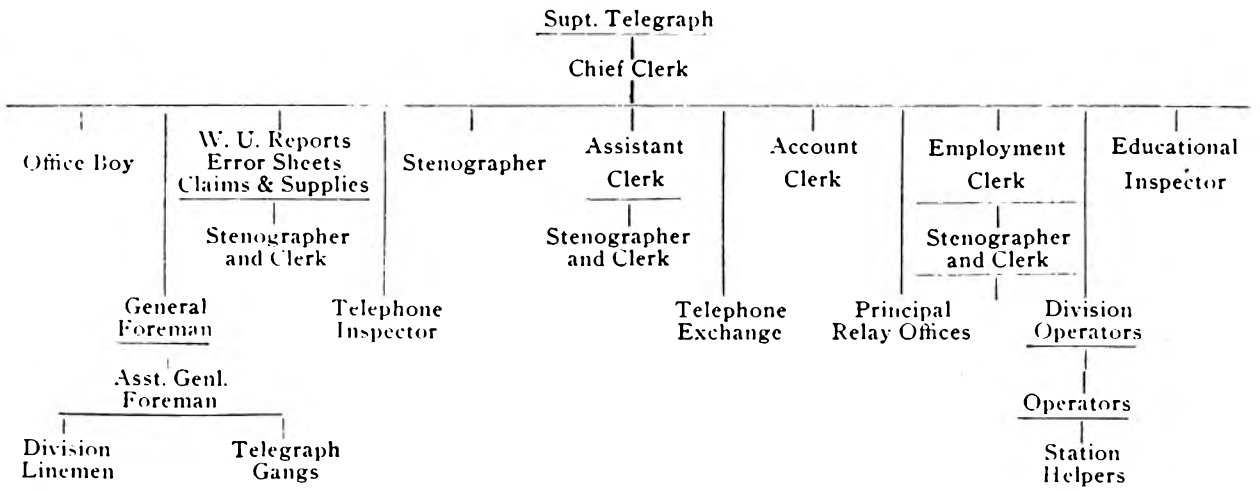
BY J. B. SHELDON.
Superintendent of Telegraph of the Union Pacific Railway, Omaha.

There are a number of essential qualifications to consider in connection with the subject; four of the more important ones, which I will name, are, discipline, harmony, co-operation and zeal. This combination of principles, if adhered to, will certainly result in efficiency. The first to inculcate is discipline, which calls for punctuality and respect for co-laborers. An employe who is ever tardy, without good reasons, generally detracts the attention of the other employes from their work, causes unnecessary comment, ill feeling is engendered and the necessary respect is lost sight of. Harmony must prevail if proper discipline is maintained, and, without harmony, organization would be a lost cause; therefore, harmony and co-operation must be considered in unison for efficiency. Of course, every employe has his or her work mapped out in detail, in other words, specialized. However, there are times when it is really necessary to co-operate and combine certain work to expedite it, or to help one another in case of absence, because of sickness or other cause, and this is where co-operation speaks for itself as an important adjunct. Zeal is the active power of efficient organization produced by discipline, harmony and co-operation. Work must be entered into with a certain amount of enthusiasm or desired results cannot be accomplished. The head of an organization must be impartial, fair-minded and pleasant. Subordinates will then look up to him as a leader and, in nearly all cases, follow in his footsteps. However, if they are not inclined in this way and are unobserving of the example, they will have no excuse when found wanting. A grouch is a disorganizer and should be dealt with accordingly.

In handling the subject of "Efficiency of Office Organization," I am confining my remarks entirely to the office of the Superintendent of Telegraph, which I assume will be acceptable to all concerned.

A proper and satisfactory organization of a telegraph department, owing to diversity and peculiarity of the work, is somewhat difficult to arrange, and because of difference in size of roads and character and volume of work available and assigned, no general plan of organization would do for all. Our plan is as shown in the diagram given herewith:

The Superintendent of Telegraph, in order to exercise a proper supervision of his department, to have opportunity to look personally after many matters requiring attention along the line, to have time to meet and talk with callers who have ideas of interest and benefit to discuss, and to be able to keep posted on progress in our field of work, plan improvements, attend meetings of our associations regularly, etc., must not be tied down to close details of office work, and office organization should be planned to afford him such opportunities. Otherwise, by tying him down closely to a desk, with barely time to wade through a mass of detail work, many larger things of importance and much value would be neglected through sheer lack of opportunity to give them the attention required. With the great progress that has been made in the railroad business within recent years, the necessity of more supervision in many departments has manifested itself, partly because everything has become more intricate and is thus more difficult to oversee, and also because of the rule of "whatever is worth doing at all is worth doing well," is a real factor and will not permit skimming on the surface or stuffing in any way. Perhaps the words "and promptly" should be added to this rule, because now-a-days, with the rush of things, promptness is more of a necessity than ever before. Our departments have perhaps been more backward in this matter of supervision than any of the others, but we must eventually move on with the trend



* Paper read at the Convention of the Association of Railway Telegraph Superintendents, Detroit, June 23-25, 1909.

of progress in this respect, in order that what we do and have to look after may be of a high order of efficiency and compare favorably with the efforts of others.

The Chief Clerk must keep in close touch with the detail of it all and have everything at his finger-ends. On a large road, he is a very busy man, it devolving upon him, besides taking care of the more important correspondence and laying out the details of things, to see that everything is carried out as planned and that the force all understand and do their work properly and promptly. He also must have opportunity for supervision, for the planning of, and helping on, the work of others, and should not be so closely tied down with matters others can handle, that he will not have time to see that the work of all is harmonious, kept close up-to-date, and efficient. His time and work are necessarily constantly broken into in answering the inquiries and attending to the needs of others, and this he must always be ready and willing to do, even to the detriment at times of his own special work, in order that it may all be handled with the least delay and best results. Convenient filing and record arrangements can assist greatly and save much valuable time. We have a system of envelopes, to hold letter size sheets, that are used for the filing of matter under special subjects of importance, to which frequent reference is necessary, that are of much worth. For instance, a separate envelope is kept for telephone matters at each place, and filed in alphabetical order, in which all the correspondence in regard thereto, including carbon copies of our own letters, is kept.

Then we have an envelope for each of many special subjects of interest, that are numbered and indexed, so everything we have had in regard thereto can be turned to at a moment's notice. Another set of separately indexed envelopes is kept for estimates and work upon the lines, which contain all the correspondence pertaining thereto. Filing cases, one for each letter of the alphabet, are also maintained for wire crossing correspondence, which is quite voluminous, so that we can readily locate everything pertaining to any particular crossing. The stenographer of the Chief Clerk keeps up these files, as well as a general correspondence record book, gets out the files as needed and returns them when through with. Besides these special and permanent files, regular filing cases are maintained for ordinary correspondence to which frequent reference is not necessary. These are some of the special arrangements that can be made to assist the work.

On large roads, the Chief Clerk should have a good general assistant to help look after the accounts, and some of the other details, handle some of the less important general correspondence, and be available for more or less special work that constantly confronts us. Such a clerk can answer many of the telephone calls and look after a great variety of detail, thus saving the Chief Clerk from much interruption and giving him better opportunity to look after more important matters. Such a clerk can also fill in other positions in cases of temporary vacancy, sickness, etc.

An account clerk is also essential on roads where the telegraph department has many pay rolls, bills, vouchers, and invoices to handle, and material and supplies to care for, as all of these things represent money value and must have prompt and proper attention.

The Western Union Telegraph Company's business is also sufficient and important enough on large roads to require a good clerk to take charge of it, including the auditing of the reports, adjustment of error sheets, investigation of complaints and claims, the furnishing of supplies, etc., and he should have a stenographer and clerk to assist him in this work, in order to perform it promptly and efficiently.

The employment of help, taking in operators, station-helpers and linemen, with the investigations and examinations that are necessary, including the looking up and passing upon previous records, and educational, switch-board and physical examinations, requires much time and attention of a competent man on a road like ours, where an average of about 100 operators, station-helpers and linemen are employed per month. The exercise of much care is necessary to secure reliable and satisfactory help and in assigning it where it will give the best results and be satisfied to stay a reasonable length of time. With this position should also go the keeping of the records of all the employes of the department, with the help of a stenographer and clerk to assist in the work in general. We have in use the "Macey" card system for these records, which has been found very convenient and much of a time-saver. These cards, which are five inches by eight inches in size, are ruled on one side for the record of employment at different places and in different capacities, as follows:

(Name.) No.

Transfers.	Date.	Capacity.	Transfers.	Date.	Capacity.	Remarks.

Then the reverse side is ruled for record of demerits, seniority standings by division and remarks.

Another form is used for records of employes at stations.

Separate card files are kept for employes in the service and for former employes. In starting this system, we assigned a card to every employe and former employe of whom we had record, but did not undertake to transfer the records of previous changes to the new cards; instead, each card is numbered and all the papers bearing on an employe or former employe, including record of employment previous to the starting of the present system, are filed under this number, so they are handy for ready reference whenever needed. Operators, station-helpers (who are all telegraph students) and linemen

are all employed through the office of the Superintendent of Telegraph, which enables us to bring good men from different parts of the country for positions, with a certainty that, if there should be no opening immediately upon arrival, we will be able to place them at least very soon. This cannot be done so well, or emergencies met so promptly, where the help is employed locally on divisions, as the needs on any one division would not be sufficient to warrant sending for and keeping so many men available as where the whole road is supplied from one source.

Closely connected with the employment bureau is the Educational Inspector, who looks out specially for the student-helpers at stations, of whom we have about two hundred, and the students in various schools that we are encouraging, to see that satisfactory progress is made and that promotions are forthcoming as they are deserved. Until recently, but little attention has been paid to the selection or education of those seeking to become operators and agents, most anybody strong enough to handle freight, baggage and express having been assigned to helpers positions, the stepping-stone to operators positions, without regard to their qualifications for advancement or desire to advance. Then, when once employed, they were left to themselves to learn as much, and how, as they saw fit, with no one specially interested to encourage and show them, to see that they had proper opportunities for study and practice and availed themselves fully of them. Now, helpers are selected from those who earnestly wish to become operators, being taken generally from telegraph schools where some progress has been made, both in telegraphy and station work and accounts, and, before employment is given them, their fitness in general, in respect to education, physical condition, etc., is passed upon and decided. Then, when given positions, their future progress is closely watched, reports in regard to each one being made monthly and carefully checked up. If they do not progress as they should, special investigation is made as to the cause and effort is made to right whatever is wrong. They are advanced in pay now and then as their progress warrants and to operators positions when they are qualified therefor, many of them being thus promoted each month. Promotions are bulletined to all other helpers on the divisions, which shows them that they are not overlooked and gives them encouragement. They must qualify in station work as well as in telegraphy, and thus, while the average former operator did not aspire to much beyond telegraphy the coming operator will be equipped for agents' positions as vacancies occur and thus afford relief for the dearth that has existed in suitable men for this line of railroad work. The looking out for all of these students and keeping in close touch with them, and the frequent inspection of the schools and offering of suggestions and help to them in their work and instruction, for our future benefit, keeps the inspector very busy. We feel that this is a good paying investment, for, besides making for us a better class of help, it assists very much in relieving the shortage that frequently exists.

Division operators, who in all cases are the chief despatchers, call on the superintendent of telegraph for all new operators and helpers required, and, although transfers and changes are made locally as conditions necessitate, these changes are reported to the superintendent of telegraph on regular form at the end of each month, from which the card records are kept up. The superintendent of telegraph is consulted, however, in regard to changes in the more important offices, especially in managers, as well as about other matters connected with the service as conditions arise that are different from the ordinary and regular run of things. Their authority is limited, in fact, practically to the existing order of things, as wire, circuit and instrument changes, the connection of new offices and disconnection of former ones, direction of work of division and special linemen (outside of ordinary trouble repairs), etc., are directed by the superintendent of telegraph.

The five principal telegraph offices, located at Omaha, Cheyenne, Ogden, Kansas City and Denver, all of which are division headquarters, are directly under the superintendent of telegraph, carried on his pay rolls and all changes in force are made directly through his office. The managers of these offices do the testing of wires, in their respective territories, give instructions to linemen in regard to repairs of trouble and are responsible for the working condition of the circuits under their jurisdiction.

Private branch telephone exchanges and all telephone matters are directly under the superintendent of telegraph, no additions, removals or changes being made in this service anywhere along the road except upon his order. Complete records are kept of all this service, including rental and purchase expense and toll-line charges.

To the general foreman is assigned the duty of inspection of the lines and offices, the recommending of work required to keep the plant in good condition and the making of estimates therefor, the giving of instructions to foremen and line repairers in regard to their work, and exercise of general supervision of such work to see that it is economically and properly done. In this work he requires an experienced assistant to look personally after much of the work that is being done, to take charge of smaller jobs that do not require a special foreman and to stay with the gangs much of the time and plan with the foremen for the performance of the work to the best advantage.

The telephone inspector is charged with the inspection and repair of the telephone equipment and is responsible for its condition and satisfactory working order. With the great development that has taken place in railroad telephone service within recent years, and the dependence

placed upon it in important operations, it is very essential that we should not overlook the necessity of supplying such force, as well as other facilities, as required, to maintain the apparatus in a high order of efficiency. Frequent and thorough inspection by an expert in this line of work is necessary for the accomplishment of this result and he should be promptly supplied with what he requires for such repairs and improvements as are needed. He can also install new apparatus, including telephone train-despatching equipment. Division linemen should, of course, assist in the telephone work, by installing some of the more ordinary equipment, make such repairs and changes as they can handle and renew batteries. The general foreman and assistant general foreman should be well posted in telephone work and assist in the direction as occasion demands.

In conclusion, I would say that the success of any organization or system depends largely upon the degree of excellence in which it is maintained. It is comparatively easy to adopt new and improved methods, but much diligent effort is required to conform to the standard as intended at inception. If we wish to succeed, therefore, in whatever organization we may adopt, we must devote to it the time and energy that are necessary to keep it up.

The merging of all the Bell telephone companies of the country into a gigantic corporation representing a capitalization of $970,000,000, is believed to be foreshadowed in the action taken by the American Telephone and Telegraph Company in providing for the absorption of the stock of the New York and New Jersey Telephone Company, and of the Bell Telephone Company of Pennsylvania.

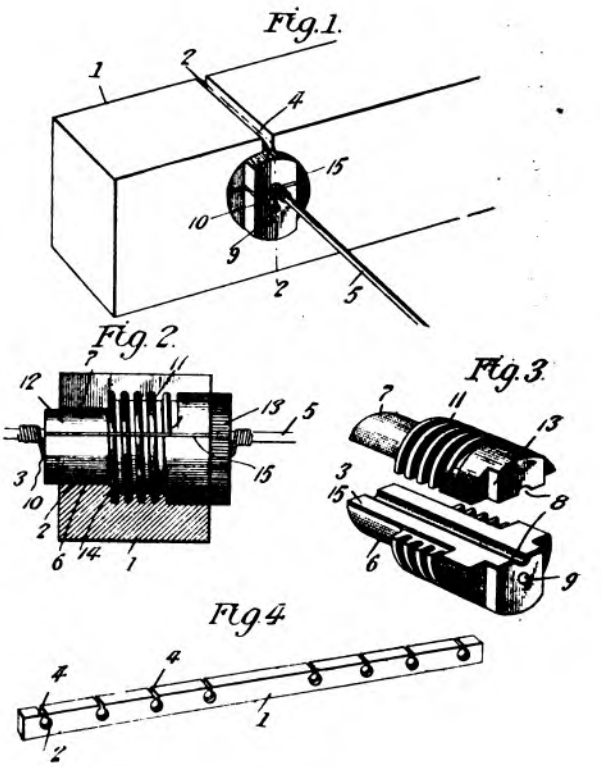
Mr. J. T. Remley, manager of the produce office of the Postal Telegraph-Cable Company, New Orleans, has shown himself to be a hustler by winning a prize of $200 offered by a bank of that city to the person who should secure the most new depositors within a specified time. Mr. Remley secured in the time given 205 new depositors for the bank, receiving for each one a cash bonus in addition to the prize.

Negotiations are now under way between independent telephone companies operating in Pennsylvania, West Virginia, Ohio, Indiana and Illinois looking toward the consolidation of all the independent telephone companies in the United States and the incorporation of the National Telephone Corporation of New York, with a capitalization of $100,000,000.

Mr. J. M. Barnes, of the Canadian Pacific Railway Company's telegraphs, at St. John, N. B., in renewing his own and sending us another subscription, states that: "Telegraph Age grows with interest each issue and is a most welcome visitor every two weeks."

A New Wire Support and Insulator.

A patent for a novel device for use as a wire support and insulator in place of the ordinary pin and glass insulator, has been taken out by Mr. Harvey W. Wistner, of Ogden, Utah. The object of this invention, the construction and operation of which are clearly shown in the accompanying diagram, is to provide a better and cheaper insulation than the present standard. This scheme does away entirely with the insulator pin and thus avoids all possibility of crosses due to broken pins, insulators or tie wires, as well as effecting an important saving. This method of



THE WISTNER WIRE SUPPORT AND INSULATOR.

insulation recommends itself for mountain construction, as it does not allow the wires to slip off the insulator or go up in the air because of a broken tie wire or a pulled-out pin. The use of this plan would also do away with the necessity of double cross-arms at curves, no matter what the degree of curvature the strain comes upon the cross-arm as a direct tension of compression, and there is no possibility of the wire getting loose, as in the present standard construction, by breaking the insulator pin or splitting the cross-arm. When mounted on the pole the cross-arm is placed with the slots for inserting the wires on the under side. This arrangement when the insulators are in place makes the arm almost as strong as if it was not bored at all, weakening it very little in comparison to the present pin method.

The Railroad.

Mr. G. H. Groce, superintendent of telegraph and signals of the Illinois Central Railroad, was a New York business visitor on July 21.

Mr. J. B. Murphy has been appointed superintendent of telegraph of the Mobile and Ohio Railroad, at Jackson, Tenn., vice E. E. Torrey, resigned. Mr. Murphy, previous to his present appointment, filled the position of trainmaster at Tuscaloosa, Ala.

Mr. H. W. Cutshall has been appointed superintendent of telegraph of the El Paso and Southwestern system, with office at El Paso, Tex. He will have supervision over all matters pertaining to the telegraph and telephone traffic and maintenance.

The authority of Mr. G. O. Perkins, superintendent of telegraph of the Mexican Central Railway, Mexico City, Mexico, has been extended to include all of the National Railways of Mexico, and he now has entire charge of telegraph construction, maintenance, inspection and testing of lines.

The Indiana Railroad Commission has issued a ruling that the clearance of electric wires and cables above railroad tracks should be at least twenty-five feet and in no case less than twenty-two feet.

About thirty-five American train despatchers employed upon the lines of the National Railway of Mexico went on strike July 17 for an increase in wages. The railroad management, however, soon filled their places and train service was not interferred with to any extent.

The various manufacturers of selecting apparatus report that their facilities are pushed to the utmost to supply the railroad companies with selecting equipment for their telephone train despatching circuits. Since the adjournment of the Detroit convention many of the superintendents who were in attendance at the annual gathering and who had previously not given the subject much serious thought are now investigating the subject of moving trains by telephone instead of telegraph orders. This change has to a large degree been brought about by hearing the personal opinions of many of those who have had actual experience in despatching trains by telephone.

The use of modern methods in handling the telegraph business of a railroad is illustrated in the equipment of the general offices of the Santa Fe's Coast Lines at Los Angeles. All departments are connected directly by pneumatic tubes with the telegraph office, thirty-one tubes constituting the equipment. This system handles between fifty and sixty thousand messages and reports monthly, and is very successful, doing away with the congested filing of business which occurred under the old system of messenger delivery and collection, and greatly expediting both the sending and delivery of messages.

A patent, No. 927,455, for an electrical selector, has been issued to Ernest A. Faller, of New York. A progressive contact maker comprises contact points divided into groups or sets, a normally rotating trailer arm adapted to make contact with multiple contact points of one group at one time, means for interrupting the rotation of the trailer arm, and means for controlling the interrupting means.

The Chicago, St. Paul, Minneapolis and Omaha Railroad, under the supervision of Mr. George Boyce, superintendent of telegraph and signals, has entirely rebuilt about one hundred miles of its line through a prairie section of Minnesota that is peculiarly liable to visitation by wind and sleet storms, damage from these causes being occasioned about every two years. In the new line forty-five poles per mile are used as against thirty-five on the old line, and every fifth pole is guyed with side and head guys alternately. The poles have also been treated at the butts with carbolineum. The success of this line in withstanding storms will be watched with much interest.

W. C. Brown's Tribute to the Y. M. C. A.

Mr. William C. Brown, president of the New York Central lines, who began his railroad career as a telegraph operator, in concluding a recent address delivered at the International Conference of Railroad Young Men's Christian Associations, which, it is stated, is the most perfect official tribute ever paid that organization, said: "The railroads, which annually draw thousands of young men from the villages and farms to fill their ranks, depleted by age, accident and disease, owe something to this army of young men beyond the mere employment and payment of stated wage. They owe it to the men themselves, they owe it to the anxious loving fathers and mothers back in the homes from whence these young men came; they owe it to the shareholders whom they represent; above all they owe it to the public, who daily place in the care and custody of these men their lives and property. A solemn obligation rests upon the responsible management of these railroads to do everything within their power to make these employes the best, safest, most efficient, the most reliable men possible; and in doing this, in my opinion, no agency can be enlisted so well adapted, so consecrated, so devoted to the work, and so successful in the work, as the railroad branch of the Young Men's Christian Association.

The Train Despatcher's Status.

Mr. J. F. Mackie, secretary-treasurer of the Train Despatchers' Association of America, in an address upon "The Train Despatcher's Status," delivered before the annual convention of that body, held at Columbus, O., June 17, sketched the history of the despatcher's duties from the time the position first originated down to the present.

At first one train despatcher sufficed. Few trains or none were run at night. The train order signal was a red lantern displayed on the platform and (sometimes) swung by the operator on the approach of a train. Also one man usually sufficed to take charge of a station.

As traffic increased, two despatchers became necessary, and for many years but two were employed, who were known as day and night despatchers. Each signed his orders with his own initials. There was no difference in their rank, the day despatcher being merely the senior. The despatcher was usually a conductor or engineman of proved experience and knowledge of the rules to which "Morse" was a stranger, but to whom a despatchership was always a promotion. Accordingly, a day and a night telegraph operator were assigned to the despatcher's office and it came to pass with time that the operator was discovered to have sufficient knowledge and ability to fill the position alone. The telegraph service thereafter became a school for train despatchers, and in a few years telegraphers filled every train despatcher's chair to the exclusion of all others.

For many years each despatcher, during his hours of duty, was not only charged with the duty of actual train despatching, but was expected to balance locomotive power, attend to car distribution and discipline the operators, each despatcher being responsible only to the superintendent.

In time, with the growth of traffic, these extra duties increased to such an extent that it became necessary to relieve the chief despatcher from actual train despatching duty and impose upon him the duty of a general supervision of train movement on the train despatching district upon which he served. Except here and there on a few lines, the trainmaster up to this period had no existence. During the past fifteen or twenty years the position of trainmaster has been gradually increased in importance, and the despatcher no longer has any of the extra duties to look after that he did in former years.

How the Nine-Hour Law Operates.

The people of Clinton, Mass., in complaining of the unsatisfactory telegraph service which they are getting, say that the entire trouble is with the national law which makes it a misdemeanor for railroad operators to work more than nine hours a day. The nine-hour shift of the second operator ends at eight p. m., and even if in the midst of sending a message he has to quit work or subject himself to a $50 fine. In theory the law is all right, but in practice, in places where operators are not overworked, the law works to the detriment of the patrons of offices and also to the detriment of the telegraph and railroad companies, materially reducing their income.

The Railroad and Telegraph in Peru.

BY OTTO HOLSTEIN, OF LIMA.

Chief Train Despatcher of the Central Railroad of Peru.

The Central Railroad of Perú was built for the Peruvian Government and for many years was operated by the administration. A few years ago, however, it was turned over to an English company, known as the Peruvian Corporation, together with some guano islands off the coast, and other concessions. The line runs from Callao on the Pacific coast to Oroya, thence to Huancayo with branches to Morocoha in the Cordilleras and to Ancon on the coast.

The general character of the country traversed by the railroad is dry and would be called a desert were it not for the fertile valley that extend well up into the Andes. The road follows the canon of the Rio Rimac from the coast to the summit and on the eastern slope it follows the Yauli and Mantaro Rivers. There is nothing very remarkable about all this. It is the strenuous character and the elevation developed in a short distance that makes the line wonderful. The elevations and distances along the route are given herewith:

Miles.						
0.0	Callao	8.7	feet	above	sea	level
7.8	Lima, Monserrate...	499.9	"	"	"	"
18.4	Santa Clara	1311.7	"	"	"	"
33.7	Chosica	2800.6	"	"	"	"
47.3	San Bartolomé.....	4959.4	"	"	"	"
56.8	Surco	6660.9	"	"	"	"
64.2	Matucana	7788.8	"	"	"	"
73.4	Chaupichaca	9472.6	"	"	"	"
75.3	Tamboraque	9826.9	"	"	"	"
79.1	San Mateo 10534.1		"	"	"	"
80.8	Infernillo 10919.9		"	"	"	"
84.3	Rio Blanco 11400.0		"	"	"	"
88.5	Chicla 12215.5		"	"	"	"
96.0	Casapalca 13606.2		"	"	"	"
106.8	Ticlio 15665.2		"	"	"	"
121.2	Yauli 13420.8		"	"	"	"
138.7	Oroya 12178.7		"	"	"	"
171.6	Jaula 11874.0		"	"	"	"
213.7	Huancayo 10636.0		"	"	"	"

At Ticlio the road passes through Galera tunnel, which is the highest point on the line, and which is the Continental Divide. There is a spring of water in the tunnel (which is 1.3 kilometers in length and bores through Mount Meiggs) which sends its waters into both oceans, the Atlantic and the Pacific.

The telegraph line beats the railroad's record for elevation at the summit for instead of passing through Galera tunnel, as it does most of the others, the line is constructed over the mountain and reaches an elevation of 17,575 feet above the level of the sea.

As may be imagined from these data there is much difficult railroad construction. There are fourteen switchbacks and fifty-seven tunnels.

