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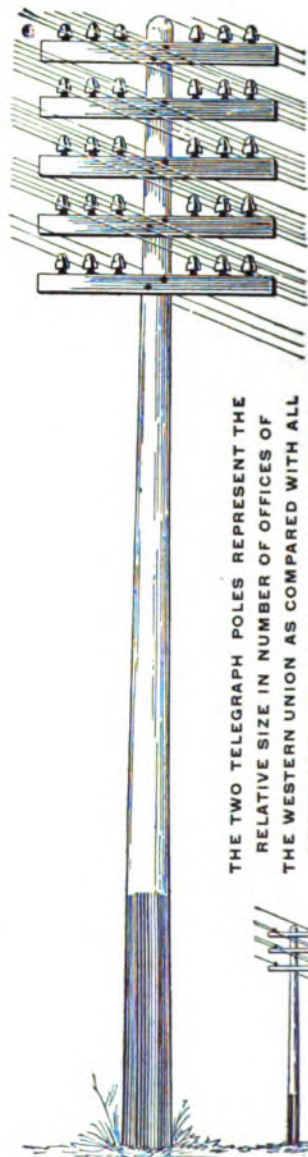
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# TELEGRAPH AGE

No. 23.

NEW YORK, DECEMBER 1, 1906.

VOL. XXIV.

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## SOME POINTS ON ELECTRICITY.

### Concerning the Development of Magnetism.

By Willis H. Jones.

The following letter is the substance of a communication received from a student in a correspondence school, who asks this journal's explanation of a matter which, from his point of view, seems like getting something for nothing. He says:

Electrical text-books all state that if a bar of hard iron or steel be rubbed, or even touched, by a magnet the former will itself then become a permanent magnet without having in any way lessened the original strength of the energizing magnet. Can you explain how, in the face of well-known laws governing the conservation of energy, that it is possible for one piece of metal to transfer, permanently, any portion of its own magnetism to another without appreciable loss? Of course, I can understand that where the energy absorbed by the second bar is derived from an electro-magnet, such losses in the first metal bar might possibly be renewed by the continued application of the energizing electric current creating such magnetism. But in the case of a permanent steel magnet possessing as it does a fixed magnetic strength, how can a loss due to such transfer be compensated?

The student's perplexity arises, evidently, from a misconception of the original source of the magnetism developed in a metal bar. It is not, as he evidently assumes, a portion of the magnetism absorbed from some other source, or does any portion of such transfer to a second piece

of metal remain therein after disconnection with the energizing magnet is made.

The fact is that the power manifested in the second bar of steel after treatment of that metal by the magnetic lines of force urged through it, lies inherent in the iron, but is normally in an impotent condition. It requires the expenditure of energy from some external source to remedy this fault, and the magneto-force of the magnetizing magnet accomplishes the task. After this work has been done the newly-made magnet supplies and takes care of its own energy and will then, in turn, be able to create other magnets in precisely the same manner as that of the first. The manner in which the latent power is developed has already been explained in a preceding issue of this journal in a reply to the question: "How is magnetism produced in iron?" The substance of the reply was to the effect that iron in its natural state is made up of infinitely minute particles, called molecules, each of which is a magnet in itself—receiving its individual energy directly from the earth, the great reservoir of electricity and magnetic energy, and from which source all losses are promptly renewed. But owing to the irregular manner in which these little magnets are thrown together in the natural construction of an iron bar their relation to each other is such that their respective magneto forces are all either directed against one another or turned in useless channels. By arranging these forces all in one direction the multiplicity of small forces combined become very powerful, the manifestation of which we call magnetism.

Now, any method that will align these molecules in a regular order throughout the mass of an iron bar will develop the latent power therein. It may be accomplished, imperfectly, by the continued hammering of one end of an iron rod, such, for instance, as a drill in the hands of workmen in stone quarries. After a time it will be found that such a drill has become somewhat of a magnet and is capable of picking up small particles of iron if placed near it. The constant pounding has aligned a sufficient number of forces to at least manifest their power feebly. This illustration is not given for the purpose of showing a practical method of aligning, but to prove that the magnetic strength developed in a newly-made magnet is not the magnetic energy absorbed from another magnet. In the case of the drill, the alignment is purely a mechanical accomplishment. The practical means of aligning the molecules is that resulting from the forcing of magnetic lines of force through the metal to be magnetized. The

source is immaterial, so long as it is sufficiently powerful. The energizing magnet may derive its power from the action of an electric current flowing around the iron core, or it may consist of the developed latent power of a permanent steel magnet. In either case the magneto power of a newly-made magnet is the result obtained by work performed therein and not from energy absorbed.

In connection with this theory of magnetic development the following possibilities suggest themselves:

(1) The maximum, or normal magneto power inherent in a given piece of metal is equal to the sum of the magneto forces of all the individual magnets or molecules of which the piece is composed. The inherent force is inexhaustible and its life endless.

(2) The practical, or maximum available power that may be derived from the metal is equal to the sum of such separate forces as work in unison in a useful direction.

(3) The number of such forces working in unison depends upon the degree of perfection with which the molecules are aligned, while the success of the operation of aligning depends upon both the strength of the magnetizing energy and the quality of the iron treated.

(4) The life of a magnet depends absolutely upon the capacity of the iron to retain the alignment unaltered after the magnetizing energy has been withdrawn.

For example, the alignment of the molecules of soft iron is instantly destroyed the moment the energy is removed and it then ceases to be a magnet. Its life is, therefore, spasmodic and only in evidence while the iron is under the influence of foreign energy.

Hard iron or steel, on the contrary, retains the alignment, due to magnetic influence, for a greater or lesser period according to the quality of the metal. The life of such a magnet, therefore, must be measured by the metal's capacity to maintain the alignment. The finer the steel the longer its life.

#### Platinum Points.

Editor TELEGRAPH AGE:

Mr. Louis Casper, in his article "Some Points on Platinum Points," in the November 16 issue of TELEGRAPH AGE, hits the nail squarely on the head, much more so than it is possible to have the platinum points hit, except through the use of the V-shaped bearing trunnion, such as was used a number of years ago by the Western Electric Company in the manufacture of the walking-beam polechanger, which was for a time largely used by the Western Union Telegraph Company, and which was absolutely without a wobble. Properly burnished, these points could not vary the thousandth part of an inch in contact. They could not fall down and short-circuit and burn out helios as is so frequently the case with trunnion

screws which wear lop-sided and work loose. Why they fell into disuse I have never learned. Perhaps Willis H. Jones can tell. He doubtless knows all about them.

FRED CATLIN.

Brooklyn, N. Y., November 20.

#### Business Notice.

The Midget polarity indicator is the invention of I. W. Blake, of West Haven, Conn. It is as it purports to be, an improved form of sealed tube indicator, of first class make, carefully tested, its reliability for the purposes designed having been fully demonstrated. The current passing through the tube causes a separation of the elements which induces a red color to form at the negative pole. Upon shaking the tube the elements recombine and the tube returns to its original condition. In determining the polarity of connecting lines, in connecting storage batteries, in detecting and tracing leaks and grounds, it has proved its usefulness. Being electrolytic in its action it is not at all influenced by magnetic fields. The indicator is three inches long, one-quarter of an inch in diameter and weighs one-quarter of an ounce. The price of the tube is fifty cents.

#### Recent Telegraph Patents.

A patent No. 835,772 for a telegraph repeater, has been secured by Paul E. Bliss, of Leesburg, Fla.

A patent No. 835,647, for a telegraph instrument, has been granted to Daniel O. Stinson of Falkville, Ala. A combined relay and sounder designed to do away with local batteries.

A patent No. 835,750, for an automatic transmitter for telegraphic systems, has been issued to John Gell, at Highgate, London, England. In combination with an automatic telegraph instrument there are a star-feed wheel, a transmitting pin, a lever connected thereto for operating it, and means for operating the lever consisting of a lantern wheel having adjustable pins.

A patent No. 835,013 for a telegraphic tape perforator, has been obtained by Patrick B. Delany, of South Orange, N. J., assignor to the Telepost Company of South Dakota. A polarized relay and two magnets are so connected that the magnets are controlled by the armature of the relay and the relay is controlled by the armatures of the magnets. The relay is also controlled by an independently operated key.

A patent No. 835,279, for a telegraph pole, has been taken out by Broderick Haskell of Franklin, Pa. A number of uprights of U-shape in cross section are held together by clips.

A patent No. 835,280, for a pole for telegraphs, etc., has been obtained by Broderick Haskell of Franklin, Pa. This is similar to the preceding patent and consists of three U-shaped uprights held rigidly together.



A patent No. 835,281, for a telegraph pole, has been obtained by Broderick Haskell, of Franklin, Pa. Similar to the two foregoing and defines means of fastening a number of uprights together to form one piece.

The following patent has expired:

Patent No. 415,417, for a telegraph repeater, held by R. J. McIlhenny, of Wilmington, N. C.

#### Personal Mention.

Besides the election of James T. McDermott, a telegraph operator of Chicago, to a seat in Congress, William J. Cary, a Milwaukee Knight of the Key, was also elected to the national legislature.

Mr. E. P. Wright, now retired, but previous to fifteen years ago superintendent of the Western Union Telegraph Company at Cleveland, O., is reported to be seriously ill at his home in Glenville, O.

Mr. W. A. Houghtaling, an old-time telegrapher, who for a year past has represented the Rowland Telegraphic Company, of Baltimore, at Berlin, Germany, reached New York on his return home a few days ago.

Mr. F. G. Creed, of Glasgow, Scotland, formerly in the telegraph service at Nova Scotia, is in the city exploiting his automatic perforating receiver, which constitutes a part of an automatic system. Mr. Creed's invention is used extensively in England, where it is employed as part of a system for the distribution of newspaper matter. The device has also been recently introduced in Denmark. Mr. Creed is now in New York for the purpose of ascertaining whether the system can be applied to American conditions.

Mr. James Wilson, of Vancouver, B. C., superintendent of the Canadian Pacific Railroad Telegraphs, Pacific division, is absent on a trip to Australia. He is accompanied by Mrs. Wilson and his son. During his absence Mr. John Fletcher is acting superintendent.

Mr. H. P. Dwight, of Toronto, Ont., president of the Great North Western Telegraph Company, and who is chairman of the investigating governors of the Royal Canadian Humane Association, made the presentation at Hamilton, Ont., of the association's bronze medal to Lieutenant Pauley, of the Queen's Own Rifles, Canada, for bravery in saving the lives of two children, in the presence of the regiment at the annual inspection on the evening of November 7.

#### The Railroad.

About one-half of the great railway line from the Cape to Cairo, Africa, has now been finished. The total length of the line when completed will

be 5,700 miles, and will include 7,966 miles of telegraph lines, equipped with four wires.

In announcing in this column, November 16, that Mr. R. C. Teed had been appointed superintendent of telegraph of the St. Louis and San Francisco Railroad, with headquarters at St. Louis, and that Mr. H. C. Sprague, who for about twenty years had filled that position, serving the road with conspicuous fidelity, and whose abilities as a telegrapher are everywhere acknowledged, had been relegated to second place, has naturally caused some comment. It appears that the changes are due to the action of General Manager W. C. Nixon, formerly of the Santa Fe, who was only recently appointed to the position he now fills, an office created for him. Mr. Teed is also a well-known telegrapher and hails from Galveston. He has served a number of years under Mr. Nixon, and his present transfer is thought to be a preference of the latter, due to personal acquaintance.

The white light as a night signal of clear track is being banished from the Erie Railroad as unscientific in principle, and practically all of the system as far east as the Rochester division has now been equipped with a new code of lights, which makes green, instead of white, read "clear," and yellow, instead of green, read "caution." The red lenses in the low or dwarf signals, which mean "stop," have been changed to violet, not because of the teaching of scientists that this color acts more powerfully on the color-sensitive nerves than straight red, but simply to distinguish the stop signals on the through tracks from the multitudinous red signals at the interlocking points in the switching yards. White as a signal light has been doomed, because it is no color at all, and every danger and precautionary signal on a railroad is a potential source of disaster from the fact that it becomes a "clear" signal at once should anything happen to the lens of colored glass. This danger is avoided by the adoption of green as the "clear" signal, for if either a violet or green lens is broken the yellow light of the unscreened lamp in the signal lantern would spell caution to the approaching engineer. Even if the lantern should be burning bright enough to appear white, the clear light would give notice that something was wrong. Another count which the engine drivers have held up against the white light is the ever-present danger of mistaking some chance night light beside the track for a signal that all is clear.—New York Times.

The assessor of a municipality located in an adjoining state classes the beer-bottling business and telegraph offices in his town under one and the same category, and proceeds to lay a heavy tax on their receipts, accordingly. This must be another occult move to "Soc et tu" the long suffering telegraph companies.

### Western Union Telegraph Company.

#### EXECUTIVE OFFICES.

Mr. J. C. Barclay, assistant general manager and electrical engineer of the company, was in Chicago recently on business connected with the service.

Among the recent executive visitors were: I. McMichael, vice-president and general manager of the Great North Western Telegraph Company, Toronto, Ont.; C. Corbett, superintendent, Cleveland, O., who came to New York to meet his son, who arrived from Europe on November 17; W. H. Young, night manager of the office at Washington, D. C., and ex-president of the Old-Time Telegraphers' and Historical Association; A. A. Gargan, manager of the Denver, Colo., office, who was in the city on his wedding trip, and G. A. Cellars, Pittsburg, superintendent of telegraph of the Pennsylvania lines west of Pittsburg.

Mr. F. R. Carney, formerly manager of the Great North Western Telegraph Company's office at Montreal, Que., has been appointed manager of the 255 Church street office, in the dry goods district, vice J. Simmonds, promoted to be inspector of offices north of Forty-second street.

Stockholders of this company on November 23 authorized an issue of 4 per cent. redeemable, convertible bonds to the amount of \$25,000,000, to mature November 1, 1936. The bonds are to be convertible after two years and not later than twelve years into stock, which has been increased to provide for the conversion.

### Postal Telegraph-Cable Company.

#### EXECUTIVE OFFICES.

Mrs. John W. Mackay, mother of Clarence H. Mackay, has arrived from Europe and is visiting her son in this city.

Among the recent executive office visitors were E. B. Pillsbury, superintendent, and W. E. Stimson, traffic chief, Boston.

Mr. Jesse Hargrave, assistant electrical engineer of the company, has returned from a Southern trip.

Miss Abbie Brubaker, until recently cashier for the American District Telegraph Company, in Cleveland, has taken a position in the book-keeping department under E. Reynolds, auditor.

Miss Marian B. Jones of Cleveland, has become stenographer in Vice-President E. J. Nally's office.

Mr. Albert E. Chandler, superintendent of the messenger department, has resigned the same to take effect on January 1, to accept a position with the Carnegie Trust Company, New York.

Mr. W. H. Baker, vice-president and general manager, accompanied by his wife, together with Vice-President E. J. Nally, left New York on November 24 for California, whither they have gone on business connected with the service of the company.

Mr. W. J. Camp, electrical engineer of the Canadian Pacific Railroad Telegraphs, Montreal, is in the city on business connected with the service of his company.

Mr. John T. Needham, electrician of the second district, has resigned to accept a position with the Electro-Pneumatic Tube Company, of New York. The vacancy has been filled by the appointment of Mr. J. H. Flood, a gentleman who has been identified with the Postal service during the past twenty years.

#### The Cable.

The Commercial Cable Company's steamer Mackay-Bennett is in New York harbor undergoing the annual Lloyd inspection.

Mr. John Fothergill, formerly of the Western Union cable service, at Canso, N. S., is now located with the Commercial Pacific Cable Company at San Francisco, Cal.

Mr. J. C. Loeffler, at one time managing director of Siemens Brothers, cable manufacturers, London, England, is dead. He was in charge of the expedition which laid the direct United States cable in 1874.

Mr. Herbert Kingsford, superintendent and electrician of the Central and South American Telegraph Company, at Lima, Peru, is in New York on a combined business and pleasure trip. Previous to twenty years ago, when he entered his present service he was electrician on the cable steamers "Minia" and "Mackay-Bennett," respectively.

Cable communication is interrupted with:	
Venezuela.	Jan. 12, 1906.
Messages may be mailed from	
Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902.
Canary Islands:	
Island of Palma	July 12, 1906.
Steamer from Teneriffe	
Island of Lanzarote	Sept. 18, 1906.
Steamer from Las Palmas	
French Guiana	Nov. 26, 1906.
Mail from Paramaribo.	

#### Recent New York Visitors.

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

Mr. J. E. Golden, manager of the telegraph department of the Tidewater Pipe Line, Bradford, Pa.

Marcus Aurelius said: "Let not thy mind run on what thou lackest so much as on what thou hast already."

The new classified catalogue of books on the telegraph, telephone, wireless telegraphy, electricity, etc., published in TELEGRAPH AGE, may be had for the asking.



### Resignations and Appointments.

The following changes have occurred in the Western Union Telegraph Company's service:

Mr. Jesse Patterson, of the Indianapolis office, has been appointed manager of the office at Elgin, Ill.

Mr. J. F. Reade, manager at Colorado Springs, Col., has been transferred to Denver, Col., as manager, vice A. A. Gargan.

Mr. Charles W. Mitchell, manager of the office at Mansfield, O., has resigned to become secretary and treasurer of the Security Savings and Trust Company.

Mr. W. H. Bolton has been appointed manager at Prescott, Ariz., vice Omar A. Du Esler resigned to accept a position in the Government Navy Yard at Pensacola, Fla.