On the Pacific slope of the Andes electrical storms are not encountered, at least after one gets below Casapalca and Ticlio, but at Ticlio

and eastward on the Atlantic slope the electrical storms are frequent and cause considerable damage.

As may be imagined, one finds it very cold up around Ticlio and throughout the higher altitudes, but once past Rio Blanco going down the mountain it gets warmer and warmer until we find summer weather from Matucana down to the coast and have a hard time to make ourselves realize that only four or five hours before we were amid perpetual snow and ice. Only people with good hearts and lungs can live in the higher levels, and many new comers and a good number of the old-timers find themselves affected with shortness of breath, dizziness and other evidences of mountain sickness. The natives are more susceptible to this sickness, it is said, than the foreigners.

There are three telegraph lines along this route, two belonging to the railway company and the third belonging to the state telegraphs.

The operators are all natives, and the International alphabet (as referred to in my description of the Cerro de Pasco line in the March 16 issue of Telegraph Age) and the Spanish language are the sole means of communication between the train despatcher and the operators. Many of the American railroad men who come to this line as officials are or have been operators in the United States and Mexico, and when we have anything private to say we say it in "American Morse" which is the best "code" in the world so far as the rest of the men on the line are concerned, for "Morse Americano" is and will probably always remain a mystery to the native operators.

The Hudson Word Register.

The Hudson Word Register for counting the number of words written on a typewriter is now on the market and may be obtained with attachments for applying it to the standard makes of machines. When properly attached, the greatest confidence may be placed in this invention. It can be rendered inaccurate only by the playful and careless operator who forces the space-key far below the spacing point and allows the fingers to slip from the key, releasing it with a snap, causing the register lever to fly upward with uncalled for violence. This motion, which is unnecessary and unnatural, might cause the register to jump. The space-key may be struck with any force desired, but should be released in the usual manner with a smooth, even motion. This insures accurate results.

There being no limit to the continuous forward movement of this register, any number of words may be counted without re-setting by simply taking note of the first 1,500 words and adding thereto the number registered when the work is complete.

To ascertain the number of words written, add the amount registered on the dial to the number appearing through the face.

This useful device is easily set by, first, turning the lower button in the direction of the arrow until it locks, and the pointer rests at 50 on the dial. Next, turn the upper button in like manner until it reaches the stop and the number 1500 appears through the face.

For message work the writer disregards the upper numbers, using the dial and pointer only, which is set by simply turning the button forward until it locks, requiring but one movement, and as little attention as is given in returning the typewriter carriage to commence a new line.

The additional tension on the space key is very light, and in no way interferes with the working of the machine. The register being thoroughly made, nickel plated and of neat appearance, is an ornament to any typewriter and is practically indestructible. Every operator who uses a typewriter will find this invention of great assistance, and it has been the general testimony of those who have used these registers that they would not do without one.

Special directions accompany each counter telling how to attach it to the particular type of machine for which it is wanted.

The price of this useful adjunct to a telegrapher's equipment is $5.00, and orders may be addressed to J. B. Taltavall, Telegraph Age, 253 Broadway, N. Y. In ordering, be sure to specify the make of the typewriter for which the counter is intended, so that the proper attachments and directions may be sent with it.

The Associated Press.

Paul Cowles, superintendent of the Western division of the Associated Press, with offices in San Francisco, has been placed in charge of the Southern division, the headquarters of which have been removed from Washington to Atlanta.

The territory of which Mr. Cowles is now in charge is all that included within the boundaries of the Ohio, the Potomac and Rio Grande Rivers.

The cabinet of Premier Clemenceau of France being dissolved, M. Barthou, former Minister of Public Works, Posts and Telegraphs, has been succeeded by M. Millerand. In the reorganization of the cabinet the office of Under Secretary of Posts and Telegraphs, held by M. Simyan, whose resignation was one of the chief demands of the striking telegraphers in March, and again in May, has been abolished. Thus by a natural process the government employes of France have obtained what they could not secure by striking.

LETTERS FROM OUR AGENTS.

SAN FRANCISCO, WESTERN UNION.

The recent appointment of Harry J. Jeffs to be assistant superintendent at Seattle is a well-earned and far-seeing promotion. Mr. Jeffs, as chief operator of this office for many years, had shown himself to be a man of great ability, and it was largely through his personal efforts that the first telegraph facilities were restored after the earthquake and fire of 1906 and that the subsequent enormous traffic was so ably taken care of. He takes with him to his new sphere the good wishes of all with whom he came in contact while a resident of this city for so many years.

J. A. Lowery succeeds Mr. Jeffs as chief operator. Mr. Lowery has been successively messenger boy, operator, day traffic chief, all-night chief and night chief operator, and is well fitted for his new position.

C. E. Donnelly, formerly manager of the important repeater station at Ashland, Ore., and of large and varied experience in the telegraph service, becomes night chief operator, while W. C. Meredith assumes the duties of night traffic chief.

A. A. Marlatt, formerly manager for this company at the Chronicle office, and recently chief operator at Oakland, has been appointed day traffic chief, vice Frank Morris, transferred to the leased wire department.

Recent arrivals at this office are: Messrs. Dilley, Wrenn, Bibb, Ward, Williamson, Watt and Eldridge.

George E. Palmer, recently night chief operator at Reno, Nev., looks after the traffic in the Barclay printing department, where are now also to be found Misses Jean Thomson, Cora Brown, Celia DeCosta, Grace Schuler, Mrs. Inglis and Mrs. Brown.

A printer circuit to Salt Lake City will soon be added to those to Los Angeles and Portland now in operation, and which have been so successful.

PHILADELPHIA, WESTERN UNION.

J. P. McLoraine, our chief operator, has returned to duty after an extended vacation on account of illness.

Charles Pennypacker, chief mechanic of the Barclay department, is quite a genius. He recently constructed an electric fan and a vibroplex which equals any heretofore made. He has established a machine shop and keeps the Barclay equipment up to date.

Business is improving and there are many new faces in the office. Most of them are young men and give promise of becoming successful members of the profession.

Mrs. M. J. Schofield, of the main office, is manager for the summer at the Chelsea Hotel branch office, at Atlantic City.

Miss Margaret Dahl has been appointed manager of the office in the Witherspoon building.

Miss Margaret Chapman has transferred her services from the 23rd Street and Ridge Avenue branch to the main office.

H. V. Hudgins, who has been appointed manager of the Delaware Avenue market office, vice Mr. Powers, deceased, has been made happy by the birth of a son.

LOS ANGELES, CAL., POSTAL.

F. C. Hubbard, of Redlands, has been appointed manager of the "Cx" office, located at the corner of Third Street and Central Avenue. Miss Vivian Carlson of that branch has been transferred to the main office.

Among recent callers at this office were: Miss Helen Steadman, manager at Pomona, Cal.; Mr. Moody Rosenquest, manager at Pasadena, and Mr. Tarr, manager at Kingman, Ariz.

Miss Nellie Needham, our cashier, is spending a month in San Francisco. During her absence her work is being cared for by Solicitor E. K. Backus.

NEW YORK, WESTERN UNION.

F. D. Giles, assistant chief operator, is very much elated over the winning of the motor boat race from Brooklyn to Marblehead, Mass., by the forty-foot Elmo II, owned by his son. He is to be especially congratulated as his boat was the smallest craft entered.

Mrs. C. Gray is located at Pasque Island, Mass., as stenographer and operator.

Miss Jennie F. Powell has been assigned to the U. S. Hotel, Saratoga, for the summer.

Mr. E. Mesler is again this year in charge of the military camp office at Sea Girt, N. J.

J. P. McCarthy passed around the cigars among his friends, July 26, the arrival of a son at his home being the cause.

Mrs. Ethel Curtis has returned from Chicago, after an absence of several months.

P. O. Purcell is a new arrival at this office, having for the past year been wireless operator on a steamer plying between New York and Central American and West Indian ports.

According to a clipping from a Syracuse paper of fifty years ago, on July 7, 1859, William L. Ives, now of this office, became operator of a new telegraph office established by the Central Company, now the New York Central Railroad, at Skaneateles Junction, N. Y.

Mrs. John Williams, of Sherburne, N. Y., after a service of over fifty years at the key, has retired from active service.

OTHER NEW YORK NEWS.

Assessments Nos. 495 and 496 have been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of William L. Davis, at Laurel, Miss.;

William Spinner, at Eureka, Nev.; Eugene Smith, at Augusta, Ill.; George H. Harris, at Rochester, N. Y.; Wesley D. Claiborne, at Savannah, Ga.; John A. Brenner, at Jacksonville, Fla.; Frederick Crouse, at Riegelsville, Pa.; Orry M. Shepard, at New Haven, Conn.; David S. Carson, at Atlanta, Ga.; Henry McPhillips, at Terre Haute, Ind., and Charles L. Buckingham, at New York.

The Western Union Telegraph Company and the Postal Telegraph-Cable Company have opened splendidly equipped offices in the Hudson Terminal Building, 30 Church Street. This is one of the largest office buildings in the country, as well as the railroad terminal for the Hudson River tunnels leading to Jersey City, Hoboken and other points in New Jersey.

Obituary.

William J. Grier, aged fifty-six years, and for many years one of San Francisco's most prominent operators, died of paralysis July 5. For several years past Mr. Grier has been a prosperous ranchman in Sonora County, Cal.

Charles H. Lithgow, aged sixty-five years, for forty years identified with the telegraph in Chicago, but for several years past a member of a brokerage firm at that point, died on July 1. Mr. Lithgow was a telegrapher for the Government during the Civil War.

Edwin Trenam, aged sixty-six years, who was connected for over thirty years with the British telegraph system, and who for several years until 1906 had charge of the main telegraph office in London, died July 4.

Robert Pitcairn, aged seventy-three years, died at his home in Pittsburg, July 25. Mr. Pitcairn entered the telegraph service in 1849 as messenger for the Atlantic and Ohio Telegraph Company at Pittsburg through the recommendation of Andrew Carnegie who was also a messenger boy at the time and with whom he was a lifelong friend. In 1853 he entered the employ of the Pensylvania Railroad as operator, from which position he advanced until he became assistant to the president, retiring in 1906, after fifty-three years of continuous service for the Pennsylvania, upon reaching the age limit of seventy years. Mr. Pitcairn was well known in telegraph circles and was a member of the executive committee of the Old Time Telegraphers' and Historical Association.

Telegraph Age a General Subscription Agency.

We are frequently asked if we will accept subscriptions for other publications and thus save individuals the trouble of writing to several different papers when their subscriptions expire, usually at the end of the year or the first of July. We desire to inform all that Telegraph Age acts as a clearing house for such matters. Those desiring to subscribe for or renew their subscriptions for any publication in the world can do so through this office without any expense or trouble to themselves beyond remitting to us the amount of their subscription and giving the particulars.

Mr. P. W. Williams, of the Postal Telegraph-Cable Company, Detroit, was selected by his company as its official reporter to accompany the five cars entered in the Glidden endurance contest which left Detroit, July 12, for an extended tour of the country.

The Serial Building Loan and Savings Institution, 195 Broadway, New York, was recently referred to in one of the daily papers of New York as one of the most successful organizations of the kind. This reflects great credit on the wise and conservative management and should encourage and convince favorably all who deal with this old and tried concern which can confer practical benefits upon all who desire its co-operation. Inquiries, personal or by letter, are requested.

Advertising will be accepted to appear in this column at the rate of fifty cents a line, estimating eight words to the line.

For Sale.—Patent No. 870,486, for conducting wire support and insulator, issued November 5, 1907, as described elsewhere in this issue. Will sell patent outright or on a manufacturers' royalty basis. Experts claim that this device is superior to and more economical than any now on the market. Address "Insulator," care of Telegraph Age, 253 Broadway, New York.

Will buy or sell, in one to ten-share lots, Western Union Telegraph Company and Mackay Companies stocks. Remittances by New York draft or express money order are requested. Address "Stock Investment," care Telegraph Age, 253 Broadway, New York.

Rubber Telegraph Key Knobs.

No operator who has to use a hard key knob continuously should fail to possess one of these flexible rubber key caps, which fits snugly over the hard rubber key knob, forming an air cushion. This renders the touch smooth and the manipulation of the key much easier. Price, fifteen cents.

J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Some Valuable Telegraph Books.

All of the books described in the following list embody a choice number from which selections may advantageously be made, and furnishes an excellent catalogue for the consideration of telegraphers desirous of selecting suitable books for study. Any book named will be sent upon receipt of price to any address, carrying charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York:

POCKET EDITION OF DIAGRAMS.

"Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students" is acknowledged on all sides to be the standard work of the telegraph. Speaking strictly within bounds, it is not too much to say that this volume presents the finest study of the complex subject of the telegraph ever attempted. There is no other book like it or even approaching it, in thoroughness, comprehensiveness, or in original detail of statement. The author, Willis H. Jones, is a practical telegrapher himself—an engineer in his profession of recognized ability, who knows exactly what other telegraphers want to know, and has the faculty of imparting that knowledge in a manner at once so clear, so simple, so bright, so entertaining, so free from needless technicalities, that his readers, even the least informed among them, readily understand his meaning. The helpful qualities of the work will be clearly manifest alike to the beginner, to the student, to the operator and to all telegraphers, whether in the commercial or in the railroad service.

"Pocket Diagrams" does not deal in theory; it is packed full from cover to cover of the common sense of telegraphy, the side which the ordinary every day operator runs up against, and respecting which he desires information of the kind that will aid, not mystify him. The book contains 334 pages, and has 160 splendid diagrams. It has the unqualified endorsement of telegraphers everywhere.

The price of "Pocket Edition of Diagrams," etc., is $1.50.

PHILLIPS CODE.

The popularity of the Phillips Code, by Walter P. Phillips, was never more apparent than at the present time. Its acceptance by the telegraphic fraternity, as a standard work of the kind, dates from its first publication, and the constantly increasing demand for this unique and thoroughly tested method of shorthand arranged for telegraphic purposes, has necessitated from time to time the issuance of several editions. The present edition was carefully gone over, a few revisions made and a number of contractions added, until now this "stanch friend of the telegrapher" is strictly up-to-date in every particular. It has been declared that an essential qualification of a "first-class operator" was a thorough understanding of Phillips Code.

Many expert code operators have examined the revised edition of this code, and all unite in pronouncing it perfect. Mr. George W. Conkling, who has won the championship for sending code in many tournaments, says:

"I have examined thoroughly the additions contained in the latest edition of the Phillips Code and most heartily approve of them. Every operator who is familiar with the code should find no difficulty in mastering the new contractions, as they 'fit in' smoothly and I think the ground has been entirely covered." The price of the book is $1 per copy.

"Telegraphers of To-day," illustrating the personnel of the telegraphic profession, as it existed in 1894, with more than 900 biographical and historical sketches of leading members of the craft, is a unique and valuable work; it has become standard, being the only work of the kind extant. It contains 354 double-column pages 7 x 11 inches in size, has gilt edges and is bound in imitation morocco.

Of this fine publication, becoming more and more valuable as times passes, we have but a few copies left. The original price was $5. In order to readily dispose of these remaining volumes, and place them where they rightfully belong, in the hands of every telegrapher who failed to secure a copy at the higher original price, we have cut the figure to $2 a volume, express charges prepaid. At this low rate, a sum about the cost of binding the book, no telegrapher who desires to own a copy should fail to obtain one at this time, for this "bargain" price will probably never be repeated.

The life of Prof. S. F. B. Morse, is the standard work, authorized by the Morse family, and compiled from original papers and other authentic data in their sole possession. It is a clearly written biography, charmingly told by a trained newspaper man, a close personal friend, and presents the life of this great inventor of the telegraph in a broader, more intense, human and truthful attitude than ever before attempted or even made possible; 775 pages, illustrated; sheepskin binding. The original price was $6, which we have reduced to $3, on receipt of which the book will be sent, express charges prepaid.

"The Telegraph in America," by the late James D. Reid, the "father of the telegraph," furnishes an authentic and complete history of the telegraph, tracing out its early start, its development, the organization of the various telegraph and cable companies, etc. The book is bound in full Russia, has 846 pages and is abundantly illustrated; a magnificent gift to any telegrapher. There are now but a few copies left of this great work and when these are gone the work will be out of print. The original price was $7, but as the covers are a little shopworn the price has been reduced to $5.

"Sketches Old and New," by Walter P. Phillips, is a handsomely bound volume of 164 pages of interesting and charmingly told telegraph stories; one of the very best works of the kind ever published and which will appeal strongly to every telegrapher; price $1.

"Lightning Flashes and Electric Dashes," a book made up of bright, ably written stories and sketches, telegraphic and electrical, that should find a place in the home of every telegrapher; 160 large double-column pages; profusely illustrated; price reduced from $1.50 to $1.00 per copy.

Old Timers' Souvenir—Miniature Legless Key. This is a beautiful emblem for operators; an attractive charm for the watch chain; a perfect duplicate in every detail of the celebrated miniature steel lever telegraph key that attracted so much attention and which was distributed as a souvenir at the banquet of the Old Time Telegraphers' and Historical Association at the Waldorf-Astoria, New York, August 31, 1905. It has a French lacquered body and nickel-plated lever. Price, by registered mail, prepaid, $1.50.

The diagrams appearing in "Official Diagrams of the Postal Telegraph-Cable Company's Apparatus and Rules Governing the Construction and Repair of Lines" were made from the company's blueprints and are absolutely correct. This volume, which is published by Telegraph Age, under official sanction and supervision, is of especial value to operators and linemen. It will be sent to anyone, postpaid, on receipt of fifty cents.

By taking a little trouble, when TELEGRAPH AGE first comes to hand, it may be preserved to form a permanent and valuable addition to the reading matter of a kind which all telegraphers should be supplied. We furnish a neat and attractive cloth board binder, which will be sent by mail, prepaid, for $1. It has good, strong covers, on which the name TELEGRAPH AGE is stamped in gold, and means by which each issue may be securely held as in a bound book. One binder may thus be made serviceable for a number of years, and when successive volumes, as they are completed, are bound in permanent form, the subscriber ultimately finds himself, for a moderate cost, in possession of a most valuable addition to his library, embracing a wide variety of telegraph, electrical and general information.

Interesting Subjects Treated in Back Numbers.

Telegraph Age publishes the best articles which can be obtained anywhere upon telegraphic subjects. We enumerate herewith a few of the many important subjects treated in our columns during the past few years, together with the dates of the papers containing the same. We have a limited supply of the back numbers containing these articles which we will send to any address upon receipt of price, 25 cents each. Any of these issues less than six months old are not regarded as back numbers, but will be sent upon receipt of the regular price, 10 cents. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Anniversary Number, Twenty-fifth Year, Containing Full-Page Engravings of Officials and History of Various Telegraph Companies.....Jan. 1, 1908
Automatic Telegraph Systems:
Wheatstone Transmitter, C. C. Vyle and E. V. Smart.Aug. 1, 1907
Batteries:
Dry, U. J. Fry.....Aug. 1, 1908
Storage, in Signal Service, H. M. Beck.....Oct. 16, 1908
Cables:
Atlantic, of 1858, Wm. Maver, Jr.....Oct. 16, 1908
Commercial Company, G. G. Ward.....Jan. 1, 1909
Semi-Centennial of First Atlantic.....April 16, 1908
Submarine Repeater.....April 1, 1909
Information Concerning W. H. Jones....Mar. 16, April 1, 1907
Call Circuits:
Arrangement of, J. F. Skirrow.....Feb. 1, 1909
Condensers:
The Condenser, W. H. Jones.....June 1-16, July 1, 1909
Directory:
Complete List of All Telegraphic Officials.....Jan. 1, 1909
Duplex Telegraphy:
Central Battery, C. C. Vyle and E. V. Smart.....June 1, 1909
Common Battery, C. E. Hay.....Dec. 1, 1908
Study of Circuit.....Oct. 16, 1908
Fire-Alarm Telegraphs:
History of.....Aug. 16, 1906
Progress of, J. W. Stover.....Jan. 1, 1903
Induction:
How to Neutralize Effects, W. H. Jones.....April 1, 1908
Disturbances Due to, J. B. Taylor.....July 16, 1907
Instruments, Electrical:
Don'ts for Users of.....Mar. 1, 1908
Invention:
Of the Telegraph, F. W. Jones.....Jan. 1, 1907
Line Construction:
Rules for, Postal.....April 1-16, May 1-16, 1904
Specification of Am. Tel. & Tel. Co.....Feb. 16, Mar. 1-16, 1904
Storms and.....May 16, 1909
Perforators:
Creed Receiving.....July 1, 1907
Poles:
Experiments with Concrete, G. A. Cellar.....July 1, 1907
Preservative Treatment by Open Tank Process.....Jan. 1 1908
Printing Telegraph Systems:
Barclay, W. Finn.....June 16, 1908, to Mar. 1, 1909
(Price for complete set, $3.00.)
Buckingham.....Sept. 1, 1902
Burry.....April 1, 1903
Creed.....Nov. 16, 1908
Murray.....Sept. 16, 1906
Rowland.....Sept. 16, 1903, May 1, 1907
Rowland, Discussion of.....May 16, 1907
Story of Systems.....Jan. 1, 1903
Quadruplex Telegraphy:
A New Apparatus, W. H. Jones.....Mar. 16, 1909
With Smith Neutral Relay, J. F. Skirrow.....Jan. 1, 1909
Rectifiers:
Chemical, W. H. Jones.....Sept. 16, 1908
How to Make Chemical, G. P. French.....Mar. 1, 1909
Mechanical.....April 16, 1909
Mercury Vapor, W. H. Jones.....Sept. 1, 1908
Relays:
Polar, Construction of, W. H. Jones.....May 1, 1908
Frin, Self-Polarizing Quadruplex, W. H. Jones.....May 16, 1908
Repeaters:
Atkinson.....Feb. 16, 1902
Elementary Lessons on, W. H. Jones.Nov. 1, 1908, to Jan. 1, 1909
Half-Milliken.....Feb. 16, 1902
Horton.....Mar. 1, 1902
Defective Loop.....Mar. 1, 1902
Milliken.....Jan. 16, 1902
Neilson.....Feb. 1, 1902
Simple Half Set, J. B. Dillon.....April 16, 1909
Weiny, Half Set.....Oct. 1, 1908
Weiny Phillips.....Feb. 1, 1902
Wood Double Loop.....Mar. 16,1903
Steno-Telegraphy:
The Polyglot Stenocode, A. C. Baronio.....May 1, 1908
Switchboards:
Way Station, J. H. Gingrich.....Dec. 16, 1908
Telegraph Engineering:
A Study of.....Nov. 1-16, 1908
Telegraph Systems:
Dean Rapid.....Aug. 16, 1907
Of the Future, W. J. White.....Feb. 16, 1907
Phantoplex.....Sept. 1, 1905
Sextuplex, W. H. Jones.....Sept. 1, 1905
Telegraphy and Telephony:
Composite System, E. R. Cunningham.....July 16, 1908
Italian Composite.....Nov. 16, 1908
Rugh Composite System.....May 1, 1908
Telephone:
Construction, J. C. Kelsey.....July 1, 1909
Despatching Trains by, W. W. Ryder.....June 16, 1909
The Telephone, W. H. Jones.....April 1-16, May 1-16, 1909
For Train Despatching, W. E. Harkness.April 1-16, May 1-16, 1909
Testing:
By Voltmeter and Ammeter, F. W. Jones.....Nov. 1, 1906
Insulation by Milliammeter.....May 16, 1908
Murray Loop Method, W. H. Jones.....Jan. 16, 1909
Use of Wheatstone Bridge, J. P. Edwards.....May 16, 1909
Varley Loop Method, W. H. Jones.....Aug. 1, 1907
Tickers:
Scott-Phelps-Barclay-Page Self-Winding.....Oct. 1, 1903
Undergrounds:
English System.....June 1-16, July 1-16, 1909
Underground Lines.....April 1, 1909
Wire Chief:
How to Become One, W. H. Jones....Jan. 1-16, Feb. 1-16, 1908
Wireless Telegraphy:
Commercial Application of, G. Marconi.....Mar. 16, 1908
Communication Over Sea by, J. E. Murray.....April 1, 1908
Early History of, J. E. Taylor.....June 1, 1909
In American Republics.....May 1, 1909
Signaling Through Space, C. D. Babcock.....Jan. 1, 1909

The publisher of Telegraph Age urges upon subscribers to this journal the desirability of having the paper sent to their home address rather than to their place of business. The reason is obvious. If it goes to your home it reaches you without danger of obstruction or abstraction by your office associates who are sometimes prone to borrow your copy to your discomfiture and their edification, but at your expense. This naturally is a source of irritation and of course you don't like it. If a man wants Telegraph Age he should pay for it, and the individual who is paying for his copy should be guaranteed in his rights.

As we regard our subscribers as our friends, and believe we are supplying them with a telegraph paper the like of which does not elsewhere exist, we dislike to see them disappointed, and wish to protect them in their prerogative so far as we are able. We believe that a good many disappointments of non-receipt of the paper might be averted if our suggestion of sending it in all cases to the homes of its subscribers were adopted. Changes of address will be made as often as desired.

Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Los Angeles, Calif., May, 1910.

Commercial Cable Company meets the first Monday in March, at New York.

Gold and Stock Life Insurance Association meets the third Monday in January, at New York.

Great North Western Telegraph Company meets the fourth Thursday in September, at Toronto, Ont.

International Association of Municipal Electricians meets at Young's Hotel, Atlantic City, Sept. 14, 15, 16, 1909.

Old Time Telegraphers' and Historical Association and the Society of the United States Military Telegraph Corps, will meet at Fort Pitt Hotel, Pittsburg, Pa., Aug. 17, 18, 19.

Postal Telegraph-Cable Company meets the fourth Tuesday in February, at New York.

Telegraphers' Mutual Benefit Association meets the third Wednesday in November, at New York.

Train Despatchers Associations meets in Spokane, Wash., June 21, 1910.

The stockholders of the Western Union Telegraph Company meet the second Wednesday in October, at New York; election of officers occurs on the third Wednesday in October.

THE POST OFFICE ELECTRICAL ENGINEERS' JOURNAL.

(The Organ of the Institution of the Post Office Electrical Engineers)

Published Quarterly, in January, April, July and October. An Illustrated Journal for all interested in Telegraphs and Telephones.

EDITORS:—H. R. Kempe, M.Inst.C.E., M.I.E.E. (Chairman); H. Hartnell, A.M.I.E.E.; T. F. Purvis, A.I.E.E.; A. W. Martin, A.M.I.E.E.; A. O. Gibbon; J. E. Taylor, A.M.I.E.E.; D. H. Kennedy, A.M.I.E.E. (Managing Editor).