Mr. Frank C. Hackett, who has been manager of the Western Union Telegraph Company in Cleveland since November 1, 1903, retired from that position November 30 to take an active part in the management of the Ohio Electric Specialty Company, at Cleveland, recently incorporated. Mr. Hackett has been almost continuously in the service of the Western Union company since 1881, in the various capacities of operator, wire chief, chief operator, at Toledo, Cleveland and Pittsburg, returning from the last named place to assume the management of the Cleveland office. He has been succeeded in the management of the Cleveland office by Mr. James T. Hanford, solicitor of the company at that point, and one of the oldest and best known employees in the service in the "Forest City."

The following changes have occurred in the Postal Telegraph-Cable Company's service:

Mr. J. W. Mustin, of Tuscaloosa, Ala., has been appointed manager at Gadsden, Ala., vice Mrs. Ada Clark, resigned.

Mr. M. G. Mullin, of Cleveland, O., has been appointed manager of the Portsmouth, O., office, relieving Mr. F. M. Saxton, acting mananager.

### Obituary.

Edward J. Grace, aged thirty-five years, a broker operator at Biddeford, Me., died at that place on November 9, of gastritis.

Phillip Joseph, a well known Ohio telegrapher, for many years manager of the branch office at Third and Walnut streets, in the banking district, Cincinnati, died November 21 at Tuscon, Ariz., where he had gone for his health.

Charles LaTourette, aged twenty-nine years, a Postal telegraph operator at Plainfield, N. J., was instantly killed by a trolley car near Newark, N. J., November 12. He was a brother of Martin LaTourette, the manager of the Postal Telegraph-Cable office at Monticello, N. Y.

Stephen S. Sullivan, aged twenty-three years, a telegraph operator in the employ of the Western Union Telegraph Company at Fall River, Mass., but who resided at Newport, R. I., committed suicide while temporarily deranged caused by sickness, by shooting himself on November 20.

### Municipal Electricians.

Charles S. Pratt, Jr., superintendent of the fire alarm telegraph system of Northampton, Mass., died in that city on November 10.

Mrs. Frank P. Foster, of Corning, N. Y., wife of the secretary of the International Association of Municipal Electricians, died at her home in that city on November 24. Her gentle and benevolent character gained for her a wide circle of friends, and at the funeral, which occurred on the afternoon of November 27, a large concourse of people were present.

### An Excellent Telegraph Book.

With the opening of the universities and other great institutions of learning for the current season increasing orders have come in for Maver's "American Telegraphy and Encyclopedia of the Telegraph," to be used as a text book in telegraph engineering. In ordering books for his class Professor Watson, of Brown University, writes: "I want the very best book for study and reference there is. I have used American Telegraphy for several years as a text book. It is the only adequate book on the subject." Every operator desirous of becoming a telegraph engineer should have a copy of this important work. The cost of the book should deter no one since its possession is the practical equivalent of a college course in telegraph engineering. Hundreds of former operators now holding positions of technical responsibility in the telegraph service have gracefully and gratefully acknowledged that they owe their advanced positions to their study of "American Telegraphy." There can be no more useful Christmas gift to a friend than this book.

Price, \$5, which covers all express charges for delivery. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

The Postal Telegraph-Cable Company at New Orleans tendered a banquet to the New Orleans Postal Baseball Club of the Mercantile League in the banquet hall of the St. Charles hotel. Not only were the members of the winning team present, but the company had as its guests representatives from the other teams of the Mercantile League. Superintendent W. A. Porteous, of the Postal company, was the host of the occasion, and a telegram was received from W. H. Baker, vice-president and general manager of the company, expressing the liveliest interest in the famous New Orleans amateurs, who bear the company's name. The Postal boys have an excellent record, and to them was presented a handsome silver loving cup by the Mercantile League.

### Annual Meeting of the Telegraphers' Mutual Benefit Association.

The fortieth annual meeting of the Telegraphers' Mutual Benefit Association was held in the directors room of the Western Union Telegraph Company at four o'clock on the afternoon of Wednesday, November 21, Belvidere Brooks, president, in the chair.

Mr. Frank E. Coyle, of New York, was elected secretary of the meeting, vice George F. Fagan, deceased, in memory of whom an expression of sympathy was ordered entered on the minutes, a copy of which was directed to be sent to the widow.

The committee on credentials, W. E. Stimson of Boston, chairman, reported that the officers and members present held 2,796 proxies. Mr. Brooks directed the secretary of the association, M. J. O'Leary, to read the president's report, which is as follows:

The reports of the secretary and the treasurer for the fiscal year just closed will show that the general condition of your association is eminently satisfactory.

The membership has been well maintained, all maturing claims promptly paid, and the available assets increased to \$281,516, which I believe is a large amount in proportion to contingent liabilities than is held by any similar organization.

The increase of membership was not as large as desired, nor as the splendid record and present financial strength of the association would warrant; and I cannot too strongly urge upon the entire membership to co-operate with your officers and agents in presenting the claims of the association to all eligible persons in order that the present high standing may be long continued.

The prospects for the future are, in life insurance as well as in everything else, predicated upon the record of the past and with such as we show, there can be no doubt but that the results in the future will far exceed our expectations.

It is gratifying thus at the close of the thirty-ninth year and at the opening of the fortieth, to be able to show that of the \$1,473,280 collected in small amounts from the membership, \$1,261,217, practically the whole amount, has been returned to the beneficiaries of the contributors, and that there is a reserve fund and assets of over \$281,000 to secure the future payment of every claim, and that in the results achieved up to the present as well as by the possession of this large fund securely invested for future protection, the hopes, upon which the Telegraphers' Mutual Benefit Association was founded, have been fully realized and every promise made by the organizers and by your former officers and directors has been amply fulfilled.

On my own behalf as well as for the association, I desire to thank the agents and the members of the executive committee for the valuable aid so cheerfully rendered during the year.

The reports of the secretary, the treasurer and the auditing committee were also read, all of which were ordered printed and distributed among the members.

The secretary's report shows that the total membership is 4,744 in the full grade, and 716 in the half grade, an increase of 7 in full grade and 60 in half grade.

The reserve fund now amounts to \$260,421.57.

The amount received for interest during the past year on investments of the reserve fund and current deposits amounted to \$13,432.96, equal to

nearly five per cent. on the entire assets of the association, and which together with a sum sufficient to raise the amount to \$15,000, was carried to the reserve fund.

Two unimportant amendments to the by-laws were offered and passed.

The entire board of officers as follows were re-elected for the ensuing year: President, Belvidere Brooks, of New York; first vice-president, W. H. Young, of Washington, D. C.; second vice-president, Charles P. Bruch, of New York; secretary, M. J. O'Leary, of New York; treasurer, A. R. Brewer, of New York; executive committee, B. Brooks, W. C. Humstone, A. R. Brewer, James Merrihew, Charles P. Bruch, M. J. O'Leary, E. J. Nally, T. A. McCammon, G. H. Fearons, all of New York, the two latter being re-elected for a term of three years; S. S. Garwood, Philadelphia; W. H. Young, Washington; auditing committee, E. B. Pillsbury, chairman, Boston; W. J. Dealy and Thomas E. Fleming, New York.

President R. C. Clowry of the Western Union Telegraph Company, paid a brief visit during the meeting to the members to whom he was personally presented. He expressed himself as being deeply in sympathy with the association and its objects and desired those who were conducting its affairs to know that if at any time he could be of aid in furthering its interests, he hoped there would be no hesitancy in calling upon him.

Among those present were:

Chicago, Frank Richardson; Boston, E. B. Pillsbury and W. E. Stimson; Washington, W. H. Young; Philadelphia, S. S. Garwood; Bradford, Pa., J. E. Golden; New York, Belvidere Brooks, C. P. Bruch, A. R. Brewer, T. E. Fleming, W. J. Dealy, J. B. Taltavall, William Holmes, F. J. Scherrer, A. M. Guest, D. W. McAneeny, George Holle, Frank O'Ryan, T. A. McCammon, T. A. Brooks, F. E. Coyle, George Roehm, C. M. Holmes, J. B. Van Every, George Foran, W. J. Austin, W. L. Ives, J. D. Mason, R. W. Chapman, L. Dresdner, J. W. English, O. M. Marr, T. C. Eipper; Wilmington, N. C., W. P. Cline; St. Louis, Mo., M. Tulley.

A contemporary says: The latest trust on the carpet is "the Wireless." It is based on a merger of the Marconi and American De Forest systems. It is styled the United Wireless Telegraph Company, with a Maine charter and a proposed capital of \$20,000,000. The ultimate aim of "the Wireless," according to its prospectus, is to put the Western Union, Postal and other pole-and-wire competitors who cumber the ground and cable under the seas, out of business by a ruinous cheapening of rates. This is a very laudable undertaking; but there is a certain airiness about it not calculated to beget faith or bring in the necessary shekels. The Wires still hold their ground against the assault of the Wireless.