Annual subscription—4s., paid in advance. Single copies, post free, 1s. 3d.

Publishers, Messrs. Alabaster, Gatehouse & Co., 4 Ludgate Hill, London, E.C.

A New Edition of Maver's "American Telegraphy."

A new edition of Maver's "American Telegraphy and Encyclopedia of the Telegraph" is now ready for delivery. This will be known as the 1909 edition. The more important additions to the work at this time are descriptions of the Murray Printing Telegraph as now used in Europe, and of the Barclay Long Distance Printer, as operated on the lines of the Western Union Telegraph Company. This standard work on telegraphy now contains 668 pages and 492 diagrams. The new edition comes out in a new and distinguishing cover of dark green cloth. This book is a library on telegraphy in all its branches. It is used as a text-book in some of the largest universities in this country. It is written in plain English and practically without recourse to mathematics; hence it comes within the comprehension of the veriest beginner. No aspiring telegrapher can afford to be without it. This fine work will be sent to any address, carrying charges prepaid, on receipt of price, $5.00, by J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Telegraph Age is the leading journal of its class in the world, and should be in the hands of every progressive operator; $2 a year.

TELEGRAPH AGE

A Semi-Monthly Journal Devoted to Land Line Telegraphs, Submarine Cable Interests and Radio-Telegraphy

Office of Publication: 253 BROADWAY, NEW YORK

ESTABLISHED 1883

Single Copies 10 Cents. For Yearly Subscription Rates See Editorial Page

No. 16. NEW YORK, AUGUST 16, 1909. Whole No. 630.

TELEGRAPH AND ELECTRICAL TRADES DIRECTORY

DRY BATTERIES

Rock Island Battery Co., 909 Sycamore St., Cincinnati, Ohio.

PRIMARY BATTERIES.

Edison Manufacturing Company, Orange, N.J.

STORAGE BATTERIES.

The Electric Storage Battery Co., Philadelphia

CODES

TELEGRAPH CODES

ALL KINDS

Send for Catalogue

Every Telegraph Agent Entitled to Commission

AMERICAN CODE COMPANY NEW YORK

CONDENSERS.

William Marshall, 709 Lexington Ave., N. Y.

FIRE-ALARM AND POLICE TELEGRAPH.

Gamewell Fire Alarm Telegraph Co., 19 Barclay St., New York.

INSULATORS.

Specify BROOKFIELD GLASS INSULATORS. THE STANDARD.
BROOKFIELD GLASS COMPANY,
United States Express Building, Trinity Place, Greenwich and Rector Streets.

BARCLAY INSULATORS

MANUFACTURED BY THE

HEMINGRAY GLASS COMPANY

Established in 1848

OFFICE: COVINGTON, KY.

TELEGRAPH AND CABLE COMPANIES.

Canadian Pacific Railway Co.'s Telegraph, E. M. Bender, purchasing agent, Montreal, Que.

Commercial Cable Co., Commercial Pacific Cable Co., German Atlantic Cable Co., W. D. Francis, purchasing agent, 14 Desbrosses St., New York.

Great North Western Telegraph Co. of Canada, Geo. D. Perry, purchasing agent, Toronto, Ont.

North American Telegraph Co., H. A. Tuttle, general manager and purchasing agent, Minneapolis, Minn.

Postal Telegraph-Cable Co., Executive Offices, 253 Broadway, New York; purchasing agent, W. D. Francis, 14 Desbrosses St., New York.

Postal Telegraph-Cable Co. of Texas, S. M. English, general manager and purchasing agent, Dallas, Tex.

Western Union Telegraph Co., Executive Offices, 195 Broadway, New York; purchasing agent, H. E. Roberts, 152 Franklin Street, New York.

DEAN RAPID TELEGRAPH CO.

Cheap Rates : : : : : Quick Service
Accuracy and Secrecy Guaranteed.
General Office : : : : Kansas City, Mo.

TELEGRAPH AND ELECTRICAL SUPPLIES.

J. H. Bunnell & Co., Inc., 20 Park Place, New York.

Central Electric Co., 264-270 5th Ave., Chicago.

Foote, Pierson & Co., 160-162 Duane St., New York.

W. R. Ostrander & Co., 22 Dey St., New York.

TRANSMITTING INSTRUMENTS.

Dunn Peerless Key, 1 Broadway, New York.

TELEPHONE TRAIN DESPATCHING SYSTEMS.

General Railway Signal Co., Rochester, N. Y.

Kellogg Switchboard & Supply Co., Chicago.
Sandwich Elec. Co., Sandwich, Ill.
Western Electric Co., New York.

TESTING INSTRUMENTS.

Weston Electrical Instrument Co., Newark, N. J.

TYPEWRITERS.

Remington Typewriter Co., 327 Broadway, New York.

Smith-Premier Typewriter Co., Syracuse, N.Y.

WIRES, CABLES, ETC

Kerite Insulated Wire & Cable Co., 30 Church St., New York.

Okonite Company, 253 Broadway, New York.

John A. Roebling's Sons' Co., 117-121 Liberty St., New York.

SELF WELDING WIRE JOINTS FOR COPPER OR IRON WIRE

Adopted by many Railroads, W. U. Tel. Co. and others

COOK SPLICING CLAMP

FOR MAKING SLEEVE OR BARE WIRE SPLICES

FRANK B. COOK

252 W. LAKE ST. CHICAGO, U.S.A.

Any electrical or telegraph book published, for sale by Telegraph Age, 253 Broadway, New York.

PLEASE MENTION TELEGRAPH AGE

WHEN WRITING TO ADVERTISERS

KEEP UP-TO-DATE

SUBSCRIBE FOR

TELEGRAPH AGE

W. R. OSTRANDER & CO.

Manufacturers of

Speaking-Tube Goods
Electric Bells
Annunciators
General Electric Supplies

22 DEY STREET, NEW YORK

Send for Catalog

EVERY GOOD OPERATOR

SHOULD HAVE A GOOD WORD COUNTER
THEY SAVE TIME AND TROUBLE

They record the exact number of words written upon any writing machine. They are an ornament to any typewriter. Simple and durable. Cannot get out of order. Unlimited counting capacity. Can be instantly reset. Warranted accurate.

Mailed to any Address upon Receipt of $5.00

In ordering state what machine you use, as attachments differ. Remit by express or post office money-order to

JOHN B. TALTAVALL, Telegraph Age, 253 Broadway, N. Y.

TELEGRAPH AGE

No. 16. NEW YORK, AUGUST 16, 1909. Twenty-sixth Year.

CONTENTS.

SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

From Office Boy to Manager.

PART II.

THE TRAFFIC CHIEF.

In telegraphic service the term "Traffic Chief" is a title usually bestowed upon the person who has direct charge of the operators and the traffic in a certain division of the operating department. In some offices, principally in the West, he is called a Division Chief, the title given his immediate superior officer in the East.

Probably the great majority of operators who aspire to the position have the impression that the requirements of the same are of so simple a nature that almost any one possessing ordinary intelligence and ability should be able to fill the place satisfactorily. This viewpoint of the situation, however, is decidedly wrong as may readily be shown.

In the language of one of the oldest and best known officials of one of the telegraph companies, "it is comparatively easy to fill most positions, but material for a good traffic chief is hard to find."

That there is much ground for this assertion may be inferred from the fact that theoretically at least, the traffic chief is supposed to know everything that transpires in his division and be able to account for every error or oversight on his part or that of his operators in the event of being called upon in the future for explanations.

Of course, from a practical standpoint, he cannot possibly know all that transpires, but he can and must so direct operations that in case an error or oversight does occur the same can be easily traced, and the party responsible for it located. A traffic chief obviously cannot inspect every message that is filed in his division, but he can instruct each operator to watch his own hooks closely, keep a good record of wire trouble, and report any unusual delay. Thus by means of lieutants he derives the benefit of a personal inspection, especially if the latter know they will be held responsible for oversights due to negligence.

SHOULD BE RESOURCEFUL.

The distinguishing mark between an expert traffic chief and those of average ability is that the former is resourceful. He does not wait until the unforeseen happens and then augment the original delay by having first to seek the remedy or information from others before acting, but has such knowledge already at hand. In other words he is a man who has anticipated all reasonable possibilities in the way of interruptions to wire or traffic and has his plans ready to meet the emergency at a moment's notice.

In a division consisting mostly of through circuits delays naturally occur at times owing to wire interruptions, thereby necessitating the disposal of the business via irregular channels. It is at such times that the true calibre of the traffic chief is revealed. If he is indifferent he will simply clear his own skirts by rerouting the messages indiscriminately to any station or stations which will consent to take them. His one aim is to get the business off his hands and show clean hooks.

Now a conscientious chief would not be satisfied with that remedy. He would first want to be certain that the stations accepting them had proper facilities for handling them before abusing the confidence of the patrons of the company by subjecting the messages to a possible further delay.

REROUTING BUSINESS.

When it comes to diverting traffic from regular channels the chief in charge of the division should exercise considerable judgment. First of all, as previously stated, he should make sure that the irregular channel is clear and possesses ample facilities for re-forwarding the business promptly, otherwise it would be advisable to risk holding

it a reasonable time longer unless all hopes of restoring the regular circuits are actually abandoned.

Before diverting business the text of each message should invariably be inspected and those demanding prompt delivery placed on top of the pile and the attention of the manager of the repeating station called to their importance.

There is always a certain class of messages which will stand a little delay, and these may be held for the regular circuit. But there is another class which become absolutely useless within a certain time limit, such as those referring to the meeting of trains, selling bonds or stocks at existing quotations, press matter for an early edition of newspapers, and a thousand other plainly indicated situations which require intelligence to properly appreciate and to arrange the messages in the order their respective importance demands.

(To be continued.)

Recent Telegraph and Telephone Patents.

A patent, No. 927,469, for a sender for selective systems, has been granted to F. G. Agrell, of Stockholm, Sweden.

A patent, No. 927,470, for a telephone divided multiple switchboard system, has been taken out by W. Aitken, of Muswell Hill, England.

A patent, No. 927,643, for a transmitter mouthpiece, has been awarded to W. W. Dean, of Elyria, Ohio. A sheet steel metal mouthpiece with perforations in the end wall and an enamel coating.

A patent, No. 927,651, for a selective telephone system, has been issued to H. G. Guyle, of Sargent, Neb.

A patent, No. 927,663, for a harmonic signaling system and magnetic hand generator therefor, has been secured by R. H. Manson, of Elyria, Ohio.

A patent, No. 927,664, for a telephone operator's key, has been taken out by R. H. Manson, of Elyria, Ohio.

A patent, No. 927,739, for a telephone relay, has been granted to R. H. Manson, of Elyria, Ohio.

A patent, No. 927,816, for a selective ringing and talking device, has been issued to Charles O. Sisler and Lloyd D. Smiley, of Uniontown, Pa.

A patent, No. 928,115, for a telephone metering system, has been awarded to Richard M. Eaton, of Niagara Falls, N. Y.

A patent, No. 928,171, for a telephone system, has been granted to Moriz Baumer, of Nuremberg, Germany.

A patent, No. 928,188, for a coin box for telephones, has been secured by Charles S. Ellis, of Chicago, Ill.

A patent, No. 928,431, for a guard for telegraph and telephone wires, has been granted to C. J. Elliott, of Oxnard, Cal. For high-tension wires to keep them from coming into contact with telegraph wires by means of a guard frame supporting the wire away from the pole, the frame being grounded.

A patent, No. 928,478, for a telegraph pole, has been granted to William H. Smalley and Harvey R. Smalley, of Corning, Ark. Comprises a hollow upright, with a stile movable vertically within it, rungs pivoted to the stile and projecting through the wall of the upright, side stiles secured upon the inner face of the wall of the upright, and means whereby the first-mentioned stile may be moved vertically to adjust the rungs to operative or inoperative position.

A patent, No. 928,651, for a sound-producing instrument, has been issued to F. Gottschalk, of New York, N. Y.

A patent, No. 928,589, for an intensifier for telegraph sounders, has been issued to Ralph W. Crawford, Jr., Ralph H. Beck and Lewis W. Davies, of Lamar, Col. A sound box amplifies the sound.

A patent, No. 928,652, for a resistance cup, has been secured by F. Gottschalk, of New York.

A patent, No. 928,680, for a telephone system, has been taken out by D. W. May, of Kansas City, Mo.

A patent, No. 928,862, for a telephone apparatus, has been awarded to E. A. Graham, of Brockley, London, England.

Patents Nos. 928,581 for a telegraphic typewriter, and 928,582 for a polarized magnet, and 928,583 for a method of unidirecting electric currents, have been awarded to Elmer A. Burlingame, of San Francisco, Cal.

The following patents have expired:

Patent No. 479,184, for a facsimile telegraph, held by T. A. Edison, of Menlo Park, N. J., and P. Kenny of New York.

Patent No. 479,859, for a telegraph key, held by Albert F. Tucker, of Auburndale, Mass.

Patent No. 479,950, for a fire alarm telegraph indicator, held by Frank F. Loomis, of Akron, Ohio.

Personal.

Mr. Richard O'Brien, assistant superintendent of the Western Union Telegraph Company, and his brother, Dr. J. Emmett O'Brien, of Scranton, Pa., were recent vistors in New York.

Mr. David Lynch, formerly and for many years up to 1903 chief operator of the Western Union cable department at 16 Broad Street, New York, but for the past six years electrician on the cable steamer "Burnsides," belonging to the United States Signal Service, with headquarters at Seattle, Wash., is a visitor in New York.

Canadian Pacific Railway Company's Telegraph.

Mr. James Kent, manager of the system, accompanied by Mr. W. J. Camp, electrical engineer, and Mrs. Camp, left Montreal on August 10 for a western trip of inspection which will take them to the Pacific Coast. Mr. B. S. Jenkins, general superintendent at Winnipeg, will accompany the party from that point to the coast. The various superintendents will be picked up en route, each covering his own division.

Mr. William Marshall has been appointed superintendent, with headquarters at Toronto, for the Ontario division, succeeding Mr. A. W. Barber, deceased.

Albert W. Barber, aged fifty-four years, superintendent at Toronto, died July 29 of diabetes. Mr. Barber was born at Toronto, and the larger part of his telegraphic career has been spent in that city. He entered the service of the company in 1886 as manager of the Toronto office, which position he held until 1899, when he was promoted to the superintendency.

William Marshall, Superintendent of Canadian Pacific Railway's Telegraph at Toronto.

Mr. William Marshall, who has been appointed superintendent of the Canadian Pacific Railway's Telegraph at Toronto, was born at Garden Island,

WILLIAM MARSHALL, TORONTO.
Superintendent of Ontario Division of Canadian Pacific Railway Company's Telegraph.

Ontario, May 18, 1859. He entered the service of the Dominion Telegraph Company at Toronto in 1876 as assistant in the Stores Department, afterward serving the same company as operator and lineman at St. Catharines. From 1878 until 1880 he was employed as foreman of line construction by the Canada Mutual Telegraph Company, and from 1880 until 1886 by the Western Union Telegraph Company at Buffalo, N. Y. In 1886 he entered the Canadian Pacific employ at Toronto and was appointed inspector for that company, which position he held until 1906, when he was appointed superintendent of construction. His present appointment is thus but a fitting recognition of long-continued services, which have always been rendered with complete satisfaction to his employing interests. Mr. Marshall, being a regular attendant at the meetings of the Association of Railway Telegraph Superintendents, is personally well known in telegraph circles throughout the country.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Mr. Edward J. Nally, vice-president and general manager of the company, is absent from his office enjoying a well earned vacation.

Mr. Isaac Smith, superintendent of tariffs, has returned to his office after an absence of two weeks spent in the country.

Mr. L. Lemon, division superintendent, of New York, is relieving Mr. C. E. Bagley, superintendent at Philadelphia, while the latter is away on vacation.

Mr. J. R. Skirrow, associate electrical engineer, has returned from a vacation spent mainly at Saratoga and Lake George. Mr. F. E. d'Humy, assistant electrical engineer, has gone to Pennsylvania to spend a few weeks.

Superintendent H. D. Reynolds, of Buffalo, was a recent New York visitor, as was also G. H. Mills, manager at Providence, R. I.

Mr. Alfred R. Horry, manager of the Greensboro, N. C., office, was on July 21 married to Miss Frieda Buhman, employed by the Western Union Telegraph Company.

A new office has been established at Goldsboro, N. C., with Miss L. B. Parrott as manager.

The offices at Wilmington, N. C., and Charleston, S. C., have recently been moved to more commodious quarters, which have been handsomely fitted up with all modern conveniences and equipment for the handling of the growing business at those points.

The office at Lynchburg, Va., has been remodeled, attractively decorated, and now presents a most pleasing appearance.

RESIGNATIONS AND APPOINTMENTS.

Mr. J. T. North, for some time manager at Wilmington, N. C., has resigned to travel abroad for a year or two. He has been succeeded by Mr. E. H. Bass, transferred from the management at Newport News. Mr. Bass is succeeded by Mr. H. L. Bush from the management at New Bern, N. C., who is in turn succeeded by Mr. J. G. Frasier from the operating force at Greensboro, N. C.

Mr. J. W. Brooks has been appointed manager at Greenville, N. C.

Mr. H. S. McKagen has been appointed manager at Sumter, S. C., succeeding Mrs. E. D. Wilson, resigned.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Mr. J. B. Van Every, vice-president of the company, celebrated his seventieth birthday July 30. Upon going to the lunch room at noon he found much to his surprise that a large birthday cake and bouquet of flowers had been provided for him by his fellow officers, and many of the executive officers were seated around the table all of them uniting in giving him a hearty reception.

Mr. G. W. E. Atkins, vice-president of the company, who has been absent from his office on account of sickness for the past two weeks, is now convalescent and expects to return to his desk shortly.

Mr. John C. Willever, secretary of the company, will spend his vacation by making an extended trip to the Pacific coast, and will be absent about five weeks.

Mr. E. Boening, assistant superintendent of the company, at Boston, Mass., has transferred his services to San Francisco, where he will act as chief clerk to General Superintendent Mr. Frank Jaynes.

Mr. John P. Altberger, superintendent at Philadelphia, is in Europe and will be absent about a month.

Mr. A. G. Saylor, of New York, assistant general superintendent, is absent on a trip to St. John, N. B.; Halifax, N. S., and other eastern cities.

Mr. William Finn, of the electrical engineers' office, is in Halifax, N. S., on business connected with the service.

Mr. Theodore T. Cook, general superintendent, and Morris T. Cook, general agent of the company, and J. McRobie, superintendent of the American District Telegraph Company at Chicago; J. Fitzpatrick, superintendent at Cleveland, and George A. Cellar, of Pittsburg, superintendent of telegraph of the Pennsylvania Lines West of Pittsburg, spent a few days recently in Petoskey, Mich., and vicinity, combining pleasure and business.

Mr. H. G. Haddon, general manager of the Martha's Vineyard Telegraph Company, recently entertained at Nantucket a party consisting of J. S. Calvert, assistant superintendent at Atlanta, Ga.; T. P. Cummings, manager at New Orleans, and F. E. Clary, superintendent at New Haven.

RESIGNATIONS AND APPOINTMENTS.

Mr. E. R. Collins, for several years past manager of the Erie, Pa., office, has been appointed manager at Pittsburg, vice Mr. N. E. Church, promoted to the superintendency. Mr. George F. Stadtmiller has been appointed manager at Erie, vice Mr. Collins.

Mrs. M. A. Cox has been appointed manager at Brookville, Pa., vice Mr. E. M. Heasley, resigned.

Mr. Harry Boord has been appointed manager at Scottdale, Pa., vice Miss Helen Dysart, resigned.

As a result of the promotion of Mr. W. A. Robb from the position of chief operator to that of manager of the Portland, Ore., office, the following promotions in that office have gone into effect: Mr. W. E. Brooks, who was for five years wire chief, has succeeded Mr. Robb as chief operator; Mr. A. W. Humphrey, who for fifteen years has been late night chief, has succeeded Mr. Brooks; Mr. J. A. Paquette, day traffic chief, has succeeded Mr. Humphrey; Mr. W. E. Butler, night traffic chief, has succeeded Mr. Paquette, and Mr. Ira Greenwood has succeeded Mr. Butler as night traffic chief. The establishment of the Barclay printer between Portland and San Francisco has resulted in the promotion of Mr. A. J. Churchill, who will have charge of it.

Mr. L. E. Rudd, manager at Lexington, Ky., since December, 1907, has been appointed manager at Knoxville, Tenn., vice Mr. S. G. Bentley, resigned. Mr. C. J. Winkler, chief operator at Lexington, is now acting as manager at that place vice Mr. Rudd. Mr. Rudd is one of the young men in the telegraph industry, having been born December 30, 1879. Entering the service as messenger at the age of thirteen, he has by strict application to his duties advanced rapidly in his profession, having held successively the positions of chief operator of the office in Yellowstone Park; manager at Portage, Oconomowoc and Superior, Wis.; manager of the financial district branch office, Boston; manager at Vicksburg, Miss., at Jackson, Miss., and finally at Lexington.

H. J. Jeffs, Western Union Assistant Superintendent at Seattle.

Harry J. Jeffs, whose appointment as assistant superintendent of the Western Union Telegraph Company at Seattle, Wash., was announced in our August 1 issue, is another one of the large number of the Canadian product who have made a good record for themselves in the telegraph service in this country. He has spent his life in the telegraph service, entering the employ of the Canadian Pacific Railway Company as messenger at Winnipeg in 1887, and after mastering the difficulties of the railway operating department in the capacity of operator, ticket agent, and train despatcher, desired a wider knowledge of the intricacies of the telegraph and entered the commercial field in 1892, when his ability as an operator was soon recognized, he being an exceptionally rapid sender. He has served in almost every line of commercial work, mastering the Phillips code, he was in demand at state legislatures and other events where rapid work was an object, having served the San Francisco Call, Chronicle and Examiner, following which he was appointed traffic chief of the San Francisco Western Union office, later Wheatstone chief, wire chief, and in 1905 was

appointed chief operator, which position he held until his present promotion.

H. J. JEFFS, SEATTLE, WASH.
Assistant Superintendent, Western Union Telegraph Company.

Mr. Jeffs was an ardent student of electricity and electrical apparatus, and, as he writes, "Telegraph Age" has always been an aid and welcome addition to his library. It will be remembered that Mr. Jeffs alone found communication to the outside world after the great San Francisco catastrophe of 1906. From a mass of tangled wires he put the Southern Pacific train wires in working condition, enabling the despatchers to move the trains in and out of Oakland, after which he established a commercial office on the Oakland Mole from "fragments of the industry," which has gone down in history as the "Old XN office."

William A. Robb, Western Union Manager at Portland, Ore.

Mr. W. A. Robb, chief operator of the Portland, Ore., office of the Western Union Telegraph Com-

W. A. ROBB, PORTLAND, ORE.
Manager, Western Union Telegraph Company.

pany, who has just succeeded to the managership of that office, is another one of that large body of Canadian-born telegraphers who by perseverance and industry have forged ahead in the telegraphic profession of this country. Mr. Robb was born at Montreal, Canada, February 27, 1870, and entered the service of the Great North Western Telegraph Company in his native city in 1884, first as a counter clerk, and afterward being advanced to the operating department. He subsequently acted as agent for the Canadian Pacific Railway Company on the Pacific division, and later entered the commercial telegraph service of that company at Vancouver, B. C. He next entered the Western Union employ at the Portland office, where his promotion has been steady, he occupying successively the positions of traffic chief, both day and night, night chief, chief operator, and now becoming manager. Mr. Robb is painstaking and thorough in all his business dealings, and the company is to be congratulated upon his selection as its representative at this important point.

Barclay Printer Development.

The rapid development of the Barclay printing telegraph is shown in the list given herewith of the circuits now operated by this system:

Between New York and Chicago, 7; Boston, 4; Philadelphia, 3; St. Louis, Pittsburg and Buffalo, 2 each; Washington, Cleveland, Atlanta, Cincinnati, Detroit and Kansas City, 1 each.

Between Chicago and St. Louis, Kansas City and St. Paul, 2 each; Boston, Pittsburg, Buffalo, Philadelphia, Cleveland, Washington, Cincinnati, Detroit, Omaha, Denver, Louisville, and Nashville, 1 each.

Between Boston and Philadelphia, and between Boston and Buffalo, 1 each.

Between Philadelphia and Pittsburg and between Philadelphia and Washington, 1 each.

Between St. Louis and Kansas City and between St. Louis and Nashville, 1 each.

Between Pittsburg and Buffalo and between Pittsburg and Cleveland, 1 each.

Between Nashville and Atlanta and between Nashville and Cincinnati, 1 each.

Between Kansas City and Omaha and between Kansas City and Denver, 1 each.

Between Cincinnati and Cleveland and between Cincinnati and Atlanta, 1 each.

Between Denver and Omaha and between Denver and Los Angeles, 1 each.

Between San Francisco and Los Angeles and between San Francisco and Portland, Ore., 1 each.

Grand total, 62.

Other circuits are being equipped as fast as the machines can be constructed. The capacity of the present 62 installations is approximately 1,800 messages per day each.

The Cable.

Cable communication is interrupted August 10 with:
Demerara August 4, 1909

Mr. J. M. Palm, representative of the German Dutch Telegraph Company, Shanghai, China, where he has been located for some years past, has left that city for The Hague, Holland, where he will spend his vacation, and where he will be located for some months to come.

The Eastern Extension and China Telegraph Company will probably soon pick up their cables between Low Head, Tasmania, and Flinders, Victoria, leaving the cable business in the hands of the Australian Commonwealth Administration.

As a result of communications with the Imperial authorities, the Australian government will shortly introduce a bill enabling the Commonwealth to seize and control in time of war or emergency the shore ends of ocean cables touching Australia.

The cable steamer "Cambria," belonging to the Telegraph Construction and Maintenance Company, London, which was recently chartered to repair the New York-Cuba section of the South American Telegraph Company's New York-Colon cable, which was broken off Cape Hatteras, successfully completed her task on August 6.

The cable steamer "Colonia," which has been engaged in laying the new cable of the Commercial Cable Company from Newfoundland to New York, as mentioned in our August 1 issue, commenced landing the shore end of that cable at Manhattan Beach July 31. This was completed on August 1 and August 2 the 110 miles of cable of the shore section was paid out, the buoyed end of the sea section which had previously been laid was picked up and the final splice made, thus completing the connection between New York and Newfoundland. The new cable is 1,307 miles long, shows excellent electrical qualities and has a speed of fifty words per minute. The "Colonia" is now engaged in picking up the 900 miles of cable between Canso, N. S., and the Flemish Cap, which will be taken to London to be overhauled for future use.

Mr. George Gray Ward, vice-president and general manager of the Commercial Cable Company, with offices at 253 Broadway, has written Sir Edward P. Morris, Premier of Newfoundland, earnestly protesting against the repudiation by the present Newfoundland administration of the contract with the cable company made by the previous administration. Vice-President Ward furthermore denies the legal right of the present government of the island to set at naught an obligation entered into by a previous government.

In 1904, as soon as the Newfoundland government was free from the fifty-year monopoly granted to original cable enterprises, it took steps to provide its land line system of telegraphs with its own cable connection. It first laid a cable from Port au Basques, Newfoundland, to Canso, Nova Scotia, and made a contract with the Commercial Cable Company to operate the Canso end. The breaking of this cable soon after it was laid made the government anxious to obtain its foreign communications by other cables.

The Commercial Cable Company has several cables running to the south of Newfoundland and the government invited the company to run one or more of them into Newfoundland. A contract was made which required the company to establish an office in St. John's in communcation with the cables and to pay the established tax for the cable landing privilege and the government to pay the company $4,000 a year for the facilities provided for the government's cable business, the company being debarred from doing any cable business with the public for its own account in Newfoundland.

The government, however, which made this contract, has since fallen, and the present government has informed the company that it will not consider the agreement binding.

"The company," writes Mr. Ward to Sir Edward, in pressing the claims of the cable company, "is to pay the government $4,000 annually as a tax on the cable, and if the company lay and operate a second cable, as it intended to do and still intends to do, if this contract is observed, this tax will be $8,000 annually. It is true that by the contract the government is to pay $4,000 annually to the company as compensation for the company's expenditures in extending its cable from the landing point into the city of St. John's, and maintaining a profitless office there without any expense whatsoever to the government. But if this new contract had not been made, this company would not have extended its cable at all to Newfoundland, and, hence, would not be under obligation to pay the $4,000 or $8,000 annually as mentioned, so that it is clear that the government loses nothing."

Mr. Ward declares that in charging his company $4,322, import duty on electrical apparatus and supplies not obtainable in St. John's, the government violates its contract, while under the new contract the government, receiving the same proportion of the tolls on cable messages as before, loses nothing in revenue and gains largely in facilities.

"The advantages to the Newfoundland government," continues Mr. Ward, "are that the cable messages collected by the government on its land line system may, under this new contract, be handed to the Commercial Cable Company at St. John's instead of those messages going from St. John's the whole length of the island by the land lines and thence by the government's submarine cable to Nova Scotia, and thence by the Commercial Cable Company's lines to Europe and America. Continuous service with continuous income to the government is thus assured, even if the land lines or cable of the government are in-

terrupted, and it also insures much quicker service, because the new cable of the Commercial Cable Company extends from St. John's in the one direction to Europe and in the other direction to New York. If it is of any advantage at all to the government to own its land line telegraph system, it certainly is an advantage to the government to have this new connection direct from St. John's to Europe and America."

Concluding, General Manager Ward says:

"The Commercial Cable Company has always studiously refrained from taking part in politics or party questions, and it regrets that the change of administration which has taken place should cause the government to repudiate a solemn contract which was executed only a few months ago, and which has caused the Commercial Cable Company to expend over a million dollars, and the company denies your legal right to repudiate it."

Radio-Telegraphy.

There are now five wireless stations in Japan in active operation and ten vessels of the Japanese mercantile marine are equipped with wireless outfits.

The telegraph companies now accept messages for transmission by wireless to vessels on the Great Lakes. Such messages may be sent via Buffalo, N. Y., Cleveland, O., Detroit, Mich., Port Huron, Mich., or Toledo, O.

A patent, No. 927,611, for wireless telegraphy, has been awarded to J. H. Cuntz, of Hoboken, N. J. Separates the waves into groups of low group frequency and places in the receiving circuit a tuning fork tuned to the group frequency.

Tests are now being conducted at Brant Rock, Mass., by the Navy Department of the apparatus to be installed in the new station at Washington, D. C., which is to have a 1,000-foot tower and sending apparatus strong enough to transmit signals 3,000 miles.

A correspondent of the Electrical World in a recent letter submits some interesting observations upon the effect of the seasons on wireless transmission. His experience seems to indicate that signals are transmitted much more clearly in winter than in summer.

A ten-kilowatt wireless station, manufactured by the United Wireless Telegraph Company, will soon be installed in Porto Rico by a company organized on that island which expects to install several other stations in Porto Rico and on the adjoining islands.

The Society of Wireless Telegraph Engineers at a meeting held in Boston August 2 discussed the relative merits of the Telefunken "quenched spark" and the Lepel wireless systems. The officers of the society are Dr. Lee De Forest, president; John S. Stone, vice-president; E. R. Crain, O. C. Roos and G. K. Woodworth, managers; C. E. Russell, treasurer and E. D. Forbes, 96 Franklin street, South Framingham, Mass., secretary.

The New York Herald each day prints a map or chart of the north Atlantic Ocean and shows the actual position of each passenger steamer plying between America and Europe. The information is received by wireless telegraphy each day and, of course, is accurate.

To show the trend of events it will be interesting to observe that telegraphers who wish to turn their attention to the wireless field and accept position on sailing craft may have to study navigation, inquiries are already being made for wireless operators who are physically capable of also acting as second or third mate on sailing vessels.

A patent, No. 928,371, for signaling by electromagnetic waves, has been secured by R. A. Fessenden, of Washington, D. C. Interference preventer, with an inductive connection having a variable primary, a condenser, a detector connected with the secondary of the inductive connection, a condenser shunting with the primary, a variable inductance and antenna.

Since the high-power wireless station was established in the Brooklyn Navy Yard considerable trouble has been experienced with the telephone service in that vicinity, speech over the wires being practically unintelligible when the station is sending out its powerful waves. The same difficulty has been experienced in the vicinity of the United Wireless Company's station at Manhattan Beach. On some of the telephone lines in the vicinity of the station the messages sent can be read plainly through the telephone receiver without the use of any detector, and the telephone company receives numerous complaints from subscribers of noise on their lines. This phase of the situation offers an interesting problem for the attention of telephone and wireless engineers which unless solved will require the installation of high-power wireless stations at a safe distance from existing telephone lines.

In a recent article on electrolytic detectors by G. W. Pierce, abstracted by the Electrical World, the author finds that the whole phenemenon of the rectification of small alternating currents by an electrolytic detector seems to be explicable in terms of the theory of electrolytic polarization. The polarization capacity of the small platinum electrode is not entirely negligible, even with currents making only sixty cycles per second. The polarization capacity may, however, aid in producing rectified current as well as oppose this effect, and, apart from the effect of the capacity on the tuning of the circuit, need not detract from the utility of the rectifier as a detector for electric waves. The present conclusion in regard to the action of the detector is entirely in accord with Pupin's original brief description of the phenomenon. There is a certain analogy between the electrolytic detector and crystal rectifiers, but the author has not yet reached a definite conclusion concerning the action of crystal rectifiers.

The Atlantic Cable of 1858.

BY WILLIAM MAVER, JR.

I have read Mr. Charles Bright's letter published in your issue of August 1 relative to my article on the Atlantic Cable of 1858, published as long ago as August 22, 1908, in the Electrical World and in Telegraph Age, October 16, 1908.

I may remark that for reasons, not essential to state here, it was necessary to prepare the said article quite hurriedly; in less than four days, in fact, part of which time I was sojourning at the sea shore from which place the manuscript of the article was mailed to the Editor, and it was printed within two days thereafter. It is therefore apparent that I had not the opportunity to devote as much care to the preparation of the article as I should have desired, nor as I assume Mr. Bright had devoted to his letter, in the writing of which he had allowed himself the best part of a year.

It may be said, however, that this reference to the hasty preparation of the article is chiefly made for reasons that will presently appear. Of course, I recognize that the article in question being limited as to length, and, as I have intimated, to the time of preparation, does not do proper justice to so wide and interesting a subject. There are some features of the article that I myself should now criticize somewhat severely, but in so far as the paragraphs to which Mr. Bright takes particular exception are concerned, they are, in my opinion, well warranted by the facts of the case, and in selecting these paragraphs I think my critic was not happy, as I shall perhaps demonstrate in the course of this article. It may be interesting to note in passing that one of the aims of the article criticized by Mr. Bright was to point out the important part taken by British engineers and cable manufacturers in the early work of submarine cable laying. No part of the article was intended as an attempt to settle or even to discuss the amount of credit due to the respective engineers concerned in certain parts of that work (a point on which I perceive Mr. Bright is very sensitive), nor to revive the asperities that followed the laying and the immediate utter failure of the Atlantic cable of 1858. But since Mr. Bright has seen fit to reopen the subject, I am quite sure that electrical engineers and especially telegraph men of the present generation will read with interest a brief account of some of the salient features connected therewith, and perhaps before I have done there may be occasion to recall the old adage about letting sleeping dogs lie.

Reverting to my critic's letter. Obviously in view of what I have said relative to the haste with which my article went to press, there was no time to submit a proof of it to the writer. On seeing the article in print, the misspelling of names to which Mr. Bright refers was noticed and occasion was taken to call attention thereto, but the errors were so clearly typographical that it was not deemed worth while to correct them by special notice. The article was, however, subsequently reprinted in Telegraph Age (October 16, 1908), and availing of the opportunity afforded thereby, the said typographical errors were corrected in the reprinted article by the writer. As Mr. Bright in his letter called attention to the instances of incorrect spelling of names to show lack of familiarity with my subject I at first assumed that he had not seen the corrected reprint in Telegraph Age, but I now know that he had read the reprinted article and therefore, I am privileged to assume that Mr. Bright's reference to the incorrect spelling of names as noted was due either to inertness or unfairness. Mr. Bright further states that my article gave evidence of no direct contact with the laying of the Atlantic cable of 1858 on my part. I must plead guilty to that charge, as I was not an infant prodigy, but as Mr. Bright carefully informs us in his writings that his father was knighted by the Lord Lieutenant of Ireland within a few days after the laying of the cable of 1858 when only twenty-six years of age, it is self-evident that my critic himself could not have had very direct contact with the subject. Such indirect contact as he may have had was, it may easily be supposed, not calculated to make of him an impartial historian or critic relative to more or less disputed questions in which certain persons were concerned, which supposition is well substantiated by Mr. Bright's writings on this subject, some evidence of which I shall produce. My critic further says in his writings, referring to the honor conferred upon his father for his part in the laying of the cable of 1858, "It was the first title conferred in the telegraph profession, and remained so for many years;" an almost unnecessary sentence, one would think, for at this distance it seems quite evident, in view of the deep mortification following the quick and utter failure of the said cable, that no undue haste would be made subsequently in awarding honors for telegraph work. Possibly it is around this point that the animus of my critic's letter and his treatment of Whitehouse in his writings may be found. It would appear from these writings, especially the later writings, that my critic has set himself the somewhat difficult task of proving that the 1858 cable was practically perfect and fit for lasting operation when laid. Therefore, anything that tends to controvert this view must be frowned upon, to put it mildly, by a self-appointed arbiter. It may be noted that Mr. Whitehouse was the electrician and my critic's honored father was the chief engineer of the Atlantic Telegraph Company of 1857-58.

I said in my article of a year ago that the Atlantic cable of 1858 was to have been laid in 1857, but the attempt to then lay it failed. This led to repeated coiling and uncoiling of the cable from the ships to shore before the cable was laid in 1858, a fact which I omitted to mention in that article. I also omitted to mention the treatment to which the cable was subjected in the process of manufacture in Greenwich, when it was exposed to the heat of the summer sun, "intensified by the tar

coating of the cable to 120 degrees," and, as one writer has said, "as might have been foreseen, the gutta-percha was melted, so that the conductor which it was desired to insulate was so twisted by the coils that it was left quite bare in numberless places, thus weakening and eventually, when the cable was submerged, destroying the insulation;" nor did I mention the cutting and hacking to which the cable was subjected before its submersion, in the effort to localize and remove defects, evidently without the protest of anyone, and some details of which I shall give when I come to discuss this feature more particularly. My critic having, as I assume, taken upon himself the task of showing that the cable of 1858 was in operative condition when laid, it appears to have aroused his ire that the writer should have innocently intimated in his article that possibly the cable of 1858 might have survived the "high tension" of Mr. Whitehouse's induction coils had the cable not been initially defective by reason of the inexperience in cable-making and laying at that time. To refute such a view, Mr. Bright says in his letter: "In the opinion of practically everybody, Whitehouse, the electrician, was alone responsible for the gradual breaking down of the cable by the use of a generating power of immense intensity, in conjunction with the rest of his apparatus." In his "Story of the Atlantic Cable," page 157, my critic says the authorities were unanimous on this point. On page 156 he names Mr. W. T. Henley as one of the authorities. And he then quotes or rather misquotes Mr. C. F. Varley as saying unqualifiedly, "Had a more moderate power been used, the cable would still have been capable of transmitting messages." Mr. Varley, however, was not so unfair or so unguarded as to make so unqualified a statement. What he did say in his report on the state of the Atlantic telegraph cable, September 18, 1858, was *"It is not at all improbable* that the powerful currents from the large induction coils have impaired the insulation, and that had more moderate power, etc." (Italics are mine here and throughout this article.) This abridged quotation also occurs in my critic's book just mentioned, page 156, hence it is not a slip of the pen.

I may remark here, that after the failure of the Atlantic cable of 1857, a joint committee representing the Board of Trade and the Atlantic Telegraph Company was appointed to inquire into the entire subject of submarine telegraphy. The committee consisted of Messrs. Douglas Galton, C. Wheatstone, William Fairbairn, George P. Bidder, representing the Board of Trade, and of Messrs. Edwin Clark, Cromwell F. Varley, Latimer Clark and George Saward for the Atlantic Cable Company. This committee continued its sessions for nearly two years and presented a report which has probably never been surpassed for thoroughness and for the value of the information brought out relative to the art of submarine telegraphy. The committee heard the testimony of very nearly all the persons concerned in any way with the Atlantic Cable of 1857-58 and inquired particularly into the effect of the Whitehouse induction coils upon the operation of the cable, as subsequent citations herein from the committee's report will show. Mr. Bright in his letter also says that Professor Thomson expressed himself still more strongly than Mr. Varley on the subject of the Whitehouse induction coils. Let us allow Professor Thomson to answer for himself. He was questioned on this point as follows by the Board of Trade committee: "At what distance, in your judgment, did the fault exist, or does it now exist?" "About 300 miles along the cable from the shore end." Question 2551, "Is it your opinion that the electrical state of the cable was made worse by the use of induction coil power or battery power or either of them?" "*Most probably* it became worse *more rapidly* than it would have done if the fault had been altogether undisturbed. I do not think that the induction coils would produce a worse deteriorating effect on a fault already formed than battery power at 300 miles for instance." Professor Thomson was also asked, Question 2531: "Then you attribute the failure of the current *immediately after landing* to the defects of insulation which were overcome by the use of more powerful batteries, or more improved means of transmitting the signals either by induction coils or batteries afterwards?" "Yes, and still more by improved means of receiving."

It may be assumed that in his reference to the Professor's subsequent statement, Mr. Bright alludes to a qualified remark (in 1860), on this point quoted in Mr. Bright's writings to the effect that Professor Thomson "*had little doubt* that if no induction coil and no battery *power* exceeding twenty Daniell cells had ever been applied to the cable since the landing of its ends, imperfect as it then was, it would now be in full work day and night with no prospect or probability of failure." But it is now obvious that the fearfully imperfect condition of the cable when laid considered in connection with the history of subsequent events does not confirm this qualified, optimistic view. For example, in one of his books Mr. Bright says, speaking of the cable of 1865-66 (giant cables as compared with the cable of 1858), and made and laid with all the care that previous sad experience had shown to be necessary. "Unfortunately, both these cables broke down a few months later and one of them again during the following year. Unlike the 1858 line, however, these last cables (1865-1866) had not been killed electrically, and being worthy of repairs they were maintained for a considerable time." Here, it will be noticed, that in the anxiety to give poor Whitehouse another cut it is unwittingly shown that cables vastly superior in every way to the cable of 1858 could die and did die in a short time without meeting a gradual death by induction coils. Mr. Bright speaks of the gradual breaking down of the cable in 1858. If breaking down in about three weeks is gradual, so be it. Possibly a remark in Mr. E. B.

Bright's "Electric Telegraph," page 120, and another by Mr. Henley, quoted presently, will cast some light on this so-called gradual failure. "As it had been found that the tarry composition coating the outside strand interfered with the speedy detection of faults, by filling up any injury to the gutta-percha and by preventing ready penetration of the water in such cases; it was considered better to omit it in the cable of 1866." The 1858 cable was coated with tarred yarn when made and thickly covered with tar when laid.

Mr. Bright, in his writings, I observe, carefully quotes everything that appears favorable to his theory that Whitehouse alone was responsible for the failure of the Atlantic cable of 1858. Quite as carefully, or more so, he hides what practical men have said contrary to that theory. For instance, the writer finds no reference in any of Mr. Bright's writings to the views of Mr. W. T. Henley (one of his authorities) elicited during the Board of Trade investigation. Asked by Mr. Wheatstone if he was of the opinion "that any permanent damage occurred to the cable from employing the very strong induction coils as some persons think," Mr. Henley replied, "No. It is not my opinion that the induction coils would injure the cable if it was in a sound state." Nor does my critic quote what Mr. Henley said in his report, September 30, 1858, to the chairman and board of directors of the Atlantic Telegraph Company, written from Valentia as a result of Mr. Henley's tests. "In my opinion the fault or faults existed in the cable before it was submerged, and that they would have been detected and made good had the *precaution been observed of having the whole cable* tested in water during its manufacture. Its not showing so bad when first laid is easily accounted for, as it takes some time for the water to soak through the coating of pitch and tar." Neither does my critic quote C. V. Walker, Esq., himself a director of the cable company, I believe, and who had made experiments with Whitehouse at the cable factory and who on being asked, "Do you consider that the cable was injured at all by the strong current sent through by means of the induction coils?" replied, "I have no reason to think so."

It is by the way quite singular that notwithstanding his repeated attacks in his writings on Whitehouse, it appears that my critic himself does not really in his heart believe that the 1858 cable was necessarily killed by the Whitehouse induction coils, for in his book, "Submarine Telegraphs," page 54, we find the following rather surprising admission: "It is not improbable that weak joints were the cause of ultimate failure (of the cable of 1858). A bad metallic joint, i. e., a case of the two ends of the conductor not being properly united, was not a very uncommon occurrence in those days, when no method of joint testing was in vogue. A carelessly effected metallic joint is liable to draw apart on being subjected to a strain during the operation of laying. On the strain being taken off, the ends may join together again temporarily, but under such circumstances, the points of contact soon become oxidized and thus all communication gradually ceases. This, together with a gradual percolation of water, is perhaps more likely what took place in the case of the first Atlantic line than any of the explanations for the subsequent cessation of signals. Faults of insulation are scarcely ever of such a character as to account for signals being entirely stopped, and it is never suggested that the cable actually broke."

After this kindly statement by Mr. Bright, further pursuit of the subject is almost unnecessary, but it would be a pity to refrain from quoting the verdict of the Board of Trade committee on the failure of the cable of 1858, which is as follows: "We attribute the failure of this enterprize to the original design of the cable having been faulty, owing to the absence of experimental data, to the manufacture, having been conducted without proper supervision, and to the *cable not having been handled after manufacture with sufficient care.* We have had before us samples of the bad joints which existed in the cable before it was laid, and we can not but observe that practical men ought to have known that the cable was defective and to have been aware of the defects before it was laid." Comment on this finding is unnecessary, except to note that the absence of this verdict verbatim from Mr. Bright's books, so far as I have been able to find, may be considered as very fair testimony that the verdict does not contain anything particularly favorable to his contentions. By the way, my critic's chief witness, Mr. Varley, joined in signing this verdict.

Now, reverting to the Whitehouse induction coils, there is, it may be remarked, not an iota of evidence that the electromotive force which those coils developed was sufficient to break down the insulation of the gutta-percha insulation of the cable of 1858. At Valentia, Mr. Varley and Mr. Henley both tested samples of gutta-percha insulated wire corresponding, the present writer assumes, to that of the cable, with the Whitehouse induction coils, and in every case the evidence shows it was necessary to prick the gutta-percha with a needle to admit water before the induction coils could force a way through the insulation. Further, Whitehouse used induction coils of high tension in experiments on 2,000 miles of underground cable and on the Atlantic cable while it was in process of making, in the presence of and presumably without protest from the chief, and there is no evidence that, as Whitehouse states, the coils had been found other than harmless. It is noteworthy that although the members of the Board of Trade committee heard everything that experts concerned had to say unfavorably to the use of the Whitehouse induction coils, they utterly ignored such use as a possible or probable cause of the failure of the cable of 1858. Indeed, all the evidence points to the fact, as the Board of Trade committee's verdict clearly intimates, that the cable of 1858

was in a moribund condition when the Valentia end was handed over to Mr. Whitehouse by the chief engineer. Confirmatory of this, Mr. Saward tells us that he was informed by Captain Kell "that the cable must have been cut into in at least a hundred places at one time or other and that either from that or some other cause this fearful result has taken place which is exhibited by these four joints which have been cobbled up again" and Captain Kell also in his testimony, on being asked if he thought there might be faults in the cable when it was laid, other than those he had described, replied "Yes; quite possible." Mr. Mullaly, who was on the "Niagara," states, page 267 of his book, that "one part of the cable has been coiled so often that it is bent and twisted to such an extent as to render it difficult to pay it out as fast as the other part, with safety." And more recently, in an article in the Franklin Institute Journal (1907), the same gentleman writes, "Hardly, however, had four weeks elapsed before the electrical connections had ceased altogether, the defects which had been the cause of the many delays and difficulties encountered on the different expeditions having not only impaired, but finally destroyed the continuity." Sabine, in his book, says, page 343 (1867): "It (the cable of 1858) was faulty when laid and broke down entirely in three weeks after its submersion." Again, Professor Thomson when testifying before the Board of Trade committee, said, Question 2508: "I had the very strongest misgivings of the cable from the Monday forenoon of the laying," and in an address before the Royal Society of Edinburgh, 1866, said: "And the electrical failure * * * was owing to electric faults existing in the cable before it went to sea." Mr. H. M. Field, in his "Story of the Atlantic Telegraph," page 252 (1866), says: "Take all these things together, and the wonder is not that the cable failed, but that it ever worked at all." Something of a "consensus of opinion" on the contrary side, it will be observed, and one that rather strongly supports my previous remark as to the moribund condition of the 1858 cable when laid. Somewhat apropos of this the following more or less analogous incident, which was told to me quite recently by one of the participants, may be related: In some of the hospitals of this country there is an unwritten rule that if the ambulance surgeon brings in a "dead one" to the hospital the penalty is a dinner to the rest of the staff. The efforts made by the ambulance surgeon to avoid this penalty may easily be imagined. Quite recently an ambulance surgeon on responding to a call learned that he had to deal with a bad case of carbolic acid poisoning. The surgeon found that faint evidence of life still lingered in the patient, hence he was hurriedly placed in the ambulance and the driver urged his horses with all speed towards the hospital, the surgeon meanwhile, as a last resort, vigorously practicing artificial respiration on the patient. Reaching the hospital, the moribund body was placed on a bed. The patient gave a gasp. "Did you hear him breathe," said the surgeon to the nurse. "Certainly, Doctor," was the reply, whereupon the surgeon made hurried exit to the corridor to take the elevator to his office down stairs. Unfortunately the elevator did not come immediately and while the surgeon was waiting the nurse came forward, saying, "Doctor, you had better return and pronounce him dead." It is within the possibilities that nurse Whitehouse, although he had heard the patient gasp, would have been glad to have made a similar request had the surgeon in the case been accessible.

Mr. Bright also criticizes my reference to the more or less crude methods of paying out the Atlantic cable of 1858, which, together with the inexperience in cable-making, I had timidly suggested may have been sufficient to account for the cause and development of the faults. And Mr. Bright inquires if the writer is not aware that the methods of paying out the cable of 1858 are still in every-day use in all essential particulars. Any tyro, of course, knows that the underlying principles of the paying-out apparatus employed on the "Niagara" and "Agamemnon" in 1858, as recommended by Messrs. T. Lloyd, Joshua Field and John Penn, Englishmen, and Mr. W. E. Everett, the American engineer, in their joint report on the subject to the cable company (and to which I shall refer at length subsequently), are still followed in cable laying. But not even a tyro should be expected to father the statement that the present methods of laying submarine cables are as crude in all respects as they were in 1858. The writer said "more or less" crude methods. Because of the fair weather enjoyed by the Niagara the methods were "less crude" and the paying-out machinery worked beautifully, while no doubt mainly because of the tempestuous weather met with by the gallant "Agamemnon" the machinery did not work so well on that ship. The log teems with items about the men standing by "to help the brake wheel round," etc. But we may now hear from some of the engineers concerned, and others. For example, relative to this subject, in the hearing before the Board of Trade committee, the chief engineer was asked, "Did you observe any mechanical defects in the paying out?" He replied, "I think the machine should be made a little lighter another time." His assistant, Mr. Canning, was asked, "Have you any observations to offer to the committee upon the paying out of the cable or the brake machinery?" "As far as we saw it, on board the 'Agamemnon' it acted very well certainly; we should now make some alterations or we should not use the same apparatus again." Well might Canning say, "As we saw it on board the 'Agamemnon.'" In view of the many anxious hours, during which, because of the terrible storms encountered by that ship, it may easily be surmised they probably did not see it at all. And Staff Commander H. A. Moriarty, in the Journal of the United Service Commission in 1867, said: "This arrangement (of 1858) of machinery is very

(Continued on page 594.)

Telegraph Age.

Entered as second-class matter at the New York, N. Y., Post Office.

Published on the 1st and 16th of every month.

TERMS OF SUBSCRIPTION.