### Wireless Telegraphy.

Mr. T. H. Tierney, for the past five years manager of the Marconi Wireless Station at Siasconset, Mass., has been transferred to Babylon, L. I.

The statement is credited to Mr. Marconi that he has succeeded in producing a receiver possessing more sensibility than any previously invented, and which will practically solve the question of the dirigibility of electric waves. It will be impossible because of his new invention to intercept messages by means of other systems.

King Victor Emmanuel and Queen Helena, accompanied by William Marconi, have been on a visit to Coltano, near Pisa, Italy, to inspect the new station for wireless telegraphic communication with Argentina. This station is exceptionally powerful, having one 600-horsepower dynamo for the purpose of communicating with South American, and another, less powerful, for communication with Mediterranean points. In the course of an interview Mr. Marconi explained that he had been obliged to employ especially trustworthy workmen and clerks at the Coltano station in order to prevent the divulgence of important improvements introduced at this station.

With the issue of December 1 the *Western Electrician* will begin the publication of a serial article on wireless telegraphy, to run through the weekly issues of that journal for about three months, and which will be illustrated by over eighty illustrations and diagrams. This serial is written by Mr. Donald McNicol, A. M., A. I. E. E., who has the advantage of being not only an enthusiastic student of and experimenter with "wireless" for many years, but also a practical and experienced telegraph man in the ordinary use of the term, being at present manager for the Postal Telegraph-Cable Company, at Butte, Mont. Mr. McNicol is indeed well fitted for this congenial task, and he has written a series of articles which doubtless will discuss the subject in a manner such as to secure a wide reading. As a telegraph man engaged in active work, the author takes care not to neglect the practical side of his subject; he shows what has been actually done with "wireless" up to the present time, and, moreover, he gives directions for the making of experimental apparatus, a feature of the serial which is of especial value.

#### WIRELESS TELEGRAPH CONSOLIDATION.

A rumor is afloat that certain interests are planning a consolidation of wireless telegraph companies which will bring under one head the Marconi and De Forest systems of America and Europe. Abraham White, president of the De Forest Company, recently announced that a company, to be called the United Wireless Telegraph Company, will be formed, which will take over the Marconi Wireless Telegraph Company, Limited, of England, which controls the Marconi companies of America, Canada and Europe, and the American De Forest Wireless Telegraph

Company, which is the parent company of the English De Forest enterprise. These two concerns control the bulk of the wireless systems now operating in English-speaking countries, with instruments on substantially all of the ocean-going vessels flying the American and English flags. The United Wireless Telegraph Company is to be capitalized at \$20,000,000. The directors of the new company are: Abraham White, president of the American De Forest Company; E. F. Buchanan, of A. O. Brown and Company, bankers, New York; H. H. McClure, director Marconi Wireless Company; Don Giovanni del Principi del Drago, of Rome; George Irving Whitney, Pittsburg, Pa.; C. C. Galbraith, general manager Atlantic Wireless Company; S. S. Bogart, formerly identified with the telegraph; Charles A. Lieb, mechanical engineer, formerly expert for General Electric Company; Greenleaf Whittier Pickard, former engineer American Bell Telephone Company; John S. Seymour, Francis K. Butler, Phillip Farnsworth, Arthur English and George C. Knabe, all of this city. Mr. White is president of the new company, Mr. Buchanan vice-president, Mr. Knabe treasurer, and Mr. English secretary.

All these statements are denied categorically by ex-Governor John W. Griggs, of New Jersey, who is president of the Marconi Wireless Telegraph Company of America. He says:

"The managers of the Marconi's Wireless Telegraph Company, Limited, and of the Marconi Wireless Telegraph Company of America, deem it their duty to the public to deny absolutely and unequivocally that the United Wireless Telegraph Company has acquired control of more than fifty-one per cent. of the Marconi's Wireless Telegraph Company, Limited, and to deny that the United Wireless Telegraph Company controls a majority of the stock of the Marconi Wireless Telegraph Company of America. The managers, directors and a majority of the stockholders of both of the Marconi companies are not interested in any wise in the United Wireless Telegraph Company; the latter company has no agreement or prospect of agreement by which it will obtain control of either of said Marconi companies, and the scheme of merger announced by Mr. White is antagonistic and repugnant to the interests of both of the Marconi companies."

In addition to the denials of the Marconi officials of any part in the merger, the plans of Mr. White are further interfered with, according to a notification received at the Marconi offices from James A. Allen, attorney for certain De Forest stockholders, by an injunction granted in the United States Circuit Court in Maine, restraining Abraham White, the American De Forest Wireless Telegraph Company, and other White concerns from transferring the patents and plants of the De Forest Company.

Two of the directors elected to office in Mr. White's new company announced recently that they would not serve. They are G. I. Whitney,

of Pittsburg, and E. F. Buchanan, of the firm of A. O. Brown and Company, New York. Both men pleaded that they were too busy to serve.—*Electrical World*.

#### WIRELESS TELEGRAPH CONFERENCE.

The following embody the principal articles of the convention signed at Berlin on November 3.

Article 1.—The high contracting parties shall apply the following arrangements in all stations open to general wireless telegraphic service between the coast and vessels at sea (both in the coastal stations and those on shipboard) which are established or worked by the contracting parties on their coasts or on board vessels flying their flag. They also bind themselves, in the event of their authorizing private enterprises to open or to carry on similar stations, to impose the observance of these arrangements on such enterprises.

Article 3.—Coastal stations and stations on shipboard are bound to interchange telegrams without distinction of the system of wireless telegraphy adopted by them.

Article 4.—Each of the governments undertakes either to connect the coastal stations with the general telegraphic system by means of special wires, or to adopt other measures which will ensure expeditious communication between the coastal stations and the telegraphic system.

Article 6.—The high contracting parties reserve the right to prescribe or to admit, apart from the general service installations, the institution and exploitation of other technical plant with the object of establishing special wireless communication, without publishing the details of such plant.

Article 7.—The working of wireless telegraphic stations shall be organized, as far as possible, in such a manner as not to disturb the service of other stations.

Article 16.—An international bureau, placed under the high authority of the superior administration of one of the contracting governments, shall be established and charged with collecting, co-ordinating and publishing information of all kinds relating to wireless telegraphy, with examining applications for modifications in the charges and in the règlement, with promulgating the changes adopted, and generally with understanding all studies and with executing all the work which shall be submitted to it in the interests of international wireless telegraphy. The cost of this institution shall be borne by all the contracting states.

Article 17.—The high contracting parties agree to refuse authority for the installation and exploitation, on their territories, of wireless telegraphy stations by any private undertaking which (on the territory of a non-contracting state) would work stations of this nature and refuse to conform in regard to these installations to the provisions of the present convention. This clause shall not apply to states which declare that they

are unable to put it into force by reason of their internal legislation.

Article 18.—The high contracting parties reserve to themselves the right of fixing the conditions under which they are willing to admit, for the purpose of a wireless telegraphy service, stations which do not conform to the provisions of the present convention.

In a supplementary agreement most of the Powers adopted compulsory intercommunication between ships at sea; but Great Britain, Japan, Italy, Mexico and Persia withheld their approval.

The findings of the convention are to come into force on July 1, 1908; and the next conference is to be held in London in 1911.

#### The Congestion at the Patent Office.

There is no sign of improvement in the serious congestion that hampers the work of the Patent Office, which, more than ever before in its history, stands badly in need of a larger staff, receiving better remuneration for its services. Even as far back as the first of January of the present year, there were, in the thirty-nine divisions of the Patent Office, 17,353 applications awaiting action; while at the present writing there are about 21,000 cases on file which have not yet been examined. Moreover, the office is falling behind at the rate of from two hundred and fifty to three hundred cases a week.

As was to be expected, the delay is greater in some than in other divisions of the office. In the more important divisions the delay varies from about five months, with nearly five hundred cases on hand, in steam engineering, to nearly twelve months, with over one thousand cases on hand, in the division of hydraulic motors, pumps, and sewerage appliances.

The arguments in favor of the exercise of a more liberal policy on the part of Congress toward the Patent Office are so obvious and weighty, and the appropriation that would be necessary to straighten out this miserable tangle would be so moderate in proportion to the benefit conferred, that the persistent indifference of Congress to the needs of this great institution is beyond all comprehension.—*Scientific American*.

A lady operator recently reported a male wire companion for saying "O, hell!" to her over the wire. The male operator apologized by saying that the letter "o" was used in the wrong place. He meant to say "hello!" An explanation that saved him his position.

Mr. W. F. Muth, an old-time telegrapher, of Newark, N. J., in a recent letter requesting a renewal of his subscription writes: "Sure thing. As long as I live and can raise the subscription price will always take *Telegraph Age*."