One Copy, One Year, in the United States, Mexico, Cuba, Porto Rico and the Philippine Islands . $2.00
Canada 2.50
Other Foreign Countries 3.00

ADDRESS ALL COMMUNICATIONS TO
J. B. TALTAVALL, - Editor and Publisher,
253 BROADWAY, NEW YORK.
H. E. DUNHAM, Associate Editor.

W. N. GATES, Special Adv. Agent, Garfield Bldg., Cleveland, O.

CABLE ADDRESS: "Telegage," New York.
Telephone: 6657 Barclay

CHANGES OF ADDRESS.—In ordering a change of address the old as well as the new address must be given.

REMITTANCES to Telegraph Age should be made invariably by draft on New York, postal or express money-order, and never by cash loosely enclosed in an envelope. By the latter method money is liable to be lost, and if so remitted is at the risk of the sender.

AUGUST 16, 1909.

The Book Department of Telegraph Age has always been a prominent and carefully conducted feature of this journal. The desire has been and is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished; promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientage. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principle cable codes, will be sent to any one asking for the same.

The Telegraphic Outlook.

One would imagine from hearing the many criticisms aimed at the telegraph that this great industry was in a state of decay and engaged in a precarious struggle for existence. Reports issued by the telegraph companies of the business which they are handling during the present year, however, hardly confirm this idea entertained by many of the present status of affairs. The total receipts of the Western Union Telegraph Company for one week in July were the largest ever recorded for a single week's business of that company. In commenting upon this fact Colonel Robert C. Clowry, president of the company, said in part:

"This, it appears to me, means much. Not since 1907, when a second best week was reported, have matters been so generally encouraging as at present. The business is naturally stimulated through the increased commercial and industrial activity, and we look forward to a season of good earnings.

"It has been argued that the telegraph has been made to suffer through the popularity of the telephone. This is not stating the matter fairly. There is no doubt that the telephone business has increased enormously and that some of it has been at the expense of the telegraph. But at the same time the two systems work hand in hand. The Western Union has telephones in every office throughout the country, and few realize the number of messages sent in for further transmission. Factories and points away from the regular branch offices use the telephones extensively and this does away with a large number of messengers."

While no general statement has been issued by the Postal Telegraph-Cable Company, the officials of that company report a large increase in business over former years. Another evidence that the industry is not on the decline is the fact that there are practically no idle telegraphers. Those who desire work and are competent have no difficulty in securing positions. This might be accounted for by the fact that the ranks of wireless operators have been filled largely by those who were formerly employed in wire operation. This increase in the field for the Morse operator has, however, probably been nullified by the increased use of printing telegraph equipment which does not require the attendance of skilled operators. Hence we are justified in the conclusion that the demand for operators is due to increased facilities of the companies made necessary by the great volume of business being handled. These indications which point to 1909 as the banner year for the telegraph ought to effectually disarm those pessimists who regard this great industry as in its last struggle for existence.

The Responsibility of the Technical Journal.

At a testimonial dinner tendered to him recently at Atlantic City, Mr. Hugh M. Wilson, formerly publisher of the Railway Age, spoke of the field for and the responsibility of the technical journal. Mr. Wilson said in part:

"It should be the work of the technical journalist to rescue the business interests of this country from the riot of ignorance, untruth, half-truth, distortion of facts, sensationalism and crooked thinking—the whole brood of abuses that yellow journalism has introduced into the treatment of serious business affairs. The technical journal may lose much of its force; it may fail of the full performance of its duty; and it may squander its great opportunities by being too narrow in its scope. On the other hand, the readers and the patrons of these journals may make the mistake of minimizing their functions and misunderstanding their mission.

"The day has gone when a technical journal can be looked upon as an instrument of charity, as a means for helping the publisher just because he needs the money. It is folly to look upon it as a mere scheme of questioned legitimacy. Like-

wise it is unprofessional and it is business suicide for the publisher to render only so much service as will enable him to pull the thing through with a satisfactory profit. He must deliver the goods; and when he does deliver the goods, he is entitled to rewards commensurate with the quality of the goods and the completeness of the delivery.

"These considerations, I believe, sanction the proposition that the future of this country, the sane solution of some of its gravest questions, should be powerfully influenced by our technical press."

Why not Advertise the Telegraph?

Mr. Charles L. Thompson, of Chicago, contributes the following article to the Electrical World, which appeared in its issue of July 29:

A Chicago daily newspaper recently called attention to the fact that while electric light and telephone companies, steam railroad and electric railway companies direct attention to the service they perform by advertising through various mediums of publicity, the telegraph companies do practically nothing of the kind. This policy is criticised as unwise and old-fashioned and as accounting in large measure for the prevailing idea of the backwardness of the telegraph service in this country compared with other public utilities.

It would seem that the telegraph business of the country could be greatly increased—perhaps doubled or trebled—by judicious advertising, particularly coupled with a reduction in rates for which the increased business would give ample warrant. But this course has never been followed by the great telegraph companies, and it is a matter of curious interest that this is the case. So far as the rates are concerned, they have been increased rather than diminished in recent years, whereas in almost every other line of public service the tendency is in exactly the opposite direction.

What is to prevent the creation of new business for the telegraph companies by well-planned campaigns of publicity? In England the telegraph is much more familiar to the great mass of the people and used to a much greater extent, proportionately, than in the United States. This is not because the telegraph is controlled by the Government in Great Britain and not in this country, but rather because the rates are low and the service reasonably good. Of course, the distances are very much greater in the United States; but nevertheless it is true that the great body of the American people, including the business community, regard the telegraph as something apart, to be used only in case of emergency. It seems to be apparent that there are latent possibilities in the business which have not been fully realized either by those in charge of it or by those who patronize it. Telegrams receive more prompt attention than letters, and, to mention one instance, it would seem that a greatly extended use of the service could be made by business houses in large cities in keeping in touch with country customers, often saving the expense of a visit from a traveling salesman.

Judging by the experience of other electrical utilities, it would seem to be high time for the telegraph companies to realize the merits of advertising and tell the people why they should make a more every-day use of their service. This policy, coupled with a judicious reduction in rates, ought to work wonders in popularizing the use of the telegraph. Should the present laissez faire policy of the telegraph companies continue there is little doubt that the Government ownership of telegraphs will some day become a live national issue, and, moreover, will have at least the passive sympathy of large bodies of men not personally in favor of the principle of Government ownership.

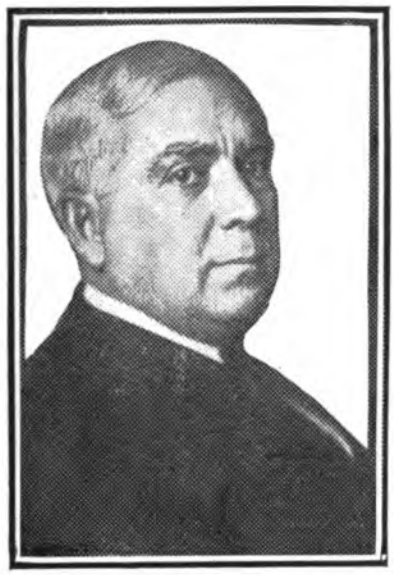
This article says a great deal, yet it means but little. The telegraph companies advertise perhaps more extensively than any of the individual industries mentioned by Mr. Thompson. Every envelope and telegram distributed is an advertisement, the messenger boys who deliver the messages are walking advertisements. Folders, similar to those issued by the railroad companies, circulars, etc., are distributed very generally throughout the country. Mr. Thompson's idea, as well as that of the newspapers, is that the telegraph companies should advertise in daily papers. This is an old argument and has been threshed bare a number of times in previous years. Some time ago a gentleman who had only the welfare of the telegraph companies at heart suggested that certain newspapers should be selected in which to carry advertisements. This is probably Mr. Thompson's idea of advertising the telegraph companies. Would Mr. Thompson make the selection of certain newspapers? What would he do with those publications not selected? Does he imagine for a moment that they would submit for a single day to being ignored by the companies in the distribution of their advertising patronage? Almost every newspaper in America is a patron of the telegraph. If the telegraph companies advertised in newspapers every publication would have to be considered and patronized. This being the case the companies could not take in enough money over their counters to meet the bills. It is very clever in Mr. Thompson to point out that electric light companies advertise with good results. This is true, but an electric light company is a local enterprise and has from one to five or six papers to deal with in case it is located in a well populated center. A telegraph company, however, would have thousands of periodicals to deal with, and not one publisher among them all would admit that his journal was not as good or better than all others.

In the recent riots at Barcelona, Spain, the first thing which the rioters did was to cut all of the telephone and telegraph wires, as well as to destroy the railroad tracks leading out of the city, thus isolating it from communication with Madrid and other cities and rendering it more difficult for the government to quell the disturbances. If the government had wireless stations working at the various points their task would have been greatly facilitated, and great loss of property as well as of life would probably have been prevented. This illustrates the importance of wireless telegraphy for use in great emergencies.

In a decision handed down by the Supreme Court of Georgia it is held that the Postal Telegraph-Cable Company is entitled to a hearing on the question of the reasonableness of an occupation tax of $600 imposed by the city of Savannah.

The Reunion of the Old-Time Telegraphers' and Historical Association and of the Society of the United States Military Telegraph Corps.

The Old Time Telegraphers' and Historical Association will meet jointly with the Society of the United States Military Telegraph Corps in Pittsburg, August 17, 18 and 19 for their twenty-eighth annual reunion. The headquarters of the gathering will be at the Fort Pitt Hotel which



GEORGE A. CELLAR, PITTSBURG.
President of Old Time Telegraphers' and Historical Association.

C. E. BAGLEY, PHILADELPHIA.
Vice-President of Old Time Telegraphers' and Historical Association.

is about five minutes walk from the Pennsylvania Railroad station and six minutes by car from the Baltimore and Ohio station. The selection of Pittsburg as the meeting place of the coming reunion is a most fitting one, especially from the standpoint of the military telegraphers to whose ranks Pittsburg furnished so many notable representatives. The muster roll of those who served their country in the telegraph service during the Civil War is rapidly growing shorter. It cannot, however, be said that the annual re-

WILLIAM J. CAMP, MONTREAL, QUEBEC.
Vice-President of Old Time Telegraphers' and Historical Association.

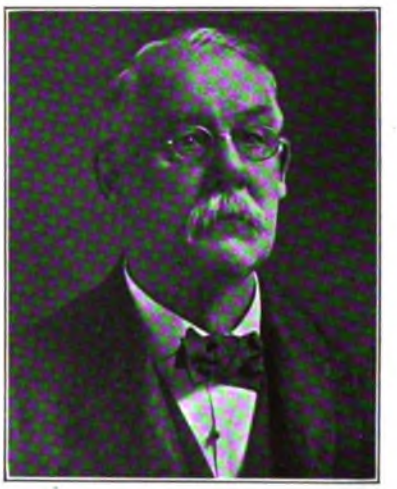
FRANKLIN J. SCHERRER, NEW YORK.
Secretary of Old Time Telegraphers' and Historical Association.

unions lose interest for those who still survive, as the ties of friendship which bind together this small but determined body of the tried and true are strengthened with each recurring year. Death has been especially active in their ranks during the past year, twenty-one names in that time having been removed from the list by the grim

destroyer. Those who have died since the Niagara Falls reunion are: Thomas Armour, at Pittsburg, Pa.; Duncan T. Bacon, at Indianapolis, Ind.; Wallace C. Barron, at Washington, D. C.; Thomas Barwick, at Pleasanton, Kan.; Adam Bruch, at East St. Louis, Ill.; Mrs. Mary E. Smith Buell, at Norwich, N. Y.; George A. Burnett, at Buffalo, N. Y.; Jonathan B. Clarke, at Caldwell, Kan.; Philip Duesner, at Kokomo, Ind.; G. M. Farnham, at Chicago, Ill.; Colonel William L. Gross, at Springfield, Ill.; Major Albert E. H. Johnson, at Washington, D. C.; George P. Lennox, at Belleville, Ill.; Charles H. Lithgow, at Chicago; James E. Pettit, at Oak Park, Ill.; W. J. Rockwell, at Dallas, Tex.; Orry M. Shepard, at New Haven, Conn.; I. C. Showerman, at Dowagiac, Mich.; J. M. Spencer, at Rising Sun, Ind.; William Spinner, at Eureka, Nev., and Charles L. Whelpley, at Washington, D. C.

The number of old timers, however, is steadily increasing as each year many become eligible for membership, by reason of having passed the twenty-five-year mark of time since they entered the service. Of the forty-niners of the telegraph, however, there are very few now left, six having died during the past year, namely: Charles S. Cutler, Otis E. Wood, Norborne M. Booth, J. A. Brenner, Orrin S. Wood and Robert Pitcairn.

COL. WM. B. WILSON, HOLMESBURG, PHILADELPHIA.
President of the Society of the United States Military Telegraph Corps.



WILLIAM L. IVES, NEW YORK.
Vice-President of the Society of the United States Military Telegraph Corps.

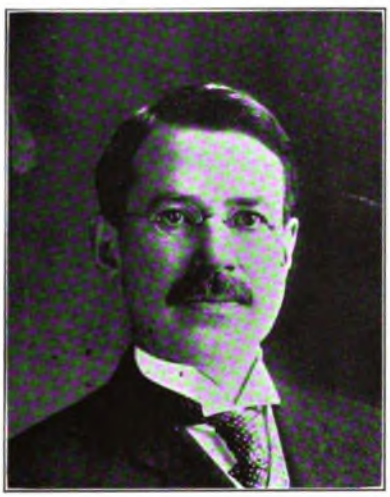
CHARLES A. TINKER, NEW YORK.
Vice-President of the Society of the United States Military Telegraph Corps.

DAVID HOMER BATES, NEW YORK.
Secretary and Treasurer of the Society of the United States Military Telegraph Corps.

Other members of the Old Timers' Association who have died since the meeting of a year ago are: Charles P. Adams, John A. Anderson, Thomas C. Devine, David D. Devereux, C. W. Douglass, John E. Dunning, Henry C. Hope, Fred G. Mason, P. J. McKeever, P. W. Snider, George M. Ferry, Thomas C. Havens, James H. Arnott, William B. Dougall, Alonzo J. Esken, Charles N. Swoyer, S. T. Welch, S. Friedlander and Henry McPhillips.

Those who attend the coming gathering will find much of interest to occupy their attention while in Pittsburg. The program as prepared by those having the matter in hand, includes trips to several of the points of interest, and there will be opportunity for all to visit other places if they so desire. The reunion will open Tuesday morning, August 17, with the business meeting of the Society of the United States Military Telegraph Corps in the parlors of the Fort Pitt Hotel at 10.30 a. m. This will be followed an hour later by the business meeting of the Old Time Telegraphers' and Historical Association at the same place. Tuesday afternoon will be spent in sight-seeing, an invitation having been extended to visit the Heinz pickle factories. The visitors will be escorted through the works and luncheon will be served them by that company. Tuesday evening the visitors will enjoy a theatre party. Wednesday morning an automobile trip through the parks of the city will be a pleasant feature of the occasion. Returning from this event at 1.00 p. m. the party will take a special train, provided by J. B. Yohe, general manager of the Pittsburg and Lake Erie Railroad, for a ride along the banks of the Monongahela River to Monessen, where they will inspect the plant of the Pittsburg Steel Company. Lunch also provided by Mr. Yohe, will be served on the train. In the evening there will be an informal dinner, dance and reception at the Country Club.

Thursday Carnegie Institute and other points of interest in Pittsburg will be visited by those present at the reunion. In the afternoon those so inclined will have the opportunity to witness a good National League ball game at Forbes Park.



A. C. TERRY, PITTSBURG.
Chairman of General Committee on Arrangements of Old Time Telegraphers' and Historical Association.

NELSON E. CHURCH, PITTSBURG.
Chairman of Finance Committee, Old Time Telegraphers' and Historical Association.

FORT PITT HOTEL, PITTSBURG.
Reunion Headquarters of Old Time and Military Telegraphers.

Last but by no means least comes the banquet at the Fort Pitt Hotel, Thursday, August 19, at 6.30 p. m. Here wit and humor reign supreme but throughout all of the speeches there runs an undercurrent of thought revealing the affection which anyone who has ever been engaged in telegraphy feels for the profession, and those who

HARVEY D. REYNOLDS, BUFFALO, N. Y.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

JOHN C. BARCLAY, NEW YORK.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

have also served therein. It is this sentiment which leads the members of the Old Time Telegraphers' and Historical Association, many of whom have long ago left the ranks to engage in other pursuits, to meet together once a year and talk of old times with their associates of the days when the telegraph was but an infant industry. To these the name "old timers" is a misnomer as they are constantly renewing their youth in reviewing the events of their younger days.

Mr. J. B. Yohe, general manager of the Pittsburg and Lake Erie Railroad, will preside as toast-master at the banquet, and addresses will

J. G. SPLANE, PITTSBURG, PA.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

U. J. FRY, MILWAUKEE.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

be made by William A. Magee, mayor of Pittsburg; Arthur A. Hammerschlag, director of the Carnegie Technical Schools; Colonel J. M. Schoonmaker, vice-president of the Pittsburg and Lake Erie Railroad; Colonel Samuel Moody, general passenger agent of the Pennsylvania Lines; Mr.

J. W. Wardrop, ex-managing director of the Merchants' and Manufacturers' Association of Pittsburg, and an orator of note; Colonel William Bender Wilson, president of the Military Telegraphers, and George A. Cellar, president of the Old Timers. The banquet will be free to out of town attendants. The expense of the dinner at the Country Club is all that will be required of

CHARLES C. ADAMS, NEW YORK.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

the visitors, the remainder of the program being furnished free.

The officers of the Society of the United States Military Telegraph Corps are: Colonel William Bender Wilson, Holmesburg, Philadelphia, president; William L. Ives, New York, and Charles A. Tinker, Brooklyn, vice-presidents; David Homer Bates, 658 Broadway, New York, secretary and treasurer. The executive committee is made up as follows: Colonel Robert C. Clowry, New York; William R. Plum, Lombard, Ill.; Colonel Albert B. Chandler, Colonel Levi C. Weir and David Homer Bates, New York; Charles A. Tinker, Brooklyn; Richard O'Brien, Scranton, Pa.; John Wintrup, Philadelphia, and Marion H. Kerner, New York.

DANIEL COLESTOCK, TITUSVILLE, PA.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

The officers of the Old Time Telegraphers' and Historical Association are: George A. Cellar, Pittsburg, Pa., president; C. E. Bagley, Philadelphia, Pa., and W. J. Camp, Montreal, Que., vice-presidents; F. J. Scherrer, 195 Broadway, New York, secretary and treasurer. The executive committee consists of: H. D. Reynolds, Buffalo, N. Y.; John C. Barclay, Belvidere Brooks and Charles C. Adams, New York; U. J. Fry, Milwaukee, Wis.; J. G. Splane and N. E. Church, Pittsburg, Pa., and D. Colestock, Titusville, Pa.

BELVIDERE BROOKS, NEW YORK.
Member Executive Committee, Old Time Telegraphers' and Historical Association.

The committees having charge of the arrangements for the reunion are:

General Committee on Arrangements of Old Time Telegraphers' and Historical Association—A. C. Terry, chairman; J. G. Splane, N. E. Church, E. T. Whiter, Mrs. J. B. Yohe, Mrs. A. C. Terry, Mrs. N. E. Church and H. Scrivens.

Reception Committee of Old Time Telegraphers' and Historical Association—J. G. Splane, Pittsburg, Pa., chairman; J. B. Boyer, Jos. H. Amend, F. T. F. Lovejoy, W. J. Dodge, A. M. Smith, C. H. Rugg, Wm. M. Munson, A. J. Pitcairn, Geo. P. Letsche, Jno. B. Stewart, J. B. Yohe, H. Scrivens, N. E. Church, Thos. Gosden, R. R. Brown, W. I. McQuown, Edwin J. Kirby, Wm. Allenbaugh, L. Behner, F. E. Schiller, D. W. Lewis, W. A. Terry, F. W. Conner, L. A. Robison, J. W. Reilly, P. A. Bonebrake, and C. R. Sutphen.

Reception Committee of the United States Military Telegraph Corps — Theodore E. Moreland, chairman, Pittsburg, Pa.; Jos. W. Boyd, Pittsburg, Pa.; Geo. W. Baxter, Cleveland, Ohio; Frank Benner, Wilkinsburg, Pa.; Daniel Colestock, Titusville, Pa.; J. W. Freeland, Marion, Ohio; Chas. W. Jaques, Ashtabula, Ohio; Major Jos. Orton Kerbey, Washington, D. C.; Geo. A. Low, Sr., Wilkinsburg, Pa., and S. B. Rumsey, Oakmont, Pa.

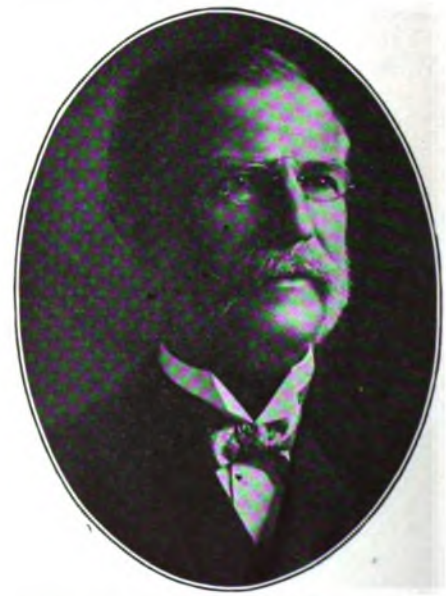
COL. ROBERT C. CLOWRY, NEW YORK.
Member Executive Committee of the Society of the United States Military Telegraph Corps.

COL. A. B. CHANDLER, NEW YORK.
Member Executive Committee of the Society of the United States Military Telegraph Corps.

Ladies' Committee—Mrs. J. B. Yohe, chairman; Mrs. N. E. Church, Mrs. A. C. Terry, Mrs. J. G. Splane, Mrs. Jos. H. Amend, Mrs. Wm. Allenbaugh, Miss Caddie Allenbaugh, Mrs. J. W. Yealy, Miss Luella Yealy, Mrs. G. A. Cellar, Mrs. Thos. Gosden, Mrs. F. T. F. Lovejoy, Mrs. A. W. Rinehart, Mrs. H. Scrivens, Mrs. L. Behner, Mrs. F. E. Schiller, Mrs. D. W. Lewis, Mrs. W. J. Dodge, Mrs C. H. Rugg, Mrs. W. A. Terry, Mrs. E. T. Whiter, Mrs. L. A. Robison, Mrs. P. A. Bonebrake, Mrs. W. I. McQuown, and Miss Virginia E. Moreland.

Finance Committee—N. E. Church, chairman; Thos. Gosden, secretary and treasurer; F. T. F. Lovejoy, F. L. Bender, R. R. Brown, G. H. Kendrick, B. F. Lloyd, Dr. Z. T. Miller, H. C. Reeser, J. G. Splane, A. C. Terry, J. B. Yohe, J. P. Altberger, F. G. Boyer, D. Colestock, W. J. Dealy, W. J. Lloyd, and C. Selden.

MARION H. KERNER, NEW YORK.
Member Executive Committee of the Society of the United States Military Telegraph Corps.

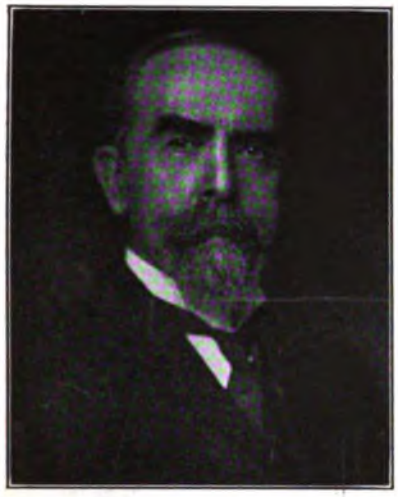


WILLIAM R. PLUM, LOMBARD, ILL.
Member Executive Committee of the Society of the United States Military Telegraph Corps.

Committee on Hotels—E. T. Whiter, chairman; A. C. Terry, and A. W. Rossiter.

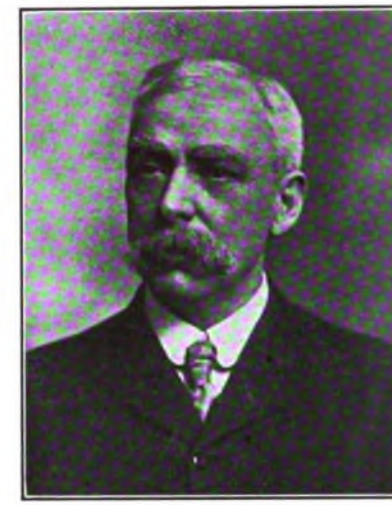
Committee on Badges—W. I. McQuown, chairman; Wm. Allenbaugh, and Edwin J. Kirby.

The report of Secretary Scherrer of the Old Times shows a membership of 1,352 and a balance in the treasury of over $1,000.

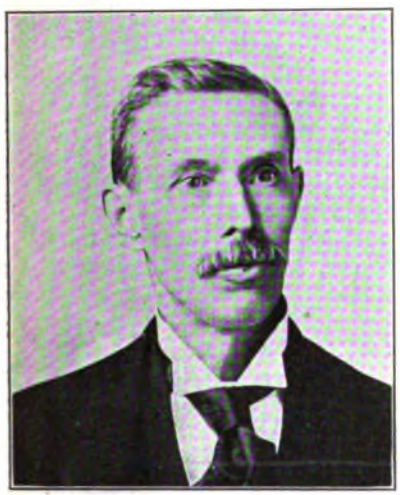


RICHARD O'BRIEN, SCRANTON, PA.
Member Executive Committee of the Society of the United States Military Telegraph Corps.

THEODORE E. MORELAND, PITTSBURG, PA.
Chairman Reception Committee of the Society of the United States Military Telegraph Corps.



JOHN WINTRUP, PHILADELPHIA.
Member Executive Committee of the Society of the United States Military Telegraph Corps.



FRANK BENNER, WILKINSBURG, PA.
Member Reception Committee of the Society of the United States Military Telegraph Corps.

SPENCER B. RUMSEY, OAKMONT, PA.
Member Reception Committee of the Society of the United States Military Telegraph Corps.

JOHN W. FREELAND, MARION, O.
Member Reception Committee of the Society of the United States Military Telegraph Corps.

JOSEPH ORTON KERBEY, WASHINGTON, D. C.

G. W. BAXTER, CLEVELAND, O.
Member Reception Committee of the

GEORGE A. LOW, SR., WILKINSBURG, PA.

A BRIEF HISTORY OF THE OLD TIME TELEGRAPHERS' AND HISTORICAL ASSOCIATION.

It may be of interest to many in connection with this reunion to relate a few incidents in the history of the Old Timers' Association. The first social gathering of telegraphers of which we have any record was a banquet held at the Astor House, New York, March 26, 1853, which was attended by over four hundred persons interested in the telegraph at that time. Mr. Gustavus Swan, who opened the first telegraph office in the Astor House, which was at that time considered to be well up town, and who had charge of that office for over fifty years, was the principal speaker of the evening.

The first recorded attempt at any regular social organization of those who had been connected with the telegraph during the early days of its development was made in March, 1880, in the form of a circular issued by Colonel Anson Stager, Charles E. Taylor, F. A. Armstrong and J. C. Mattoon, calling for a meeting to be held at Cincinnati, May 15, 1880. This call embraced all of those who entered the service prior to 1860, whether they were still connected with it or had retired to engage in other business. As a result of the response received to this circular another was issued in April, 1880, postponing the date of the reunion until September 7 in order to give the committee time to complete the necessary preparations. Of the eighty-five who were present at the first meeting there are now living: Nathaniel Hucker, John A. Townsend, Wm. C. Long, George T. Williams, C. W. Hammond, E. W. McKenna, Philip Bruner, John F. Wallick, J. W. Tillinghast, George W. Irwin, George T. Gilliland, L. C. Weir, Edward H. Hogshead, Colonel Robert C. Clowry, Z. P. Hotchkiss, W. R. Plum, George M. Dugan, George J. Goalding and Jules J. Guthridge. The officers elected were: O. H. Booth, president; George M. Dugan, vice-president; J. C. Mattoon, secretary and F. A. Armstrong, treasurer.

The next reunion, scheduled to take place in 1881 at Niagara Falls, was postponed one year on account of the assassination of President Garfield, finally meeting at that place September 20, 1882. At this meeting the constitution and by-laws were adopted and arrangements were made with the Military Telegraphers, whose meeting occurred the next day, that thereafter the two bodies should combine for all of their social gatherings. The third annual reunion occurred at Chicago, September 20, 1883, at which time the offices of secretary and treasurer were combined and S. B. Fairchild was elected to fill the two offices.

St. Louis was chosen as the place for the fourth reunion, which met August 20, 1884. The pleasant feature of this meeting was a ride on the Mississippi River and the banquet which was held on the boat.

The fifth annual meeting was held in New York, but no printed record is available of this gathering, or the succeeding ones, until the fifteenth, which also met in New York, or rather New York and Long Branch, N. J., occurring September 11, 12 and 13, 1895. The last day was given over to a trip by boat to Long Branch, where the banquet was held.

Pittsburg entertained the sixteenth reunion, September 9, 10 and 11, 1896. J. D. Reid, the chief speaker at the banquet, who was said to have opened the telegraphic profession to young women by employing the first woman operator, told in an entertaining way how 410 ladies of the New York Western Union operating department each repaid their debt to him by a kiss and a bouquet.

The seventeenth annual reunion met at Nashville, Tenn., September 15, 1897. This meeting was of special interest to the military telegraphers, as it gave many of them an oportunity to revisit the scenes of their war time experiences.

The eighteenth reunion was held at Omaha, September 13, 14 and 15, 1898, those in attendance taking this occasion to visit the exposition in that city.

Boston entertained the nineteenth annual gathering, which met in that city September 12, 13 and 14, 1899. The secretary's report at this time showed an increase in membership during the preceding year from 519 to 630.

September 18, 19 and 20, 1900, the twentieth reunion met in St. Paul and Minneapolis, the credit for this entertainment being shared by the two cities. This gathering was well attended, over four hundred being present at the banquet.

The first meeting of the two organizations to be held on foreign soil occurred at Montreal, September 11, 12 and 13, 1901. At this meeting the Telegraphic Historical Society of North America was consolidated with the Old Time Telegraphers' Association, the name of the resulting society being the Old Time Telegraphers' and Historical Association.

For the twenty-second reunion the Old Timers and Military Telegraphers turned their faces toward the Far West meeting at Salt Lake City, September 10, 11 and 12, 1903.

The twenty-third annual reunion occurred at Milwaukee, September 23, 24 and 25, 1904. The secretary at this time reported a membership of 1,076, which was a loss of only ten from the year before in spite of the five-year increase in the eligibility period which was adopted at the Salt Lake City gathering, thus debarring many would-be applicants for membership.

Atlanta, Ga., entertained the twenty-fourth annual reunion, which met in that city September 20, 21 and 22, 1905. The visitors were entertained in true Southern style, but it is not recorded whether they were served with "possum."

The silver anniversary of the Old Timers was celebrated in New York, August 29, 30 and 31,

1905. This was the most largely attended of any reunion of the two associations, over seven hundred being seated at the banquet at the Waldorf-Astoria, which represented the maximum seating capacity of the grand banquet hall. In addition to these over two hundred who had been unable to get seats at the table occupied the galleries.

The national capital was the rallying place for the twenty-sixth reunion, which met October 9, 10 and 11, 1906. The members were thus afforded an opportunity for visiting many of the historic points in Washington connected with the early history of the telegraph.

On account of the troubled times in telegraph circles in 1907 the twenty-seventh reunion which was scheduled to take place in Niagara Falls, was postponed until September 16, 17 and 18, 1908. Each of the two meetings scheduled to be held at Niagara Falls have thus been postponed for one year. The events of this gathering are still too fresh in the minds of the Old Timers to need any comment.

The Old Time Telegraphers' and Historical Association is thus well started on the second quarter century of its existence. The reunions become of more interest to the members with each recurring year, serving to keep them in touch with their associates of younger days and continue the friendships formed in those times, and it is safe to predict that the meetings will be held as long as the telegraph industry endures.

The following is a list of the places of meeting and the officers of the Association since its organization:

1880—Cincinnati, O., president, *O. H. Booth; vice-president, G. M. Dugan; secretary, *J. C. Mattoon.

1881—No meeting on account of the death of President Garfield.

1882—Niagara Falls, N. Y., president, O. H. Booth; vice-president, G. M. Dugan; secretary, J. C. Mattoon.

1883—Chicago, Ill., president, W. R. Plum; vice-president, W. B. Wilson; secretary, J. C. Mattoon.

1884—St. Louis, Mo., president, G. M. Dugan; vice-president, *E. Rosewater; secretary, *S. B. Fairchild.

1885—New York, N. Y., president, C. W. Hammond; vice-president, *Chas. E. Taylor; secretary, S. B. Fairchild.

1886—Cleveland, O., president, *J. D. Reid; vice-president, *C. S. Jones; secretary, W. J. Dealy.

1887—Philadelphia, Pa., president, *C. C. Hine; vice-president, *Chas. E. Taylor; secretary, W. J. Dealy.

1888—Chicago, Ill., president, *David Brooks; vice-president, *Irwin Dugan; secretary, W. J. Dealy.

1889—Louisville, Ky., president, *Chas. E. Taylor; vice-president, *Day K. Smith; secretary, W. J. Dealy.

1890—Kansas City, Mo., president, *Day K. Smith; vice-president, *B. Hughes; secretary, W. J. Dealy.

1891—Washington, D. C., president, G. C. Maynard; vice-president, *D. A. Williams; secretary, W. J. Dealy.

1892—Omaha, Neb., president, *E. Rosewater; vice-president, G. M. Dugan; secretary, W. J. Dealy.

1893—Chicago, Ill., president, A. H. Bliss; vice-president, *W. D. West; secretary, W. J. Dealy.

1894—Baltimore, Md., president, Chas. Selden; vice-president, *M. Marean; secretary, W. J. Dealy.

1895—New York, N. Y., president, *E. C. Cockey; vice-president, *R. J. Hutchinson; secretary, W. J. Dealy.

1896—Pittsburg, Pa., president, S. A. Duncan; vice-president, *J. D. Flynn; secretary, W. J. Dealy.

1897—Nashville, Tenn., president, James Compton; vice-president, *Martin Barth; secretary, W. J. Dealy.

1898—Omaha, Neb., president, *J. J. Dickey; vice-president, L. H. Korty; secretary, W. J. Dealy.

1899—Boston, Mass., president, H. J. Pettengill; vice-president, E. B. Baker; secretary, *John Brant.

1900—St. Paul and Minneapolis, Minn., president, *H. C. Hope; vice-president, H. A. Tuttle; secretary, John Brant.

1901—Montreal, Can., president, L. B. McFarlane; vice-president, J. E. Hutcheson; secretary, John Brant.

1902—Salt Lake City, Utah, president, *G. H. Corse; vice-president, B. Brooks; secretary, John Brant.

1903—Milwaukee, Wis., president, U. J. Fry; vice-president, Wm. J. Lloyd; secretary, John Brant.

1904—Atlanta, Ga., president, C. C. Adams; vice-presidents, W. H. Adkins and J. M. Stephens; secretary, John Brant.

1905—New York, N. Y., president, John C. Barclay; vice-presidents, F. W. Jones and F. Pearce; secretary, John Brant.

1906—Washington, D. C., president, *W. H. Young; vice-presidents, *C. P. Adams, G. W. Ribble and J. B. Yeakle; secretary, John Brant.

1908—Niagara Falls, N. Y., president, H. D. Reynolds; vice-presidents, *G. A. Burnett, I. McMichael and G. F. Macdonald; secretary, John Brant.

From this list it will be seen that New York and Chicago have each entertained the reunion three times, while Omaha, Washington and Niagara Falls have twice been visited. The present gathering is the second one to meet at Pittsburg. The fourteen other reunions have been held at fourteen different cities.

*Deceased.

MILITARY TELEGRAPHERS FROM ALLEGHENY COUNTY, PA.

The following petition was presented recently to the Soldiers' Memorial Hall Committee of Allegheny County, Pa.:

Pittsburg, Pa., February 20, 1909.

To the Soldiers' Memorial Hall Committee of Allegheny County, Pa.:

Gentlemen.—We the undersigned survivors of the United States Military Telegraph Corps, who volunteered from Allegheny County, State of Pennsylvania, for military telegraph service during the Civil War, from 1861 to 1865, do most respectfully petition your committee for a suitable location in the Memorial Hall for a tablet to contain, the names of members of the United States Military Telegraph Corps, living and dead, who were citizens of Allegheny County before the war. This request is made under the provisions of Section 6, Act of Assembly No. 106.

Herewith we attach a list of names to be placed on such tablet, which will be prepared, and the cost thereof borne by our membership.

If the request be granted a design of said tablet will be presented for the approval of your Committee.

Yours respectfully,

Joseph W. Boyd, David Homer Bates, Andrew Carnegie.

The list, so far as known to the compilers, of telegraphers from Allegheny County, Pennsylvania, who served in the United States Military Telegraph Corps during the Civil War, is as follows:

*†Thomas Armour, Army of Potomac; David Homer Bates, War Department; James Bryant; †Joseph W.

* Deceased.
† Enlisted.

ANDREW CARNEGIE, NEW YORK.
Member of the United States Military Telegraph Corps from Allegheny County.

J. HERVEY NICHOLS, DENVER, COL.
Member of the United States Military Telegraph Corps from Allegheny County.

JESSE H. ROBINSON, WASHINGTON, D. C.

CHARLES W. JAQUES, ASHTABULA, O.
Member of the United States Military Telegraph Corps from Allegheny County.

J. W. BOYD, PITTSBURG.
Member of the United States Military Telegraph Corps from Allegheny County.

EDWARD W. McKENNA, CHICAGO, ILL.

Boyd, Peninsula Eastern Shore of Virginia; W. G. Barth; *Jesse H. Bunnell, Army of Potomac; *Samuel M. Brown, War Department; Andrew Carnegie, Assistant General Manager; Albert Brown Chandler, War Department; *Harper A. Caldwell, Army of Potomac; Captain Thomas B. A. David, Army of Potomac; *Benjamin W. Flack, Army of Potomac; Charles W. Jacques, Army of Potomac; Major Joseph Orton Kerbey, Army of Potomac; *John Spencer Kerbey, Army of Potomac; George Albree Low, War Department; Theodore E. Moreland, Army of Potomac; *J. Andrew Munson, Army of Potomac; *L. D. McCandless, Army of Potomac; *James P. McIlvain, Army of Cumberland; *John A. L. McKenna, War Department; Edward W. McKenna, Army of Potomac; J. Hervey Nichols, Army of Potomac; *John L. O'Neil, Army of Potomac; George W. Perkins, Army of Potomac; *Theodore S. Paisley, Army of Potomac; William H. Pope, Army of Potomac; Jesse H. Robinson, Army of Cumberland; *†J. Abernethy Torrence, Department of West Virginia; *Thomas B. Williams, Western Army; Robert F. Weitbrec, Army of Potomac; *Benjamin F. Woodward, War Department.

The petition to the Memorial Hall Committee, of which Joseph W. Boyd is a member, has been approved and the matter is now in the hands of the architect for the purpose of making plans for the proposed bronze tablet, a suitable and conspicuous place for which has been designated by the committee.

ALLEGHENY COUNTY SOLDIERS' MEMORIAL.

In order that the proposed list of names on the tablet may be authentic, a self-constituted committee has been appointed to pass upon the names, consisting of Joseph W. Boyd, David Homer Bates, Andrew Carnegie and Theodore E. Moreland. This self-constituted committee will also pass upon the design for the bronze tablet.

The Memorial Hall when completed will be a magnificent structure, costing $1,250,000, occupying an entire square. It faces Fifth Avenue, opposite the Schenley Hotel, with Grant Boulevard at one side and is one of a group of buildings consisting of the new Pittsburg University buildings, which are being erected at a cost of twenty to twenty-five million dollars, the five structures of the Carnegie Technical School, Carnegie Hall, the Museum and Fine Arts Building and the Margaret Morrison Memorial building. Nearby are to be found Schenley Park and Forbes Park the new $1,000,000 baseball grounds.

A Complete List of the Living Members of the United States Military Telegraph Corps So Far as Known.

Abernethy, John T.
Adams, Milton F.
Allison, George
Anderson, Joseph
Armes, William J.
Armstrong, Ewing L.
Armstrong, S. T.
Ash, Wm. M., M.D.
Atwater, Henry H.
Atwell, J. W.

Barnes, Cassius M.
Barton, Stephen E.
Bashford, Philip
Bassett, W. F.
Bates, David Homer
Baxter, George W.
Beckwith, Samuel H.
Bender, Robert W.
Benedict, C. H.
Benner, Frank
Bliss, Abel H.
Bliss, J. E.
Bohle, R. H.
Boyd, Joseph W.
Boyle, E. C.
Brenneman, A. Thomas
Brooke, Thomas H.
Brown, Charles Exera
Brown, J. R.
Browne, Henry R.
Bruner, Philip
Brush, S. T.
Buell, Madison
Bull, Henry P.
Burhans, William W.
Bush, B. F.

Carnegie, Andrew
Cassell, J. A.
Chaddock, W. H.
Chandler, Col. A. B.
Chandler, Charles E.
Child, Hubert
Clowry, Col. Robert C.
Cochrane, Achilles P.
Cole, George
Colestock, Daniel
Cowell, Robert
Craig, H. H.
Crain, M. D.
Cromwell, George E.
Croning, Daniel
Crouse, Jesse W.
Cruise, J. D.
Culbertson, Cambridge

Darlington, H. P.
Daugherty, Walter
David, Thomas B. A.
Davin, Thos. A.
Davis, Frank P.
Davis, Samuel
Dealy, William J.
De Bree, Nathan
Dennis, L. B.
Denny, J. C.
Dixon, John R.
Dougal, William H.
Dougherty, C.
Dow, D. D.
Duell, John T.
Duncan, J. C.

Eckert, Gen. Thos. T.
Eitemiller, George M.
Elliott, R. H.
Evans, Frank H.

Felton, G. C.
Ferris, D. V.
Finegan, Joseph
Fish, E. G.
Fitch, Derick H.
Fonda, Ten Eyck H.
Forsey, W. S.
Fowler, J. J.
Fraser, Philip B.
Freeland, J. W.
Frisbie, M. D.
Fuller, J. A.
Furr, R. A.

Gard, D. H.
Geiger, John M.
Gentry, Rev. W. D.
Gilmore, Col. J. R.
Goalding, George J.
Graham, Richard
Greene, E. C.
Gregg, Harry L.
Griffin, Russell B.
Griffin, S. L.
Griffith, C. H.
Groomes, Isaac C.
Gross, Charles F.
Gulick, C. W.
Gulliher, James K.
Guthridge, John F.

Hallam, Isaac W.
Hammond, Charles D.
Hammond, Charles W.
Hancock, A. G.
Hansen, Joseph

Hartman, Wm. H. von
Harveycutter, John
Hatton, O. C.
Hauxhurst, H. E.
Henderson, George
Henderson, Harvey B.
Hogan, Daniel
Hoge, O. E.
Holley, Minard Y.
Holmes, George S.
Homan, Charles A.
Holt, Theodore
Hood, Oliver Perry
Hoover, R. B.
Hotchkiss, Z. P.
Howe, G. W.
Hull, A. K. V.
Hull, Henry P.
Huntington, Geo. M.
Huyck, Maynard

Ingram, S. E.
Ives, William L.

Jaques, Charles W.
Jayne, John E.
Johnstone, W. F.
Jones, George E.

Kanode, A. H.
Kenan, F. W.
Kenney, Edwin
Kerbey, Joseph Orton
Kerner, Marion H.
Kettles, William E.
Kiley, John K.
King, Thomas M.
Knapp, Stewart W.
Knight, Frank B.
Knittle, Joseph
Korty, L. H.

Lafaye, J. H.
Laird, Thomas A.
Lamb, Frank H.
Langdon, Thomas
Lawrence, George J.
Lemoreaux, C. L.
Lewis, W. T.
Lindauer, A. C.
Lonergan, John
Long, F. C.
Loomis, Charles A., Sr.
Low, George A.
Lowe, James
Ludwig, Charles J.
Ludwig, J. F.
Lyons, William J.

McCleverty, Joseph D.
McCloskey, I. T.
McClure, J. P.
McCoy, Daniel B.
McIlvaine, J. F.
McIlvaine, J. P.
McKelvey, A. T.
McKenna, E. W.
McMichael, Isaac
McMurtry, B.
Magehan, W. H.
Maize, Isaiah D.
Maloney, Patrick
Martin, Henry S.
Martin, Robert W.
Mason, J. Q.
Matlock, Henry H.
Maynard, George C.
Meagher, James
Mixer, Charles H.
Montaigne, C. D.
Moore, Charles W.
Moreland, Theodore E.
Morris, Absalom M.
Morrison, Thomas

Naile, George W.
Newton, E. C.
Nichols, J. Hervey
Nichols, A. M.
Nohe, A. W.
Norris, James B.

O'Brien, Dr. John E.
O'Brien, Richard
O'Neal, William C.
Orton, Albert W.

Palmer, Charles H.
Parsons, James K.
Parsons, John W.
Paxson, Charles A.
Pearson, C. W.
Peel, Edwin
Perdue, L. Ford
Perkins, George W.
Peterson, Joseph H.
Phelps, Ransom
Pierce, George C.
Pitfield, James W.
Plum, Henry W.
Plum, William R.
Pond, Chester H.
Pope, J. William
Power, Richard
Prichard, John W.
Purcell, P. Jos. A.

Railton, G. W.
Rand, D. E.
Rawlings, T. E.
Reid, Douglas
Reese, Samuel
Reeves, J. E.
Robinson, Byron L.
Robinson, Jesse H.
Robinson, Merritt F.
Robinson, S. L.
Roche, Thos.
Rodgers, T. J.
Rose, Luther A.
Rowe, R. D. E.
Rumsey, S. B.
Rupley, Samuel K.

Sackett, Herbert R.
Sanborn, F. A. H.
Sargent, W. D.
Scanlan, John
Schnell, Andrew C.
Schnell, Joseph
Schnell, Thad. M.
Scheldon, Irvin B.
Sheldon, William A.
Sholes, Cass G.
Shrigley, James A.
Shuman, W. A.
Sisson, W. H.
Sloat, Harry D.
Smith, Charles W.
Smith, George K.
Smith, J. Elliott
Smith, Michael
Snow, H. N.
Spellman, C. H.
Spencer, Harry B.
Sponagle, John L.
Sprague, Henry C.
Stewart, D. N.
Stewart, John N.
Strubbe, W. G.
Stumm, Frank A.
Sullivan, Daniel

Talbot, Robert M.
Talmage, George J.
Taylor, Periander A.
Taylor, W. S.
Thode, George F.
Tinker, Charles A.
Tompkins, E. P.
Tyler, James D.

Van Valkenburgh, F.S.
Vincent, H. C.
Vincent, O. B.
Voltz, J. D.
Von Eye, Edward

Waddell, F. G.
Waddell, Orin J.
Walsh, Arthur
Ward, Edward T.
Washburn, M. E.
Watts, John C.
Ways, Chas. E.
Webb, J. G.
Weir, Levi Candee
Weitbrec, R. F.
West, H. W.
White, W. N.
Wickard, J. W.
Williams, D. A.
Williams, Robert E.
Wilson, Ellis J.
Wilson, Col. Wm. B.
Winder, Alfred
Wintrup, John
Wolffe, C.
Wood, William B.
Woodard, W. R.
Woodring, W. H.
Wortsman, L. W.

Zion, A. A.

Forty-Niners of the Telegraph.

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

Name.	When entered the service	Where entered the service.
Arnoux, Wm.	1847	
Barr, M. W.	1847	Wheeling, W. Va.
Berry, Stephen	1846	Boston
Bethune, N. W.	1847	Montreal
Brigham, George F.	1848	Fredonia, N. Y.
Brigham, Henry H.	1849	Warren, Pa.
Bright, Louis A.	1849	Pottsville, Pa.
Brownson, W. G.	1849	Poughkeepsie, N.Y.
Buell, Madison	1847	Buffalo, N. Y.
Carleton, G. W.	1849	
Carnegie, Andrew	1848	Pittsburg, Pa.
Clark, James J.	1845	Philadelphia
Clark, William H.	1849	Frankfort, Ky.
Cleveland, Uriah	1847	Toledo, O.
Cobb, Emory	1848	Fredonia, N. Y.
Compton, J.	1848	Wheeling, W. Va.

Daugherty, A. D.....1848..Coldwater, Mich.
David, T. B. A.....1849..Pittsburg, Pa.
Davis, A. G.....1849..Poughkeepsie, N.Y.
Dodge, L. C.....1847..Burlington, Vt.
Dunham, James.....1847..Poughkeepsie, N.Y.
Dwight, H. P.....1847..Montreal
Easson, R. F.....1849..Toronto, Ont.
Eckert, Gen. Thos. T..1848..St. Clairsville, O.
Flagg, John A.....1849..
Frey, George H., Sr...1849..Springfield, O.
Gentry, Dr. W. D.....1848..Hopkinsville, Ky.
Greene, Joseph S.....1846..Philadelphia
Guthridge, J. F.....1849..Attica, Ind.
Haskins, Charles H...1846..Buffalo, N. Y.
Haviland, James D....1847..Detroit
Hepburn, H. C.....1845..Philadelphia
Homans, Benjamin....1848..Baltimore
Hoyt, Samuel.....1848..Milan, O.
Hucker, Nathaniel.....1847..Buffalo, N. Y.
Hunt, Thomas.....1849..Morrow, O.
Huntington, George M.1849..Watkins, N. Y.
Lasscell, W. B.....1849..
Louis, L. A.....1848..Louisville, Ky.
Lumbard, Julius G....1847..Ashtabula, O.
Matthews, Charles P..1849..Columbus, O.
Melbourne, W. A.....1848..Bardstown, Ky.
Merrihew, James.....1849..Wilmington, Del.
Morris, S. R.....1847..
Porter, E. P.....1846..Geneva, N. Y.
Reed, Henry A.....1849..Carmel, N. Y.
Reid, Douglas.....1847..Sandusky, O.
Ryan, Reuben H.....1848..Milan, O.
Scott, M. A.....1848..
Sutherland, John A....1849..Buffalo, N. Y.
Talcott, A. B.....1849..Boston
Titcomb, H. B.....1848..Memphis, Tenn.
Tomlinson, E. M.....1846..Hartford, Conn.
Townsend, John A....1849..Akron, O.
Tree, J. B.....1847..Washington
Tubbs, F. H.....1848..Milan, O.
Tyler, Artemus E.....1848..Erie, Pa.
Van Duzer, A. M.....1849..Fredonia, N. Y.
Ward, Henry H.....1848..Springfield, Mass.
Ware, James.....1847..
Weller, Alfred.....1847..Marshall, Mich.
Williams, George T...1849..Sinclair, N. Y.
Worl, James N.....1848..Philadelphia
Worl, W. S.....1849..Philadelphia

It is reported that Professor Mercadier is now able to operate his vibratory system of multiplex telegraphy upon a single wire, and has made some very satisfactory tests between Lyons and Paris. Heretofore his system has required the use of two wires, thus putting it at a great disadvantage with most of the other systems of rapid telegraphy.

The State authorities of Iowa have refused to issue a permit to the Western Union Telegraph Company to do business in that State. The company submitted its annual report as required by the new law but failed to pay the $125,000 filing fee.

The Military Telegrapher in the Civil War.

PART XXV.

Mr. George W. Baxter, who is at the present time an honored member of the Western Union force at Cleveland, O., and whose picture appears elsewhere in this issue, he being a member of the reception committee of the Society of the United States Military Telegraph Corps, served in the military service during the greater part of the war and had some interesting experiences while thus engaged. In writing to Colonel William R. Plum, historian of the United States Military Telegraph Corps, in 1878, Mr. Baxter told in part the following story of events happening to him during his connection with the government service:

"I joined the army as a telegraph operator shortly after the breaking out of the war and I worked in many places, but my first real military experience, however, commenced early in 1863. At that time I went from Cairo to Memphis. At the latter place I was ordered to Jackson, Tenn., for duty, but my stay there was short. Here I found H. W. Nichols with Edwin Peel in charge of the office. I was next ordered to Grand Junction, a point where the Memphis and Charleston and the Mobile and Ohio Railroads cross. There I worked a month, when I was ordered to Memphis to prepare for field duty. From Memphis I was sent to the siege of Vicksburg. In due time I arrived at Chickasaw Bayou on the Yazoo River. There I received orders to report to Major General A. C. Washburn to relieve a detailed soldier who was doing the telegraph work in his office.