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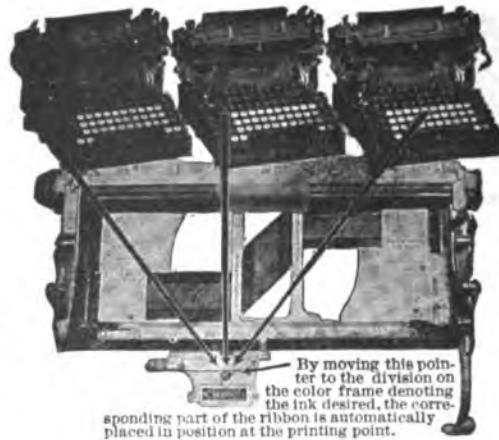
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NEW YORK, DECEMBER 1, 1906.

A short time ago we sent out a letter addressed to managers in which we asked for individual photographs to be reproduced in half tone in our holiday number. Through error some of these letters referred to the issue specified as being of date December 1, where as the time should have been December 16, two weeks later. Possibly the naming of the earlier date deterred in some instances those who were without photographs from complying with our request, in the belief that a sufficient margin of time did not exist in which to have a photograph taken. It is hoped that all such will take advantage of this, to them, extended time, and so join with the large number who are to be represented on the occasion in question, thus contributing to make the edition a notable one.

The extraordinary demand for copper which has characterized the market for so long a time, and which is wholly genuine and legitimate, the result of industrial progress, continues unabated, and the price has touched twenty-three cents, although there has been no abatement in production. With a strong foreign demand in addition to orders for domestic use, very little of the commodity can be had on fresh orders for immediate delivery, and the stringency is being felt with increasing acuteness.

The Rev. Dr. Lyman Abbott, in his address recently before the Maine Historical Society, said exceedingly well some things exceedingly well worth saying about the economic problems of

to-day. He remarked that this nation is following the "path to industrial democracy," and that: "This problem of industrial democracy will not be worked out by socialism. If our industries get into the control of the state we shall have industrial despotism."

According to a parliamentary return made on November 6, the total receipts for the English telegraphs for the year ended March 31, 1905, were £3,920,023 (\$19,600,115), and the expenditure exceeded this sum by £919,435 (\$4,597,175.) Adding to this the interest on the purchase money, the total deficiency for the year was £1,191,127 (\$5,955,635).

## Settling by Telegraph.

In order to meet their engagements at the London Stock Exchange settlement, bankers a few days since were forced to transfer by cable to the other side fully \$15,000,000. This sensational demand for instantaneous remittances led to a violent rise in the price of cable transfers, which sold much of the time 1½ cents above the level of a week ago. The transfer of such a large sum, following a similarly huge remittance the week before, has led to inquiries concerning the modus operandi of transferring money by cable and the safeguards of the system.

Cable transfers of money between New York and European centers are effected by code words. In this way a million dollars may be paid to a London or Paris banker on the receipt of a message containing half a dozen apparently meaningless words, which often make no sense, sent by a bank, or a banking house of New York to its foreign correspondent. Each banking firm has its private code, which, to avoid mistakes, is further safeguarded by a supplementary code, known only to the firm members, and used particularly to indicate the details of cable remittances. The fact that the correct reading of this code means perhaps a transfer of \$5,000,000 from one banker's balance to another's, shows the faith reposed in the system. There are other provisions covering special emergencies, which make the system to all intents and purposes absolutely secure. Cable remittances are the most costly medium of foreign exchange, and often fluctuate violently when a sudden demand for money arises at any of the world's markets.

Among the committee of arrangements, composed of well known New Yorkers, for the eventful dinner of the Chamber of Commerce at the Waldorf-Astoria, held Thursday evening, November 22, were Colonel Robert C. Clowry, president and general manager of the Western Union Telegraph Company; Clarence H. Mackay, president of the Commercial Cable and of the Postal companies, and George Gray Ward, vice-president and general manager of the Commercial Cable Company.



### The Speech of Congressman Smith Somewhat Considered.

In the House of Representatives Saturday, May 26, 1906, the Hon. Samuel W. Smith, of Michigan, made a speech in favor of governmental control of the telegraph as part of the postal system, and judging from his remarks it is very evident that he is not well informed about the business of telegraphy.

In the first place, if the government really wishes to monopolize the telegraph business of the country, it requires no special act to expropriate the lines already in use; for every telegraph company in the United States has accepted the provisions of the act of July 24, 1866, thereby agreeing to sell its lines and business to the government at any time at an appraised valuation. But in such a venture the government and the people would assuredly lose in actual dollars and cents and quality of service, to say nothing of menacing our institutions by adding the telegraph to political patronage and governmental bureaucracy.

Mr. Smith clearly needs enlightening, not only as to matters considered by him, but as to some matters that he failed to consider.

For instance, after denouncing the Western Union Telegraph Company as an overcapitalized and odious monopoly that charged the public exorbitant prices for inefficient service due to obsolete methods and machinery, he quotes with rapture from an article in the North American Review describing the brilliant results of governmental ownership of the telegraph in the island-continent of Australia.

He points out that Australia has more than 100,000 miles of wire represented in its telegraphic system, costing the government only \$18,000,000 of borrowed money to build. It is well enough to remark in passing that, with the exception of New Zealand, Australia has the largest debt per capita of any country in the world, being \$287.54, whereas the per capita indebtedness of the United States is \$11.91.

It will be observed that \$18,000,000 cost price of a system aggregating 100,000 miles of wire, is a capitalization of \$180 a mile. But the Western Union Telegraph system has 1,250,000 miles of wire which, at the rate of the Australian capitalization, should give it a capitalization of about \$225,000,000. As a matter of fact, its capital in stock and bonds is less than \$126,000,000, and yet Mr. Smith asserts that it is overcapitalized! If the Western Union Telegraph Company were capitalized on the basis of cost to the English government of its telegraph system, this company should have a capital of at least \$300,000,000.

The rates charged in Australia, according to Mr. Smith, are twelve cents for a message not exceeding sixteen words, including address and signature, for town and suburban messages; and for messages to any other state within the commonwealth the charge for a message of similar length is twenty-four cents; in all cases extra

words beyond the sixteen being charged for at the rate of two cents a word. And the article from which he quotes adds: "It will be seen at once that these charges are remarkable for their moderation in comparison with any experience the people of America have yet had."

This is important if true; but it isn't true. Let us suppose, for example, that the wife of the Hon. John H. Brown, having completed her shopping in New York, wishes to advise her husband that she will be home at a particular time and to meet her with the carriage, and to this end wires him as follows:

New York, Oct. 28, 1906.

Hon. John H. Brown,  
336 Four and One-half street, Southwest,  
Washington, D. C.

Will arrive six thirty train, Pennsylvania; meet me with carriage.

(Signed)

MRS. JOHN H. BROWN.

Now the Postal Telegraph-Cable Company or the Western Union Telegraph Company would "extort" from the sender of this message, for transmission and delivery, the magnificent sum of twenty-five cents—about what one would give a waiter or cabman as a tip. Would the sender have saved one whole cent had the charges been based on the Australian schedule? Count the words in the address and signature and it will be seen that there are twenty words, and that the sender therefore would pay thirty-two cents for mere preliminaries, without having conveyed any message whatever, and twenty cents more for the actual purpose of the message, making a total charge of fifty-two cents. The address in the supposed message is longer than usual, to be sure, but the number of words in the address and signature of a message average fourteen, and must be paid for in Australia, England and in Europe generally.

The rates charged in the United States are not arbitrarily based on state boundaries but on distance, and according to this or any other test the United States has the cheapest telegraph service in the world. It is possible that England might prove an average charge no greater than the average in the United States, but the whole of Great Britain is scarcely larger than one of our states. Moreover, in the case of government ownership the question is not what the service may cost those actually using the telegraph but what the telegraph equipment costs the people who pay for and maintain it. The government might charge a uniform rate of ten cents a message; but this is a long way from saying that the government could afford to do so. There would inevitably be a deficit which somebody must make good. Unhappily, experience teaches that the poor man pays a larger tax in proportion to values owned by him than the rich man, while it is equally true that the well-to-do avail themselves of the telegraph and the post office oftener than the poor-to-do. A deficit, therefore, in the maintenance and operations of these costly facilities is virtually created by the rich and paid by the poor. The only fair, business-like method of

conducting the post office would be to make it pay the cost of its own maintenance. Our post office department runs behind millions of dollars every year. All of us are taxed to make up the deficit, not in proportion to the use we make of the post, but according to our contribution to the public treasury. England pays a deficit of millions of dollars every year for the maintenance and operation of its telegraph, the report of the postmaster general for the fiscal year ending March, 1906, showing a deficit of \$5,165,000. And so in estimating the cost of telegraphic service in England this deficit must be taken into consideration.

Nearing his peroration, Mr. Smith vehemently exclaims: "It is literally true that in this electrical age, in this electrical country, telegraphy is the only thing touched by electricity that is still in the ox-cart condition. Telegraphy is still pounding along with hand labor, very much as Morse devised it nearly seventy-five years ago. It can never be cheap or fast until machinery is used to prepare messages and to hurl them at higher speed over the wires. I have no hesitancy in saying that notwithstanding for many years over the doors of the telegraph companies has been written the legend 'No inventors or scientific men wanted,' inventive genius has perfected, tried and approved machines for telegraphing which, if put into use, would revolutionize present conditions."

There is not a practical telegrapher in the United States who will not recognize the absurdity and unfairness of this statement. Every meritorious invention has not only been tried but adopted and is in use to-day. The Wheatstone automatic will transmit six hundred words a minute, and is in use where conditions make it desirable. But, truth to say, its use is seldom desirable. There have been numerous other inventions whereby a thousand or two thousand words, perhaps, may be transmitted over a wire in a single minute. But such inventions are not in use, for the very good reason that they do not meet the necessities of the business. It is understood, of course, even by the layman, that the automatic transmission of messages at such a speed requires that each message shall first be punched out on a tape ("prepared," as Mr. Smith would say), and this tape in turn ground through the instrument at lightning speed. But where is the grist for such a mill to come from? A man who takes his message to a telegraph office expects it to be transmitted and delivered in the shortest possible time. He is not willing to wait until a thousand or two thousand other patrons shall have filed their messages and then have these several thousand messages punched on a tape and the whole bunch sent in the twinkling of an eye, to go through a tedious and time-consuming process of translation at the office of destination. There is no aggregate saving of time in such a method.

The problem in telegraphy concerns the individual message. How may it, singly and by itself, be transmitted and delivered in the short-

est period of time? Does Mr. Smith know of any invention for the realization of this purpose that has remained untried? Hitherto experience has demonstrated that the limitations of an expert Morse sender were the inherent limitations of this desire. But since the general use of the typewriter it has been the dream of inventors, familiar with the needs of telegraphy, to make this limitation the limitation of the fastest typewriter. If a message punched on a tape and automatically transmitted over a single wire could be made to operate the fastest typewriter to the limit of its capacity, cutting out copying and transcription, human ingenuity could go no further; the problem of the years would be solved and the science of telegraphy would have achieved its ultimate expression. And just this thing has recently been accomplished, and by an American. A score of these typewriting machines are actually in use by the Western Union Telegraph Company, and are being called for faster than the manufacturers can turn them out. England and Europe were forty years behind the times before this invention. They are hopelessly behind the times unless and until they adopt it.

The foregoing are some of the matters considered by Mr. Smith in his speech, but without a technical knowledge adequate to their proper presentation. There are other matters, however, that Mr. Smith did not consider, but which the people of the United States ought seriously to consider before making the telegraph a part of the postal equipment.

The telegraph to-day ramifies throughout the United States; it enters every state, territory and city, and nearly every town in the country. The Western Union Telegraph Company alone has 24,000 offices. It pays taxes in every state in the Union. Are the people willing to give up these revenues for the dubious advantages of governmental ownership?

A private company operating the telegraph is liable both to the sender and to the sendee of a message for any failure to perform its duty, for delays in delivery, for mistakes and delays in transmission. England, nor any European government, does not permit itself to be made so liable, neither would the government of the United States. Are the people willing to waive this money sanction for the irresponsibility of governmental service?

A telegram is not like a letter, the contents of which are sealed and safeguarded. The contents of a telegraph message must be known to many persons who have to do with its transmission. It is a cardinal crime against business principles and the laws of the country for a telegraph company to disclose the contents of a message. But if the telegraph and all its patronage become the spoils of politics, and the machinery of the telegraph is once in possession of the party in power, the party out of power must needs eschew the use of the telegraph entirely or submit to having its political secrets revealed to its political enemies.

### Mr. Harriman on Railroad Development.

Mr. E. H. Harriman, at a speech delivered at the Trans-Mississippi Commerce Congress at Kansas City, on November 19, said in part:

"The impression prevails that I control more miles of railroad than any other man. That statement is made frequently. I deny it. It is not true. I do not control one mile of railroad. I do not believe in one man or any one company controlling vast interests of this kind. There are fourteen thousand or fifteen thousand persons who co-operate in the control of railroads and other corporations in which I am interested. One man could not do the work and do it right. We have our stockholders and our boards of directors, and they all share in the responsibility of conducting our affairs. I appear as a dictator in published statements, but I am not. Every important step in our business is considered by many minds before any decision is reported.

"Last year this congress passed a resolution antagonistic to the general clamor that increased power be given to the Interstate Commerce Commission in the regulation of railroads and other corporations. Your contention was that the Sherman anti-trust law and the Elkins amendment gave the commission sufficient power to correct existing evils. But since your congress passed that resolution the Congress of the United States has passed a measure which is now a law that gives to the Interstate Commerce Commission almost unlimited power. To the commission is given the power to control all of the railroads of this country. It is composed of seven men, and four of these men constitute a quorum which can control all the transportation lines of the country.

"I do not want to criticise the commission. I believe it acted in good faith when it said it needed more power. But, as I have said, the President, in his Harrisburg speech, intimated that still greater power should be conferred on the commission. Now, before any further action is taken, I should like to see how the power which exists under the present law will be used. Perhaps it may not be necessary for the commission to act under the new law. I hope not.

"If the commission makes a mistake in the use of its power, conditions may ensue from which the business interests of this country will not recover in a decade. The transportation business is the most vital for the development of the country. No community could prosper without transportation facilities. Your success and the success of the interests you represent depend largely upon the transportation lines of the country.

"I think the railway traffic men have learned by this time that they do not make rates, but equalize them. The rates are made by the communities served by the railroads. Common centres must be treated alike.

"You should not disturb rates at this distribut-

ing centre without affecting all other distributing centres. The rates are controlled by commercial necessities.

"But, under the new law, the rates controlled from commercial necessity now may be controlled by political opportunity. The politician may promise a reduction in rates for election to office.

"The railroads have reached almost the limit of economy in transportation. If the rates are to be lowered the railroads must be able to carry traffic at less cost than now. The great industrial development of this country since 1899 and 1900 has been due to the fact that the owners of railroads have had confidence in the communities and people served. In order to develop all sections of the country the railroads have improved their lines and spent hundreds of millions of dollars bringing their lines nearer perfection. The railroads must continue to improve. The expenditure of money for railroad improvement gives other business interests a chance to expand. If the railroads are too soon subjected to a reduction of income, where is the money coming from to develop the railroads further and to develop your interests?"

### Poulsen's Wireless Telephone.

The inventor of the telegraphone, Valdemar Poulsen, is said to have achieved the transmission of the human voice by a process resembling the methods used in wireless telegraphy. He uses a wave detector arranged at the receiving station in series with a telephone and battery in a manner analogous to what is done in radio telegraphy.

According to the Western Electrician the sending apparatus comprises a "singing arc" placed in an atmosphere of hydrogen and fed by a 220-volt direct current. The vibratory circuit comprises a condenser, consisting of seven Leyden jars, an adjustable induction coil and the primary coil of a Tesla transformer. A high-tension flaming arc, several centimeters in length, is maintained between the secondary terminals of the transformer.

If the secondary winding of the induction coil is connected to a battery and transmitter, on speaking into the transmitter it is said that the flaming arc fed by the high-frequency current will distinctly reproduce any words spoken into the microphone with an intensity superior even to that of ordinary direct-current "speaking" arcs.

A similar arrangement, with an electrolytic cell serving as wave detector, was used to transmit the human voice in the inventor's laboratory, and the results obtained over distances of about thirty yards with the aid of an aerial wire, about two yards in length, were considered so satisfactory that it is hoped shortly to transmit conversation over a distance of several miles.

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



### Lord Kelvin on Wireless Telegraphy.

In the London Times of October 16, appeared the following letter from Lord Kelvin:

"The letters of Professor Silvanus Thompson and Sir William Preece in the Times of yesterday will, I am sure, interest many of your readers who are unable to follow the very important questions of international policy at present under consideration by the Berlin Congress on wireless telegraphy. The statement of historical facts and of scientific truths which they contain go far towards a complete history of the origin of one of the greatest wonders and triumphs of science of the nineteenth century—wireless telegraphy—due to the scientific discoveries of many workers and practically realized by Mr. Marconi in 1896. Sir Oliver Lodge's Royal Institution lecture on Friday, March 8, 1889, on "The Discharge of a Leyden Jar," was full of the origins of wireless telegraphy. It included a startling case of "telefunken," discovered by some of the audience, between gilt patches on the wall of the lecture-room. The lecturer gave a quotation from "Scientific Writings of Joseph Henry" (Vol. I., page 203), of which the following is a part, describing electrical experiments made by him about 1830, when he was professor of mathematics and natural philosophy in Albany, New York: 'A remarkable result was obtained in regard to the distance at which inductive effects are produced by a very small quantity of electricity. A single spark from the prime conductor of the machine of about an inch long, thrown on the end of a circuit of wire in an upper room, produced an induction sufficiently powerful to magnetize needles in a parallel circuit of wire placed in the cellar beneath at a perpendicular distance of thirty feet, with two floors and ceilings, each fourteen inches thick, intervening.'