"The operators at this point at the time were: J. C. Sullivan, chief operator; Eugene Robinson, William Foley, M. K. Booth and H. W. Nichols, who followed me from Memphis. Shortly after this M. K. Booth died of malarial fever, a martyr to the service. Our duties were routine until after the surrender of Vicksburg, when Mr. Nichols and E. H. Johnson were ordered to New Orleans, being directed to go there by Captain Charles S. Bulkley of the Department of the Gulf. William Foley and myself followed a few days later, and while en route had some interesting experiences. Mr. S. L. Griffin, who had charge of the office at Port Hudson was a victim of one of the army officers. It happened to be our lot to travel on General Herron's headquarters boat from Vicksburg. On arrival at Port Hudson we began hunting for the telegraph office. It being about nine or ten p. m. made it quite a difficult task, as the office was a mile or more from the landing. However, we found it and made the acquaintance of the genial Griffin. We had finished our stories and with Foley on the floor and myself stretched on the table, were ready to enter the land of dreams, when we were awakened by a rap. The disturber of our quiet turned out to be an orderly from General Herron with a telegram for New Orleans which must be

sent at once to that place and the orderly was to wait for an answer. Mr. W. A. Tinker, the night operator, told him the wires were down and the message could not possibly be sent before morning, and told him that he had better go back and report the fact, which he did, but as most officers in the army knew more than the operators did, about such things, the orderly was commanded to return and wait for the answer, and insist that the message be sent at once. Mr. Griffin, the manager, gave him a chair, the best thing he had besides the floor to sleep on, and you may depend upon it he took advantage of it. In the morning he was informed that the lineman had started out, and as soon as the wires were repaired the message would be sent to New Orleans. The orderly started for headquarters to report and soon came back saying General Andrews, the commanding officer at Port Hudson wanted to see Mr. Griffin at headquarters. Mr. Griffin started for that place and found no one there, the general having gone out. He returned to the office but had hardly come in the door when the orderly again made his appearance asking him to go to headquarters as the general wanted to see him. Mr. Griffin very politely told the orderly that he had been there and found no one, and that the business of his office would not permit him to absent himself from it so long again, that he could not go. You may depend upon it it was not long before a squad of soldiers arrived at the office, inquired for Mr. Griffin and took him away. He was put in the guard house with a lot of negroes, Confederate prisoners, etc., and his hands tied with a rope. The floor of the guard house had about three feet deep of cow peas, which had been left by the Confederate commissary department. An order was then sent for one of the two operators who came down the river on General Herron's headquarters boat to take charge of the office until further notice. Well, yes, we took charge of course, but did not work until Mr. Griffin was released. Even after the wires were repaired General Andrews was going to have Mr. Griffin drumhead court martialed for mutiny, but speedily changed his mind. It was a month or two before I reached New Orleans. I afterwards worked in nearly every office in the department. I found in the New Orleans headquarters office Captain Charles S. Bulkley in charge, Edmund Conway, chief operator; S. B. Fairchild, manager; Scott R. Chappell, paymaster, and William Palmer and Henry Stouder, operators. My army experience after that was with the march on Mobile although I was in western Louisiana in a march on Shreveport. Mr. A. W. O'Neil was in charge of the operators there, with John Frank. Mr. Z. P. Hotchkiss, another man and myself were the operators. General Canby was in command. About this time, 1864, Captain W. G. Fuller released Captain C. H. Bulkley, who had been appointed to take charge of the Collins overland expedition to construct lines of telegraph connecting America and Europe from California via Alaska across the Bering Straits through Siberia, Russia and on to Paris.

"On June 30, 1864, I was ordered to Morganza to relieve Mr. A. W. O'Neil, who went to New Orleans on business for a few weeks. A few days after his departure, I was told to move my office, which was between the levee bank and the river, to the other side of the bank in order to make room for the stores of the quartermaster. As a matter of duty, I referred the instructions to my superior officer, Lieutenant F. N. Wicker, who instructed me to await Mr. O'Neil's return before effecting the change. I did not consider it necessary to tell Captain Speed what I had done, and as I did not move my office in the course of a few days, I was sent for to explain. I explained by saying I had received orders from my superintendent which I preferred to obey. He took umbrage at this and said I should obey his orders, and I soon found myself a prisoner in the guard house, a miserable hole, among negroes, drunken soldiers and other prisoners. I was there quite a while when they sent for me to come to headquarters. On my arrival there, I was ordered to my office under arrest, and told that I would find some business on my desk to dispose of. I politely refused to do duty while under arrest and held out until the guard was relieved from in front of my office.

"After the war was over I left the service and returned to the North."

William Patterson's service with the United States Military Telegraph Corps extended over five years. In writing to Colonel William R. Plum, the historian in 1878, he gave the following outline of his movements while serving in that connection:

"I went into the government telegraph service at Clarksburgh, Va., the latter part of June, 1861, and was line operator with the builders on a line from Clarksburg to Patterson Toll Gate on Lewisburg Pike, about six miles from Big Sewell Mountain. I was next at Rosecrans' headquarters at Camp Tompkins, two and a half miles from Gauley Bridge, Va., from which place I went to the end of the line twenty miles from Gauley Bridge on the Summerville Pike. I there opened an office in a fence corner and remained for two days and nights receiving and forwarding messages from General Rosecrans' headquarters and from couriers. Returning to General Rosecrans' headquarters, I went to Charlestown, W. V., and opened an office there; thence to Red House, W. Va., where I opened another office. I went from Red House to Franklin, Tenn., remaining at Franklin about four months and going from there to Decherd, Tenn. I remained at Decherd until General Buell vacated that section of the country in September, 1862, then I fell back to Nashville with General W. S. Smith, who was in command of the rear guard of Buell's troops. I assisted in destroying the railroad bridge and telegraph line from Decherd to Wartrace on the Nashville

and Chattanooga Railroad. I went from Nashville to Bowling Green with General W. S. Smith and staff with an escort of cavalry, evading Forrest's cavalry three different times during the day and night ride. We were piloted twice during the trip by negroes and lay in ambuscade an hour and a half for Forrest's cavalry four miles from Elizabethtown, Ky. Here I destroyed my ciphers for fear of capture but the raiders did not make their appearance though one of Forrest's scouts was captured on this march. From Bowling Green to Louisville I was with General Smith's division, and from Louisville was with him in pursuit of General Bragg to Wild Cat Mountain, and thirty miles beyond in pursuit of Morgan's cavalry, the rear guard of General Kirby Smith's retreating forces. I returned with General Smith to a camp near Nashville, from which place I went to Gallatin, Tenn., and was operator for one week at the headquarters of General G. H. Thomas. I went from Gallatin to General A. McCook's headquarters, four miles from Nashville, on the Nolansville Pike, where I remained until Rosecrans moved to attack Bragg at Stone River. After our forces occupied Winchester, Tenn., I superintended the construction of a line from Cowan, Tenn., to Tracy City. By order of Colonel Van Duzer I then went to Huntsville, Ala., where I opened an office, and went from there to Bridgeport, Ala., and thence to Chattanooga with line material. I assisted in building a line from Chattanooga to Chickamauga battle ground, and was at General Rosecrans' headquarters at Widow Glenn's house on the second day and the morning of the third day of the battle. I was opening an office in Dry Valley by directions of John Holdridge when the disastrous retreat of our army began. I then returned to Chattanooga and operated at headquarters office until two weeks before the defeat of Bragg at Mission Ridge. I was then sent to General Joseph Hooker's headquarters, near the base of Lookout Mountain, as operator. While in Chattanooga I assisted in running wire around outside our works about Chattanooga to trip the enemy in case a charge was made on the works. I returned from Hooker's headquarters to Chattanooga and was operator at headquarters office until communication was opened with Knoxville, Tenn., when I was ordered by Colonel Van Duzer to take charge of reconstructing the line from Chattanooga to Knoxville, and opening the necessary offices. After rebuilding the line to Knoxville, Colonel Van Duzer appointed me district superintendent of government telegraph lines for the district of East Tennessee, which was composed of the lines on the East Tennessee and Virginia Railroad from Knoxville to Bristol, Va., the East Tennessee and Georgia Railroad, from Knoxville to Chattanooga, and the Georgia State Railroad from Chattanooga to Atlanta, the lines being rebuilt as far as the territory was occupied by Federal forces. I also had charge of the field line with Sherman's army during Colonel Van Duzer's absence. We used the Government cipher from 1862 until the close of the war. After the siege of Nashville was raised I superintended the repairing of lines of the Nashville and Chattanooga Railroad between Stevenson and Murfreesboro. I also superintended the building of forty miles of line from Knoxville toward Cumberland Gap, and left the service in April, 1866."

James Compton, now of Nashville, Tenn., upon being asked to tell the story of his connection with the military telegraph service of the South, gave the following brief but graphic account of his war-time experience:

"I served as Lieutenant of infantry, detailed in 1862 for railroad service. My connection with the telegraph business came very near resulting in having my neck stretched by order of General Sherman in February, 1864. The general, however, compromised by sending me to Camp Chase, Ohio, where I spent one year, returning to the Confederacy March 28, 1865, in time to leave Richmond, Va., with our retreating forces."

Mr. Compton after the war re-entered the telegraph service and was superintendent of the Western Union Telegraph Company at Nashville, Tenn., until about six year ago, when he retired from further active duties.

New Edition of Phillips Code Now Ready.

The new edition of Phillips Code, revised and brought up to date (March 16, 1909) is now ready for delivery. The popularity of the Phillips Code, by Walter P. Phillips, was never more apparent than at the present time. Its acceptance by the telegraphic fraternity, as a standard work of the kind, dates from its first publication, and the constantly increasing demand for this unique and thoroughly tested method of shorthand arranged for telegraphic purposes, has necessitated from time to time the issuance of several editions. The present edition was carefully gone over under the supervision of competent authorities. This "stanch friend of the telegrapher" is strictly up to date in every particular. It is declared that an essential qualification of a "first-class operator" is a thorough understanding of Phillips Code.

The price of the book is $1 per copy. Address all orders to J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Mr. F. H. Lamb, superintendent, of the Western Union Telegraph Company, Los Angeles, Cal., in remitting to cover another year's subscription, pays this splendid tribute to the worth of the paper:

"I am obliged to you for not letting my subscription expire, as I do not wish to be without your valuable journal. I will be glad to assist you in securing new subscribers whenever opportunity offers."

(Continued from page 575.)

powerful for retarding the egress of the cable, and well adapted to a uniform strain, but it has too much inertia to meet the exigencies of strains and speed ever varying. *Manual effort was frequently employed* (1858) when the strain was light (on the "Agamemnon" only, however). The machine employed for the same purpose in 1865 was very dif ferent." So much for the more crude methods.

But why my critic's gratuituous fling at Mr. C. W. Field, where he says that when Field came over to England "his ideas had all been preceded by Brett and my father." Because perhaps his father, in common with numerous other men in Europe and America, had suggested that transatlantic telegraphy was within the range of possibility. Indeed, it would seem that my critic resents Mr. Field's appearance on the scene as an intrusion that deprived certain other gentlemen of first honors in Atlantic cable telegraphy. But let us have some testimony on this point from a gentleman whose competency to express an opinion on this question of priority will hardly be disputed even by my critic. The reference is to Mr. George Saward, secretary of the Atlantic Telegraph Company who, asked by the chairman of the Board of Trade committee to kindly describe the origin of the Atlantic Telegraph Company and the arrangements under which the first proceedings took place, replied: "The Atlantic Telegraph Company sprang out of a scheme for shortening the time of communication between the United States and Europe, which was originated in 1851 by a Mr. Tibbetts of New York, in conjunction with Mr. F. N. Gisborne, an English engineer"—this resulted in the formation of the Newfoundland Electric Telegraph Company, which company proposed to establish land and submarine lines of telegraph from St. Johns, N. F., to the Gut of Canso. That company failed financially. In 1853 Mr. Gisborne visited New York and met Mr. Field. "It happened that some time previously to this period the idea of establishing a telegraph across the Atlantic had suggested itself to several individual minds, but it *had assumed no form or substance*, and Mr. Field, though unwilling to apply his private means to propping up the falling fortunes of the Newfoundland Telegraph Company by promoting that scheme as an isolated venture, conceived the notion of obtaining scientific advice upon the subject of a transatlantic telegraph from his distinguished countrymen Lieutenant Maury and Professor Morse. Their assurances were satisfactory." The result was that a company was formed consisting of six American citizens, and termed the New York, Newfoundland and London Telegraph Company, the object of which was to bring London and New York into continuous electric communication. "This company, established as I have described, having executed its works in the Island, turned its attention towards extending the telegraph to Europe. It was found impractical to raise the capital for this part of the undertaking in America, and Mr. C. W. Field, during one of his early visits to England, associated himself with Mr. J. W. Brett with a view to the money being raised in England. Mr. Brett, who was then a good deal occupied with other cables, employed Mr. Whitehouse, whom he knew as an electrical experimenter, to investigate for him some electrical facts in connection with the probabilities of success. Mr. Whitehouse, in the course of these experiments, became acquainted with Sir Charles Bright, and finally these four gentlemen, Messrs. Field, Brett, Whitehouse and Bright, entered into a contract with each other to become joint projectors of a separate company in England to carry out the submarine line between Ireland and Newfoundland, etc." This statement by Mr. Saward puts the American claims for Mr. C. W. Field's part in transatlantic telegraphy in terse shape. Mr. Field gave *form* and *substance* to what had hitherto been merely a dream. As Mr. Whitehouse said before the Board of Trade committee, Mr. Field was the "active" man, and while there is no doubt that transatlantic telegraphy would eventually have been accomplished had Mr. Field never taken part in the work, the fact remains that it was he who, by his untiring efforts, advanced its accomplishment by many years, and despite the flings of cavilers, the name of Cyrus W. Field will, in the words of Mr. George Saward, "go onward to immortality as long as that of the Atlantic telegraph shall be known to mankind." The fact that Mr. C. T. Bright was one of the four original "projectors" of the Atlantic cable of 1858 is so well known that one wonders what my critic has in mind when he so solemnly assures us that he has in his possession the original agreement between the four gentlemen. Of course, no one will question that Mr. Brett had early practical conceptions of the feasibility of transatlantic telegraphy, and even went so far as to *register* in 1846 a scheme for connecting Ireland and Nova Scotia by telegraph, but Mr. Saward's statement as to "form and substance" still stands, and Mr. Brett himself has written in his "Origin and Progress of the Ocean Electric Telegraph" (August, 1858): "To my coadjutor, Mr. Field, too much praise cannot be given; his untiring energy has united and brought about the invaluable co-operation of the United States and Colonial Governments to the support of the enterprise."

I notice also Mr. Bright's allusion to the fact that I did not in my article specifically differentiate between the civil engineers and the electrical engineers engaged in early cable work. In Great Britain and in this country electricians employed in electrical work of a high order are included in the generic term electrical engineers, as evidenced by the names of the electrical engineering institutes in both countries. To term a man an electrician in this country is usually to dub him a dynamo tender or electrical wire worker. With this explanation, my inclusion of Whitehouse, Latimer Clark, Thomson and Varley as engineers is clear. I had previously referred to Varley as the elec-

trician of the company, and to Henley as the telegraph engineer, and in general the writer may modestly remark that his opportunities to distinguish between the various grades of electrical engineers have very likely equalled or exceeded those enjoyed by his self-appointed critic. I confess, however, I was somewhat derelict in not taking time in my article of last year to give at least passing notice to the admirable services rendered by the American engineer, Mr. W. E. Everett, under whose supervision the cable-paying-out machinery was made and installed and who was in *sole and responsible* charge on the "Niagara" of the successful laying of one-half of the cable of 1858. But, in fact, as may plainly be seen by a perusal of the article, there was no intention to make particular mention of or to detract from the credit due to individuals concerned in the enterprise. Still I now find it difficult to excuse the failure to in any way make mention in my article of Mr. Everett's great part in that work and I shall here endeavor to make some small amends. In doing this, I may incidentally also disclose what seems like an attempt on the part of my critic to deprive Mr. Everett of the great credit due him for his participation in this work. Thus I find my critic concurring in saying, as joint author of the "Life of Sir C. T. Bright," on page 204 of that comparatively recent book, and repeating almost verbatim on page 77 of a new edition of that book (1908), revised and abridged exclusively by my critic, as follows: "A committee was arranged to confer with Charles Bright as to the machinery, consisting of Messrs. Lloyd, Penn and J. Field. Mr. W. E. Everett *was also consulted later.* * * * He also joined in approving Charles Bright's suggested alterations. This gentleman had to return to America with his ship, but on again arriving in London on January 18 (1858) he had the satisfaction of attesting to the sterling qualities of *the machine devised, adopted and constructed in his absence,* as well as in *partly superintending* the setting up of, it aboard the ships. The above committee reported (17th September, 1857): We consider the paying-out *sheaves* require no alteration, except those suggested by Mr. Bright in a memorandum he was good enough to place in our hands. Quite independently, however, Charles Bright had decided that the checking gear or brake should not be left in the power of any person in charge to jam the machine. Subsequently a very opportune invention of Mr. J. G. Appold, F. R. S., was suggested * * *." Which is all very interesting, indeed, in view of what appear to be the facts in the case. Let us first take up the statement relative to the alleged construction of the paying-out machinery in Mr. Everett's absence, apropos of which Mr. Mullaly, who accompanied both expeditions (1857-58) on the "Niagara," has this to say, on page 172 of his well-known book, published immediately after the events: "Mr. Field and Mr. Everett arrived in London (about January 18, 1858.) They found that nothing had yet been done towards making the experiments preliminary to the adoption of the required form of machine for paying out the cable, although it had been explicitly understood before Mr. Everett's departure from England that the experiments would be announced to him on his arrival. Nothing, however, as we have said, had been done, and he was obliged himself to enter upon the experiments, the results of which *were of consequence* * * *," working night and day until the apparatus was constructed, whereupon Mr. Everett reported to the directors the results and received the following letter from Mr. Saward, secretary of the company: "London, April 24, 1858. To W. E. Everett, London: Dear Sir—As *you* have now reported to the managing committee that the paying-out machinery for H. M. Ship Agamemnon is completed, and that it has been working satisfactorily during the last three days, and that *you* do not consider any alteration necessary to increase its efficiency, and as another set is required for the United States frigate Niagara, the managing committee have authorized and instructed me to request that you will immediately give directions to Messrs. Easton and Amos to put another set in hand for that ship; and I am further to request that you *will continue your supervision over the construction of the machinery*, and also undertake to superintend and direct its being properly fixed and fitted on board the Niagara. I am further instructed to *request*, that *you* will take charge of the operation of experimenting upon, and subsequently of paying out the cable from that ship; in doing which you will have the co-operation of Messrs. Woodhouse, Follansbee, and of such assistant engineers as you may consider it requisite to appropriate to such service. You are also authorized to make such preparations and arrangements as are necessary to enable you to carry out the foregoing instruction. I remain, yours truly, Geo. Saward, Secretary."

The following remarks from a letter to the directors of the company from Mr. C. T. Bright, under date of April 24, 1858, is also of some interest in this relation: "Gentlemen:—Since the report which I made to you *in conjunction with Mr. Everett*, of the 6th inst. (April, 1858), in regard to the paying-out machinery and the results of the experiments relating thereto, *a complete machine has been erected* at the works of Messrs. Easton and Amos * *." It will be noted that the quotation cited from the "Life of Sir C. T. Bright" has this machinery all made before January 18, 1858, and only allows Mr. Everett a partial share in the setting up of the machinery aboard the ships.

A few words relative to the committee "arranged to confer with Charles Bright" may now be in order. It will be remembered by readers of the literature of this subject that Mr. C. W. Field also sailed on the Niagara on the unsuccessful expedition of 1857. There Mr. Field had met Mr. Everett, and the former gentleman, with his usual acumen, had no doubt recognized in Mr. Everett a young man of parts. On the failure of the expedition of 1857, Mr. C. W. Field had requested Mr.

Everett to undertake the work of devising new paying-out machinery for the next expedition (1858) the machinery devised for the first expedition having proved insufficient, and Mr. Field obtained leave of absence from the United States Government for Mr. Everett to enable him to undertake this work (see Mullaly's book, page 172). Mr. Everett in 1857 obtained the co-operation of Messrs. Lloyd, Penn and J. Field of London, and with them presented a report (mentioned in the quotation cited from the "Life of Sir C. T. Bright") to the managing directors (Mullaly, p. 157), from which report the following brief abstract is here made: "London, Sept., 1857. Gentlemen: Having examined, agreeably to your request, the apparatus and arrangements on board the Niagara for paying out the Atlantic telegraph cable, and given the whole subject our careful consideration, we beg to lay before you the conclusions at which we have arrived. We consider the paying-out sheaves require no alteration except those suggested by Mr. Bright in a memorandum which he was good enough to place in our hands, a copy of which we append. (Here follow the suggestions.) The most important consideration, however, to which we have directed our attention is how to guard against the strain being brought on the cable while paying out, greater than it is capable of bearing without risk of damage * *. The means which we recommend for this purpose are the substitution for the present brakes of two others * *. They should be constructed on the plan patented some years ago by Mr. Appold * *. (Signed) T. Lloyd, Joshua Field, John Penn, W. E. Everett."

It may be observed here that the "subsequent suggestion" of the Appold device mentioned in the quotation from the earlier edition of "The Life of Sir C. T. Bright," occurs in the paragraph of the committee's report immediately following the one relative to sheaves, cited in the same quotation. Notwithstanding that I am aware my critic has said in one of his books that this subject is treated from the American standpoint by Mr. Mullaly. I am compelled to quote that gentleman for the simple reason that I do not find either the committee's report or the very important letters of Messrs. Saward and C. T. Bright in my critic's accurate resumé of the subject, or in any of his other writings. I trust I have not overlooked them. However, the ordinary reader will probably agree that Mr. Mullaly's statement of the facts accords quite nicely with the facts as given in the English letters and report just mentioned, all of which facts tend to show very conclusively Mr. Everett's exceedingly important part in the work of laying the Atlantic cable of 1858, to say nothing of the important bearing of that work on all subsequent submarine cable laying. It is, by the way, noteworthy that no one on Mr. Everett's part has ever deemed it necessary to endeavor to throw the blame of the failure of the cable, in which he bore so prominent a share in laying, on the shoulders of Mr. Whitehouse.

I concede that in the last paragraph of my article I was not perhaps sufficiently discriminating in classing all the engineers (civil and electrical) together as worthy of equal credit. I should have differentiated more clearly, for instance, between those engineers who had merely laid or assisted in laying and operating one or more cables and those, like Thomson and Varley, whose early work made possible the successful operation of all submarine cables for all time.

In closing, I may notice my critic's allusion, in his letter to the "Electrical World," to his work on "Submarine Telegraphy" as containing an accurate resumé of the history of that art. As my critic thus invites criticism of the accuracy of his statements, I would point out what appears to be a rather important error on his part, unless he can prove from his alleged sources of "exclusive information" that the gentlemen whom I shall quote are themselves in error. Thus, on page 52 of that book, Mr. Bright says: "It (the cable of 1858) had only been subjected to battery currents derived from *about* 70 *ordinary Daniell cells, by which all* signals were interchanged between the ships." On this point, Professor Thomson testified, in answer to questions 2494 and 2498, before the Board of Trade committee, referring to the nature and power of the battery employed on shipboard, that "The common sand, zinc and copper battery, with sawdust substituted for sand, was the battery which was used * *. During the greater part of the process in laying the cable 20 *twelves* of the battery described was the battery used." And Mr. Mullaly, who, as already stated, was on the "Niagara" on both expeditions, in his book, says, page 252, that 240 pairs of zinc-copper cells were employed on each ship. Quite a discrepancy.

On the whole, I account myself rather fortunate that my impressions concerning the matters under discussion herein were formed long before Mr. Bright's books were written, and from sources quite authentic, although not necessarily "exclusive." I have thus probably been safeguarded from falling into accord with certain views that my critic has striven somewhat assiduously to promulgate in his writings, and some of which I have touched upon in the preceding remarks. I rather regret that time will not permit picking up my critic on the matter of his reference to my "favorite" Varley. That pleasure may be reserved for another occasion.

I trust that it will not be hastily concluded that the foregoing statement of facts exhausts the subject; on the contrary the surface has as yet scarcely been scratched.

The Railroad.

Mr. F. L. Blendinger, assistant to the first vice-president of the Lehigh Valley Railroad Company, who also acted as Superintendent of Telegraph of the system, has relinquished that position to devote his entire time to the Vice-President's department.

Mr. Otto Holstein, chief train despatcher of the Cerro de Pasco Railway of Peru, has been appointed chief train despatcher of the Central Railway of Peru, with office at Lima.

A patent, No. 927,602, for a signaling system, has been secured by H. O. Rugh, of Sandwich, Ill. An improved selector system for railroad telegraph circuits, including polarized relays and a selector mechanism for each relay.

A patent, No. 928,571, for railway selective apparatus, has been granted to S. R. Wright and C. L. Diehle, of Rochester, N. Y. The master selector comprises a motor and a movable switch actuated thereby when the condition of the electromagnet changes. A series of local selectors driven by a motor are controlled by the master selector.

Joseph Forrest Caskey Becomes Superintendent of Telegraph of the Lehigh Valley.

Mr. Joseph F. Caskey has been appointed superintendent of telegraph of the Lehigh Valley Railroad, with headquarters at South Bethlehem, Pa., vice Mr. F. L. Blendinger. The appointment of Mr. Caskey to that office is a most fitting one, as it places in an important post a man whose whole life has been spent in training himself for the duties which he will now be required to perform. Mr. Caskey was born at Wapakoneta, O., February 7, 1869. He entered the telegraph service of the Lehigh Valley Railroad in 1883 as messenger boy at Mauch Chunk, Pa. By strict attention to his duties he advanced to the operating department, and in 1889 became manager of the Wilkesbarre, Pa., office of the company. In 1891 he entered the office of the superintendent of telegraph as clerk. In 1899 he became wire chief in the same office, and in 1905 became chief clerk, which position he held up to the time of his present advancement.