"This is the nearest approach to wireless telegraphy given to the world before practical proof of electrical waves through ether and of their wonderful energy-carrying quality was given in Hertz's magnificent experiments inspired by Helmholtz. Lodge himself made in 1894, as described in Professor Thompson's letter in the Times of yesterday, very important steps towards the wireless telegraphy publicly realized by Marconi two years later. Lodge had got signals successfully through a distance of 150 yards; Marconi, in 1896, had signals through three-quarters of a mile; and very soon after, with aid given by our post-office, this was extended to nine miles across the Bristol Channel. As early as the beginning of June, 1893, I was taken by Lord Tennyson to Marconi's telegraph station at Alum Bay, in the Isle of Wight, then in successful wireless communication with Bournemouth; and I had the great pleasure of sending messages through fifteen miles of ether, and on by our postal land telegraphs to Sir George Stokes at Cambridge and other friends in England and Scot-

land. I believe that up to that time, or at all events up to the time of Marconi's success across the Bristol Channel, there had been no other practical advance upon Lodge's wireless telegraphy through 150 yards in 1894.

"Sir William Preece tells us that the post-office had been actively engaged in developing wireless telegraphy since 1884, and that in 1895 communication between Oban and Mull was successfully made by wireless telegraphy. That was a most interesting and successful experiment carried out by Sir William Preece himself. It was by induction between parallel lines of telegraph wire on the two coasts and was practically valuable because by it the communication was kept up until the ruptured cable between the island and mainland could be repaired. That was the best that could be done in 1895. It well illustrates the greatness of the boon brought by Marconi a year later and thoroughly appreciated by the engineers of our postal service as was shown by the assistance wisely given by the post-office in the early development of Marconi's system."

### An Interesting Telegram.

An interesting reminder of pioneer days in telegraphy has been presented to Manager W. M. Martin of the Western Union office at Burlington, Vt. It is an original telegram sent from Schenectady, N. Y., to Mrs. W. W. Peck of Burlington, June 26, 1849. It was sent over the Troy and Canada Junction Telegraph Company, one of the first lines operated in New England. There were but thirteen stations on the line including Rutland, Troy, Orwell, Middlebury, St. Albans, St. Johns, P. Q., Burlington, Montreal, Schenectady, Bennington, Vergennes, Whitehall and Castleton. The telegram in question read as follows: "Parlors clean; painters waiting; pink sample from Burlington too late if not here Thursday, signed Harriet Page." The telegram was found in the effects of the late E. W. Peck.

Telegraph operators, whose senses as a rule are quickened by their occupation, are usually men of clever perceptions and good judges of human nature. Yet one of the craft fell a victim to the cruel machinations of a slick stranger the other day up state, because he let his generosity get the better of his judgment. In other words, he became responsible for supper and lodging over night for a casual acquaintance who effectually worked the hard luck story, and who, before he took his departure in the morning, hurriedly it may be said and before breakfast, without even a murmur of thanks or good bye, managed to walk away with the current clothing of his benefactor, shoes and all. It must be admitted that the advantage, temporarily at least, rested with the fellow who took the "togs," but the low down operation had its fitting sequel when the thief was haled into court at Troy, for then the telegraph man had his inning.

### The Telegraph Across Sahara.

The telegraph line being built by the French Government across the desert of Sahara, is making good progress. The work is being conducted across the desert of Sahara under the immediate direction of the Governor General of Algeria, and if you will open your atlas and turn to a map of Africa you can trace the route. The wires will run from the City of Algiers across the sandy waste down to the oasis of Touat, which is a very important point. From there they will follow a caravan trail that has been used for centuries south of the Abagar Mountains, and thence southwestward to Timbuctoo and thence follow the river bank to the port of Dakar on the Atlantic coast, in the province of Senegal. The work began last winter, and has been going on nearly nine months. Many precautions and considerable preparation were necessary, but thus far no great difficulties have been encountered. All water, provisions, materials and everything that is needed must be carried in on the backs of camels, and supply trains are passing to and fro with great regularity between Algiers and Timbuctoo and the camping grounds of the several parties.

The manual labor is being done by natives from desert tribes until recently in a savage state, and five years ago they would have cheerfully slaughtered any white man or Christian who ventured among them. The early explorers used to stain their faces and profess to be followers of Mohammed. In that way they gradually gained the confidence of the wandering tribes and obtained permission to make their explorations and survey a route for the telegraph line.

The explorations of the French have demonstrated that the great desert is not such a frightful place as has been represented and the world will be compelled to revise its ideas, as has been the case with the great American desert. With irrigation everything in the way of plant life will grow with luxuriance in the desert sands of northern Africa, and, what is even more strange those sands are mixed with seeds of a great variety of plants which have been lying dormant for centuries. Like the grains of wheat found in the sarcophagi of the Egyptian kings, they still retain their vitality and will germinate promptly when the soil is moistened. There seems to be no doubt that the desert of Sahara was once inhabited by a large population; that the dry water courses of today were once great rivers, and the deep basins, many of them several hundred feet below the level of the sea, were formerly lakes which have evaporated in the dry air and in the heat of sun since their sources of supply were cut off by the directing sands. The rivers have vanished for similar reasons. The springs which fed them have been choked and filled with sand, and there being no rainfall, or at least very little, the water courses have lain dry ever since.

The present condition of the desert is due entirely to the causes described, and the explorers

assert that much of it may be reclaimed with comparatively little trouble and expense. Their experimental borings have determined that the entire surface of the desert, at least so far as the investigations have extended, is underlaid with subterranean streams and reservoirs which can be reached by sinking wells at depths varying from 200 to 2,000 feet, according to the altitude of the point where the boring is made.

### Book Reviews.

The Newspaper Rate Book, an annual issued by Nelson Chesman and Company, advertising agents of St. Louis, New York, Chicago and Chattanooga, has made its appearance. It catalogues fully all newspapers and periodicals published in the United States and Canada, classifying by state, class, etc., and giving advertising rates and circulation of each paper. The volume is carefully indexed, and will prove, as in the past, a reference book of distinct value to advertisers, for it is one of the best of the kind published. The book is well bound in cloth, contains over 570 pages, and is sold at \$5 per copy.

The "Blue Book," as it is more familiarly known, otherwise the Electrical Trades Directory and Handbook, the standard English reference volume covering the world in its scope respecting the information indicated, will be issued, fully corrected up to date, in January. This will be the twenty-fifth annual edition of this important work, the price of which in the United States will be \$5. It will contain a very carefully compiled list of British, colonial and foreign electrical engineers, electric light and power and electric railway and tramway engineers and contractors, electricians, electrical apparatus makers, electrochemists and metallurgists, plant and machinery builders, electrical, telegraph and scientific instrument makers, electricity supply, electric tramway and railway, telegraph and telephone companies, telegraph and telephone engineers, electric cable and wire manufacturers, and of all persons engaged in electrical pursuits throughout the world; useful technical and commercial tables and data relating to electric light and traction, electric power transmission, electricity supply undertakings (municipal and company), telegraphs and telephones, wireless telegraphy, British and foreign government departments, etc.; and a biographical section, giving interesting particulars of the careers of nearly 300 eminent men connected with electricity in all its applications, with many good portraits. The publishers are "The Electrician," London, England.

Socrates thought that if all our misfortunes were laid in one common heap, whence everyone would take an equal portion, most persons would be contented to take their own and depart.

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### Strains in Pole Lines.

Aug. J. Bowie, Jr., has an interesting article on "Strains in Pole Lines" in the November 17 issue of the *Electrical World*, from which we quote in part:

"The construction of electric pole lines is usually undertaken without any calculations whatever of the stresses liable to come on the poles—the only criterion being that the poles must stand up under the weather, and consequently the factor of safety used may be many times in excess of the needs of the case. Of course, in many cases, allowance must be made for the addition of wire, not planned for when the lines are first constructed, and also, particularly in the case of wooden poles, the factor of safety used should be sufficiently large to allow for the partial destruction of the pole, before necessitating renewals. Still there are many places, as for example in long-distance, high-tension pole lines, where the conditions of the case may be regarded as fixed, the number of wires being limited. Furthermore, where towers are used, instead of wooden poles, we are not limited by stock sizes of timber, but may construct the towers, by proper design, so that they are of a uniform strength, and hence employ a minimum quantity of steel for given results, provided we know the stresses to which they will be subjected.