J. F. CASKEY, SOUTH BETHLEHEM, PA.
Superintendent of Telegraph of the Lehigh Valley Railway Company.

James J. Ross, Appointed Superintendent of Telegraph of the Michigan Central.

The appointment of James J. Ross as superintendent of telegraph of the Michigan Central Railroad, at Detroit, Mich., to succeed E. H. Millington, deceased, brings to that post a man who by reason of a lifelong experience in connection with the telegraph development of that system is well qualified to fill the position which he now assumes. Mr. Ross was born May 10, 1854, at Kalamazoo, Mich., and entered the service of the Michigan Central in 1872 as a lineman. In 1878 and 1879 he was stationed at Niles, Mich., and while there made good use of his opportunities and mastered the art of telegraphy. In the Fall of 1879 he was appointed foreman and in 1885 he was again promoted becoming chief line repairer. He occupied this position until May, 1907, when he was transferred to the Signal Department as supervisor of electric signals, which position he held at the time of his present advancement.

JAMES J. ROSS, DETROIT, MICH.
Superintendent of Telegraph of the Michigan Central Railroad.

Municipal Electricians.

The members of the International Association of Municipal Electricians which will hold its fourteenth annual convention at Atlantic City, N. J., September 14, 15 and 16, are assured of a profitable as well as enjoyable occasion if they attend that gathering. The papers presented will all be on practical subjects and will help the members of the association to solve the problems which are constantly coming before them. The committee of arrangements have the promise of the best exhibition of improved and up-to-date apparatus as to numbers and quality of any convention yet held by the association.

The Cable Code Situation.

Importing and banking houses which use cable codes in their foreign business have been forced in the last few weeks to examine them with care. In particular they have been obliged to make sure that the words they send are pronounceable, and that they no longer count as one letter such combinations as "ch," "ae," and "ue," which by custom they have considered themselves entitled to reckon a single letter.

The blame for this revision is generally placed on the American cable companies doing business in New York. It is said that they have become jealous of the extraordinary economies which a scientific code constructor can effect for a business house, and in consequence they have determined to enforce petty restrictions. As a matter of fact, large as the American companies are, they are tied hand and foot in this matter.

America's position in the cable world is somewhat anomalous. In spite of its enormous business it has nothing to do with the regulation of international messages.

The regulations for all cable messages are drawn up by the International Telegraph Convention. This was established in 1875, and considering the political condition of Europe, there must be some international agreement to insure the safe passage of messages, say, from Paris to St. Petersburg via Berlin.

The United States, standing outside of all these diplomatic complications, has had no need to join such a conference, but it is none the less forced to abide by its regulations. For example, the American cables land in England and the companies are obliged to take only such messages as the British Government will forward. The British Government follows the international rules, in the formation of which it has a voice, and the American companies must accept its rulings, although they have no chance to express their views directly, and the American Government, as it has no Department of Telegraphs, is equally powerless.

The last international convention was held at Lisbon in 1908, and adopted a less liberal policy than the London convention of 1903. Before 1903 business men who wished to use codes were confined to words of not more than ten letters found in the dictionaries of eight languages—English, French, German, Dutch, Latin, Italian, Spanish, and Portuguese. But they complained that they were unduly restricted, and so the London convention removed the dictionary requirement and agreed to the use of any combination of ten letters which was pronounceable.

Immediately the most wonderful words began to be offered to the unfortunate companies. How some of the senders could twist their mouths to articulate some of the groups of consonants, which separated the few vowels, passed their comprehension, but for a time they assumed that business men were more glib at syllable twisting than cable operators and accepted all that was presented to them.

But then the expert code-makers found out one or two anomalies in the reckoning of letters. They learned that the German telegraph officials counted "ch" as one letter, because it had its own symbol, and were equally lenient with regard to modified "a" and "u." Consequently code users unblushingly asked the cable people to pronounce and send as one word of ten letters such a weird combination as "chaechtuempchuech."

It was more than flesh and blood could stand and first the British Postmaster General sent out warnings two or three years ago that such combinations must be reckoned at the cipher basis of five symbols to a word, and then last year's Lisbon convention authoritatively cut out the "ch" and modified vowel privileges and insisted on absolutely pronounceable words.

As a matter of fact, these cable codes have enormously increased the difficulty of cable operation. The more a man uses his brain in transmitting a message a greater chance he has of going wrong. As an example, an operator had to send a word which began "ihad." He took it for "shad" and the message had to be repeated. The cable signs of "i" and "s" are very much alike and the man used his brain instead of being a mere machine. If ordinary syllables were used instead of the marvelous combinations of letters now in vogue, both sending and receiving would be very much more easy.

The importance of these slight changes in the cable regulations or in the more rigid enforcement of those which have been neglected is shown by the fact that all large importing and international houses employ codes which have cost from $1,000 to $18,000 or $19,000 to compile. The old days of a system drawn up by a clerk are long since past and specialists are employed who can devise a method, which will cover every possible contingency of business and yet to the initiated betray it at once if there has been the slightest error in the transmission of the most extraordinary conglomeration of letters.

This is accomplished by the use of code figures as well as code syllables. As an actual example a firm has to send this message:

"Shipment to Queenstown, Falmouth or Plymouth for order to discharge at a safe port in the United Kingdom or on the Continent between Bordeaux and Hamburg, both included, Rouen excluded, or direct to a port within said limits, if ordered from port of call, to port in the United Kingdom, contract price."

The firm will look up its code book and find that 94143121 precisely symbolizes this.

The message goes on "No. 2 north spring wheat, Duluth," for which 141 stands, "shipment this month," quite adequately set forth by the figure 1, while the price and amount, "4000 quarters at 5 shillings" is aptly expressed by 4000. The result is a second set of figures, 14114000.

Each set of eight figures is then translated into letters, and the result is that the receiver gets in one word "zumenfofia" all the varied information desired, and as the cable company cannot deny that the word may be pronounced it can collect only the tolls on a single word.

But an operator is likely to trip up over such an aggregation of letters, and so the code contains a numerical check. The digits of each line of code figures are added and the last figures of the additions are cabled. In the same way the total of the lines is sent thus:

94143121—25
14114000—11
108257121

Code letters are added to the cable for 51 and 108257121, and if when the message is decodified these do not check, a mistake has been made somewhere; the cable company is asked to repeat and the error is rectified. As a matter of fact, operators, when they work all day face to face with such enlightening words as "zumenfofia" are very liable to make mistakes, especially as the office record of a cable message consists merely of a wavy line made by the siphon recorder and the letters are signified simply by the amount of deviation of the lines on each side of the center, which only a practiced eye can estimate.

But the result of the enforcement of the regulations of the cable companies is that some of the codes now in use will need to be revised completely. They have resulted in the coining of words which trip far less glibly from the tongue than "zumenfofia," and to rectify them they must be taken to pieces and reconstructed from the very bottom.

So, whether it be of much use to cable companies to feel certain that they can pronounce everything they send, or not, the business houses with faulty systems will be put to much inconvenience and expense, and the code experts are likely to be busy.

An Interesting Exhibit at Seattle.

The exhibit of John A. Roebling's Sons Company at the Alaska-Yukon-Pacific Exposition is notable as the most complete demonstration of the character and possibilities of drawn wire, ever shown.

A display of the actual work of wire manufacture would, of course, be impracticable, but the visitor to the exhibit can see the changes undergone by metals drawn into wire, beginning with iron ore and progressing in regular order with samples of iron ore, pig iron, ingots, steel billets, rolled rods and drawn wire; the finished wire being shown from the coarser sizes down to a diameter of one one-thousandth of an inch.

In contrast with the delicate films of wire, there are displayed many samples of large wire ropes and full-size sections of the supporting cables of the Brooklyn bridge, the Williamsburg bridge, and the Manhattan bridge, in all of which Roebling wire is used.

There is a complete exhibit of electrical wires and cables, ranging from the finest magnet wire to the largest lead-covered cables.

Different sections of trolley wire are also shown, while catenary construction is graphically illustrated by a model overhead span, with a miniature trolley car beneath.

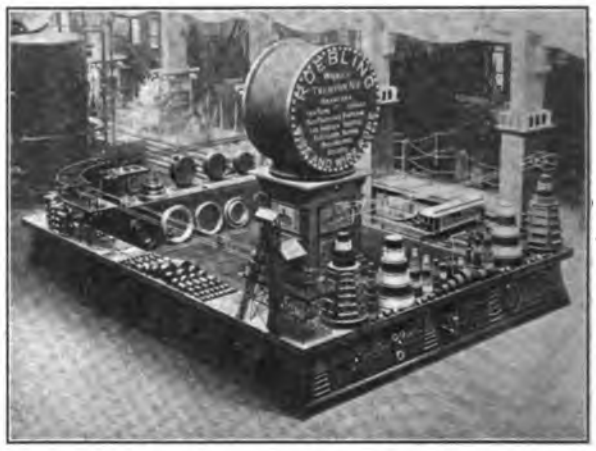


Exhibit of John A. Roebling's Sons Company at Alaska-Yukon-Pacific Exhibition.

A reel of wire rope seven feet in diameter and mounted upon a pedestal seven feet high, occupies the center space of the exhibit. An even hundred electric lights with frosted globes are placed around the circumferences of the two sides of the reel, which revolves continuously upon its pedestal.

A model tramway, which transports miniature buckets loaded with shot, is also shown in motion; both the reel and the tramway being electrically operated.

The exhibit, which is located in Machinery Hall, was planned by the engineering department of the Roebling Company, and all the mechanical work necessary to prepare it ready for installation was done at the company's works at Trenton, N. J.

Statistics of the Third Census of Telegraph in the United States.

The statistics for the telegraph industry of the United States, taken as a part of the third census of the electrical industries of the United States, for 1907, have been compiled by Chief Statistician Steuart and will be issued in bulletin form by United States Census Director E. Dana Durand in a short time. There are many tables, much explanatory comment, and a number of illustrations composing the 47 pages of the bulletin.

Conspicuous among the facts exhibited are the stupendous single wire mileage of the commercial telephone and telegraph systems, the millions of messages annually carried over the wires, the almost incredible growth of the telephone system as compared with the telegraph, the large capitalization of the companies concerned, and the enormous sums expended by them; and the difficult development of the wireless system.

The first table relates to the telegraph systems and is a summary, by classes. The total number of systems is given as 1,813, of which 25 are commercial land line and ocean cable, 6 wireless and 625 railroad telegraph systems, the remainder not being involved in the topics treated of herein. The 25 commercial land line and ocean cable systems operated 1,577,961 miles of single wire, employed an average of 28,034 persons, paid $17,808,249 in salaries and wages, expended $41,879,613, earned $51,583,868, and sent 103,794,076 messages. The 625 railroad telegraph systems operated 860,342 miles of single wire, employed an average of 68,197 telegraph operators and despatchers, expended $37,242,479 (income not stated, as there is no direct financial income from their own use of the service), sent 264,512,816 messages, of which 5,923,483 were of a commercial nature, the income for which is reported by the commercial systems.

Another table shows that there was a grand total of 15,072,220 miles of single wire in the telegraph and telephone service. Of this, the telephone systems controlled 12,999,369 miles, of which there were on pole or roof lines 5,092,223, in overhead cables 2,917,114, in subways or conduits 4,969,302, and in submarine cables 20,730 miles. Of the grand total stated, the telegraph systems, exclusive of government telegraph systems, used 2,072,851 miles, of which there were on pole or roof lines 1,958,336 miles, in overhead cables 41,886, in subways or conduits 65,247, and in submarine cables 7,382 miles. These figures emphasize the economic importance of the telegraph and the telephone.

A comparative summary deals with the telephone and commercial telegraph systems, not including railroad lines and the wireless, giving the grand total as 22,996 companies, of which there are 22,971 telephone systems, which include 17,702 independent farmer or rural lines, and 25 commercial telegraph systems, not including the wireless. The grand total of single wire mileage was 14,570,142, of which the telephone systems controlled 12,999,369 miles, which include 486,294 miles of wire on independent farmer or rural lines, while the telegraph systems used 1,570,773 miles, exclusive of 7,188 miles of leased wire.

The grand total of ocean cable was 46,301 nautical miles, all controlled by the commercial telegraph systems.

The grand total of salaried officials, clerks, etc., was 29,470, of whom 25,298 were employed by the telephone systems and 4,172 by the commercial telegraph. The telephone officials, etc., received in salaries $19,298,423 and the telegraph clerks $2,794,937. The total of 142,733 wage-earners is divided, 118,871 belonging to the telephone systems and receiving in wages $48,980,704, while the 23,862 telegraph wage-earners were paid $15,013,312.

The grand total of capital stock and bonds outstanding, par value, was $1,034,909,579, of which $814,616,004 were credited to the telephone systems and $220,293,575 to the telegraph companies.

The grand total income was $236,045,615, of which the telephone concerns earned $184,461,747, expending $140,802,305, and the telegraph system earned $51,583,868, expending $41,879,613. Of the whole number of systems in operation, the telephone formed 99.9 per cent.

Attention is drawn by the bulletin to the fact that, with but one important exception, the entire commercial telegraph and cable industry of the country is operated as incorporated concerns. It is shown that of the total authorized issue of stocks and bonds in 1907, capital stock constituted 66.1 per cent. and bonds 33.9 per cent. At the end of 1907 the total authorized issue of stock, outstanding, was 96 per cent., and 78.6 per cent. of the bonds were outstanding. On the bonds an average rate of 4.1 per cent. was paid in 1907. Of the 24 incorporated companies for 1907, only 11 paid dividends on their capital stock. The same number declared dividends for 1902. The total receipts of the telegraph companies for 1907 exceeded those of 1902 by $10,653,830.

The bulletin then goes into a comprehensive analysis of the income, operating expenses, assets and liabilities, and other details, giving the apparent reason for increases in totals for 1907 as compared with 1902 and 1880.

The commercial telegraph systems controlled ocean cables having a length of 46,301 nautical miles in 1907, as compared with 16,677 in 1902, an increase of 29,624 nautical miles, or 177.6 per cent. It is pointed out that this large increase is largely due to the fact that the Pacific cable and the New York--Havana cable were laid during the interval during the two census.

There were six commercial wireless telegraph systems, having 122 tower stations in 1907, situated at most of the large ports on the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and in Hawaii. Wireless messages to the number of 163,617 were sent between these

ports in 1907. These six companies had an authorized capitalization in the form of stock with a par value of $39,450,000, of which $32,726,242 was the value of outstanding stock. The year's income was $122,154, and the expenses $169,782, of which $87,571 was expended in the salaries and wages of 182 employes.

It is pointed out that the Federal Government has realized the value of wireless telegraphy, and the Bureau of Equipment in the Navy Department, at the end of the fiscal year 1907, had installed wireless telegraph apparatus on 73 naval vessels and at 44 shore stations. During that period the shore stations sent 26,933 messages, containing 541,919 words, and received 34,073 messages, amounting to 675,607 words. Cape Cod, Mass., led all stations in this respect, sending 2,673 messages, and Cavite, in the Philippine Islands, came next, sending 2,025 messages. Of the number of stations receiving messages, Dry Tortugas, Fla., had 2,703; Newport, R. I., 2,701; Mare Island, Cal., 2,334; Cape Cod, Mass., 2,304; Norfolk, Va., 2,171; and Cavite, P. I., 2,013. The shore stations are open to the public for messages, and these are also received from or put on the telephone or telegraph lines.

It is shown that in 1907 the railroad systems in the United States operated 807,824 miles of telegraph wire, 52,518 miles of telephone wire, and employed 68,197 telegraph operators and despatchers, who received $37,242,479 in salaries and wages. These systems reported 33,441 telegraph offices and 30,115 telephones; transmitted 5,923 commercial messages and 258,589,333 messages in connection with the despatching of trains and other railroad business. The bulletin states the presumption that the telephone will come into more general use for train despatching, as during 1908 two conventions of railway telegraph superintendents heard reports that the telephone would appear to be as safe as, if not safer than, the use of the telegraph, and that the telephone actually expedited train movements because of its greater speed and flexibility. Referring to the electric interurban roads, the bulletin notes that they early recognized the advantages of the telephone for despatching purposes.

"The Hughes and Baudot Telegraphs," by Arthur Crotch, of London, the well-known electrical engineer and author, is a book that everyone interested in printing telegraph systems should possess. The volume contains a very full description of the two mentioned type-printing telegraph systems used so generally in Europe, the Baudot in France and the Hughes elsewhere on the Continent. The illustrations are numerous and clear, and all together, the book furnishes a fund of carefully stated information valuable to the student and also of interest to the lay reader. This book may be obtained of J. B. Taltavall, Telegraph Age, 253 Broadway, New York, and will be sent to any address, carrying charges prepaid, on receipt of price, $1.00.

The Robert W. Martin Fund.

The committee having charge of remittances to the fund, for the assistance of the well-known old-time telegrapher, Robert W. Martin, concerning which extended mention was made in our issues of July 16 and August 1, consists of J. B. Taltavall, of Telegraph Age; Charles W. Price, of the Electrical Review; T. Comerford Martin, of the Electrical World, and T. A. McCammon and Fred Catlin, of the Western Union Telegraph Company. All contributions should be addressed to J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Among the recent contributors, S. S. Bogart, vice-president of the United Wireless Telegraph Company, New York, sends the following:

"Back in the days when 'Jack' Wright, 'Patsy' Ayres, 'Bob' Martin and others were 'princes that had no peers,' it was my good fortune to be rushed by them. I always looked upon 'Rm' as the king of all. One day, however, a copy came back to me in a 'respectfully referred' with 'hosiery' rendered 'hoscry.' I could not plead 'That's the way he sent it,' for it was. I always had great respect for 'Rm,' because he forced that one on me, the only one I remember. He is a little older than I, thanks to a merciful Providence. If my slight donation of ten dollars will be of assistance to him, pass it along with my best wishes."

Miss Mary J. Macaulay, press operator for the Lockport, N. Y., Union-Sun, has taken a deep interest in Mr. Martin's case, and has secured for the needy family quite a few contributions from among the operators employed by the Associated Press in central and western New York. Miss Macaulay has certainly set a good example for others to follow. A little effort on her part resulted in the collection of over thirty dollars.

Mr. Frank J. Mulcahy, the well-known old-time telegrapher, now of Bridgeport, Conn., sends the following: "Enclosed find check for $5, my mite for dear old 'Bob' Martin. The eloquent and pathetic appeal of Walter P. Phillips in your issue of July 16 should meet with a generous response."

Mr. John H. Farrell, secretary-treasurer of the National Association of Baseball Leagues, writes:

"I am very glad to respond to the appeal in behalf of Robert W. Martin, and enclose herewith $5.00. Please convey my sincere sympathy to Mr. Martin and family." Mr. Farrell's name is as familiar to telegraphers, particularly old-time press operators, throughout the country, as it is to lovers of baseball. The former know him to be one of the most skilful in the press service, having for a number of years acted as Associated Press operator in the Advertiser office at Auburn, N. Y., and the latter credit him with being a conscientious, hard-working officer in the interests of the national game.

Mr. Martin, it will be remembered, has been confined to the house for over three years, suffering from the effects of two strokes of paralysis. He was so well known in telegraphic and newspaper circles that his friends concluded to try to make his last days comfortable if possible and to that end Mr. Walter P. Phillips took the initiative and started the subscription list for the benefit of Mr. Martin and his family. The article written by Mr. Phillips setting forth the merits of the case, which appeared in our July 16 issue, is well worth perusing. Mr. Phillips in his communication gives a good illustration of Mr. Martin's ability as a writer, and to any who have mislaid their issue of that date without reading the article, we will be glad to mail another copy upon application without cost.

We give herewith an account of the remittances received to date: Previously acknowledged, $49.00; H. A. Wells, Buffalo, $5.00; J. P. Bradt, London, Eng., $5.00; W. P. Phillips, Bridgeport, $10.00; F. N. Bassett, Boston, $5.00; Charles J. Seefred, Indianapolis, $1.00; Edward J. Loughlin, Utica, N. Y., $5.00; Lucy E. Mulcahy, Utica, $5.00; C. J. McTiernan, Utica, $2.00; Timothy J. Quinn, Troy, N. Y., $2.00; J. H. Moran, Troy, $1.00; Thomas F. Sweeney, Buffalo, $1.00; Thomas F. Casey, Newburgh, N. Y., $2.00; C. L. Van Wagoner, Saratoga, N. Y., $2.00; F. J. Lochner, Albany, N. Y., $1.00; E. C. Coons, Schenectady, N. Y., $1.00; C. Z. Lane, Rochester, N. Y., $2.00; P. J. Anderhub, Niagara Falls, $3.00; R. E. Moyer, Dunkirk, N. Y., $1,00; James Doyle, Erie, Pa., $1.00; George C. Towne, Akron, Ohio, $2.00; S. S. Bogart, N. Y., $10.00; Julia M. Dungan, Bridgeport, $1.00; Frank J. Mulcahy, Bridgeport, $5.00; John H. Farrell, $5.00. Total, $127.00.

LETTERS FROM OUR AGENTS.

SALT LAKE CITY, POSTAL.

The following is a list of the employes of the company in this city: Main office, Boston Block; manager, D. McNicol; chief operator, R. D. Riley; night chief operator, C. F. Bunnell; assistant chief, George Denison; Chicago bonus, Chris Hanes; operators, F. C. Rowley, M. J. Wolinsky, S. P. Aubry and J. A. Smith; clerks, Miss E. I. McPherson, Miss C. Merkle, Miss B. Malin, Miss Leone Hill, Miss Ruby Morley, Miss L. Green, and A. W. Copfer. Fort Douglas Branch: Manager, J. A. Gustafson. Knutsford Hotel Branch: Manager, Anna Oakley. "Temple" Branch: Manager, Miss S. G. Seagher. "Republican" office: Hearst operator, Hugh Evans.

A Decatur, Ill., telegrapher has applied for a patent on a device for holding a woman's hat at the church, the theater, or on similar occasions. We are not informed as to whether the invention is applicable to all sizes and styles of hats or whether it allows the hat to be used as a cushion.

Obituary.

Daniel D. Dillon, formerly a well-known telegraph operator in New York City, died at Ontario, Cal., July 20.

George P. Lennox, aged seventy-one years, and an old-time and military telegrapher, died at Belleville, Ill., July 15. Mr. Lennox was a native of Hamilton, Ont., and learned telegraphy at St. Louis with L. C. Weir, until recently president of the Adams Express Company. He then went to Pittsburg, where he was associated with Andrew Carnegie, with whom he joined the military forces at the breaking out of the Civil War.

William Maccollough, aged sixty-seven years, died at Ramleh, Egypt, May 15. Mr. Maccollough had a most remarkable career. He was born in England and became a telegrapher, but left the English service to enlist in the American Navy during the Civil War. After the war he entered the telegraph service of the Egyption government, and by reason of his marked ability soon became one of the leading figures in Egypt, serving in several different cabinet positions and being of especial value to the government because of his marked linguistic ability. Mr. Maccollough and Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, New York, were together in the Egyptian telegraph service in the late sixties.

General Mention.

Mr. H. T. Scott, who was formerly connected with the Western Union Telegraph Company at Norfolk, Va., has accepted a position with the Atlantic Coast Line, with headquarters at Rennert, N. C.

An indication of the increased interest in the subject of wood preservation during the past five years is shown in the fact that in 1904 the importation of creosote, the greater part of which is used for preserving telegraph poles, railroad ties, etc., at New York, was 3,500,000 gallons, while during 1908 it amounted to 25,000,000 gallons.

The telegraph employes of the Indo-European Telegraph Company in Teheran, Persia, recently underwent four days of continuous duty under siege conditions. The offices were under fire throughout the entire fighting, and though the windows were barricaded, fragments of shell found their way in, and the whole of the force were constantly exposed to danger. Fortunately, there were no casualties among the employes of the company, who displayed praiseworthy devotion in handling an increased traffic under such extremely dangerous conditions.

Trade Notes.

The business of the Western Electric Company for the first seven months of 1909 was very satisfactory, showing an increase of about thirty-eight per cent. over the corresponding period of 1908.

The Railroad Supply Company of Chicago is sending out a bulletin describing a new type of highway crossing bell. Instead of the ordinary spring contacts generally used on electric bells this bell is equipped with contacts having an action similar to that of a snap switch.

The Kellogg Switchboard and Supply Company of Chicago, have issued a small advertising pamphlet entitled "What They Think of the Telephone in Train Despatching," in which are reprinted the opinions of thirty superintendents of telegraph of leading railroads in the country, which were published in Telegraph Age June 16.

The Western Electric Company has recently secured a contract from the Chinese government for supplying a complete common battery telephone plant for the city of Pekin. This is the first installation of up-to-date telephone equipment in China, and it is expected that it will be but the beginning of a system which will eventually extend throughout the empire.

THE POST OFFICE ELECTRICAL ENGINEERS' JOURNAL.

(The Organ of the Institution of the Post Office Electrical Engineers)

Published Quarterly, in January, April, July and October. An Illustrated Journal for all interested in Telegraphs and Telephones.

EDITORS:—H. R. Kempe, M.Inst.C.E., M.I.E.E. (Chairman); H. Hartnell, A.M.I.E.E.; T. F. Purvis, A.I.E.E.; A. W. Martin, A.M.I.E.E.; A. O. Gibbon; J. E. Taylor, A.M.I.E.E.; D. H. Kennedy, A.M.I.E.E. (Managing Editor).

Annual subscription—4s., paid in advance. Single copies, post free, 1s. 3d.

Publishers, Messrs. Alabaster, Gatehouse & Co., 4 Ludgate Hill, London, E.C.

A New Edition of Maver's "American Telegraphy."

A new edition of Maver's "American Telegraphy and Encyclopedia of the Telegraph" is now ready for delivery. This will be known as the 1909 edition. The more important additions to the work at this time are descriptions of the Murray Printing Telegraph as now used in Europe, and of the Barclay Long Distance Printer, as operated on the lines of the Western Union Telegraph Company. This standard work on telegraphy now contains 668 pages and 492 diagrams. The new edition comes out in a new and distinguishing cover of dark green cloth. This book is a library on telegraphy in all its branches. It is used as a text-book in some of the largest universities in this country. It is written in plain English and practically without recourse to mathematics; hence it comes within the comprehension of the veriest beginner. No aspiring telegrapher can afford to be without it. This fine work will be sent to any address, carrying charges prepaid, on receipt of price, $5.00, by J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Telegraph Age is the leading journal of its class in the world, and should be in the hands of every progressive operator; $2 a year.