"The stresses in poles and towers are in general due to the following causes:

"1. Dead weight.

"2. Wind pressure.

"3. Stresses due to the breakage of one or more of the line wires.

"The most severe strains will usually occur when the wind is normal to the pole line, and hence when these three stresses act in three directions, practically at right angles to each other.

"1. Dead Weight.—This consists of the dead weight of the poles, to which must be added the weight of one span of wires together with any snow or ice coating. This acts vertically downwards.

"2. Wind Pressure.—This will usually be greatest when normal to the line, when the pressure is due to the area of the pole, plus the area of one span of the wires and their covering of ice, if coated thereby. The wind pressure may be expressed as the product of the area normal to the plane of the wind, the velocity head pressure and a coefficient, *C*, dependent on the shape and size of the surface acted on. The velocity head pressure is the pressure per unit of area, required to give the air its velocity, and is directly proportional to the square of the velocity, and directly proportional to the density of the air. At the normal barometer at sea level, of 29.92 in. of mercury, and at 32° F., a velocity of 57.8 miles per hour will indicate a velocity head pressure of 1 oz. per square inch. The coefficient, *C*, varies with the shape of the surface. For very large flat areas it will approach 2 as a maximum,

while for cylindrical surfaces it may be as low as .62. In general for long rectangular surfaces, normal to the wind, it would be approximately 1.67.

"3. Stress Due to the Breakage of Line Wires.—If one wire breaks the resulting strain of dead-ending may be taken up in part by a torsional strain on the pole, and also by flexure of the pole, as well as by throwing additional strain on the other wires. However, should all the wires break (due, for example, to a burning off), then if they do not slip through the tie wires the entire strain of dead-ending, on either side of the break, must be taken by the poles themselves. This will result in a flexure of the poles. However, a comparatively small flexure at the top of the pole will result in greatly relieving the strain on the wires, resulting in a flexure of less degree of the next pole, and so on, each pole being subject to a smaller strain than the preceding one nearer the break. Theoretically the strains from this cause would continue, with decreasing intensity, to the end of the line; or at least to a turn in the line. With a large number of poles per mile, calculations of this sort are of theoretical rather than of practical value, since an exceedingly small flexure will greatly relieve the strain; but where the length of span is great the problem becomes of considerable importance.

"Certain pole lines have been constructed abroad where the poles have been designed with the special idea of making them flexible in the line of the wires to provide for just such a contingency as the breakage of the wires. In the solution of the problem certain assumptions and approximations will be made which are entirely allowable to arrive at practical results."

The *Electrical World* has this to say in part in editorial reference to what Mr. Bowie writes:

"Mr. Bowie's paper on strains in pole lines is exceedingly timely. For many years pole lines have been built on a certain canonical pattern worked out in the early days of the telegraph and only elaborated to a modern degree at a later period. Even the early power transmission lines followed closely telegraphic precedents, and only when long transmission became common so that the cost of the line rose to be a formidable part of the total investment did engineers awake to a real sense of the design of pole lines as an engineering problem. This was not altogether due to sheer negligence but in great measure to the timidity of those for whom engineers work. Even to-day the backer of a transmission project would generally prefer to copy an existing structure, however bad, which has succeeded in holding up its wires than to "take chances" with a structure, however scientifically designed, which is as yet untried. In short, the average man has a very exaggerated idea of the value of a low-grade of experience. \* \* \* Practically the greatest stress to which a pole line is exposed is that developed when all the wires of a single span have



given way, thus compelling the adjacent poles to play without warning or guys the role of terminal poles. The stress on the pole top resulting from this condition is readily found to a reasonably close approximation by following out Mr. Bowie's neat method of solution or some similar one. The very worst condition, of course, occurs when the line breaks from sleet load, in which case the initial strains from low temperature are high concurrently with extra load on the wires."

### Long Distance Underground Telephone Service.

The Delaware and Atlantic Telegraph and Telephone Company has completed its conduit system between Wilmington and Philadelphia, and it is now in use, the overhead wires having been abandoned so far as the trunk lines are concerned. Some of the pole lines will be retained for use as branch lines, for the convenience of settlements and subscribers along the route, but all of the through wires are now underground.

The underground system between Philadelphia and New York, built by the Bell Telephone Company, with which the Delaware and Atlantic is affiliated, is also finished and in use.

The company is now planning an underground system between Wilmington and Washington, and it has men at work making the survey, which will probably be completed before severe weather sets in, and the company will, in all probability, construct the line next year. It will employ the same method as that used in building the Philadelphia line, beginning operations at several points simultaneously, and have the men work toward each other. When this work is done the Bell Telephone Company and the Delaware and Atlantic Telegraph and Telephone Company will have a complete underground system between the national capital and New York city, a distance of about 220 miles.

When the tunnels under the North and East rivers at New York are completed the cables will be run under the rivers through them, thus giving connection with all the boroughs of New York without an overhead break.

A special meeting of the stockholders of the Standard Underground Cable Company, the well known cable manufacturers, has been called for January 22, to vote on a proposed increase in the capital stock. At the office of the company it is stated that the amount of the proposed increase and the necessity for the same would be duly presented to the stockholders at the meeting. The company has increased its capital twice in the past seven years; in July, 1899, from \$1,000,000 to \$1,500,000, of which \$400,000 was a stock dividend, and \$100,000 sold at par, and in 1902 there was a further increase to \$2,000,000, the new stock having been sold at par.

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

### Frank Munsey, the Greatest Publisher in the World.

Beginning life as a poor boy in the country, and graduating as a telegraph operator, Frank Munsey has climbed by his own effort, in a degree not exceeded by any publisher within our recollection, until to-day he derives an income of well up over a million dollars a year from magazines and newspapers that penetrate every hamlet of the United States, with a big added circulation in foreign countries.

Mr. Munsey directs his six magazines—and the plans for two new ones to be started in a few weeks—from the slightly top floor of the Flatiron Building in New York, but he has now almost completed in his new building at Washington a private office, or audience chamber, such as has been possessed by no insurance magnate or railway president or public officer in America, and may well excite the envy of the most splendor-loving of foreign potentates.

This great room, in size 70 by 51 feet, with high vaulted ceiling and windows commanding views at every point of the compass, will be one of the show places of the capital. Without overdoing matters, it will be the most magnificent office in the United States, if not in the world, and will undoubtedly be occupied a considerable portion of the year by the master of so many great publishing enterprises.

Mr. Munsey himself is one of the quietest and most unassuming of men, albeit a man, of great force and self-reliance. The secret of his success is that he knows, and he knows he knows. He understands the magazine publishing business better, probably, than any other man in America, and within the last year or two he has demonstrated that he can build up paying daily newspapers at the same time.

When again he invades the metropolitan newspaper field, if he ever does, he may be expected to score a success in sane and wholesome journalism that will parallel his achievements in the magazine line.—The Fourth Estate.

Mr. Frank B. Williams is the chief operator of The Associated Press in the Louisville, Ky., office, in which service he has passed twenty-two years. Lately in a visit to Knoxville, Tenn., it is related that Mr. Williams met personally for the first time Mr. Oscar Humphrey, of The Associated Press of that city. They have talked to each other over the wires for the past five years. Each had the other sized up as to his personal appearance. Mr. Humphrey had Mr. Williams sized up even to little details, the way he wore his collar, the way he smiled, and other little peculiarities that people learn of others only by long association. Mr. Humphrey stated that he had his man sized up exactly; that he walked right up to Mr. Williams and shook hands with him as though he had known him all his life, and felt that he had seen him often before.

### Wm. J. Bryan on Municipal and Governmental Control.

William J. Bryan, who has placed himself on record as favoring municipal ownership and government control of public utilities, says:

"A century ago comparatively few cities in this country or Europe owned their own waterworks. Now it is the exception that any city of any size relies upon a private corporation for its water supply. City lighting is having the same history, although municipalization began later than with the waterworks.

"Now comes the question of street car lines, and as the same principles apply, the same inevitable trend toward municipal ownership is noticeable.

"The experience of all the cities has been practically the same—First, liberal franchises to induce the establishment of water, light or street car plants; second, efforts at regulation and restriction, made futile by the corrupt influence of the franchise companies; third, municipal ownership as a protection to the people and as a means of purifying politics.

"In the extent to which municipal ownership has been carried Great Britain leads the world, although in other countries, some cities, like Vienna, have rivaled the cities of Great Britain.

"In nearly all of the countries of Europe and Asia the telegraph lines are now owned by the government, and in most of the cities the telephone system is also owned by the public.

"It is hardly necessary to say that in all countries of any standing the mail service is now in the hands of the government.

"There is very noticeable growth in the government ownership of railroads. Many years ago the government ownership of railroads was tested in various European nations, and the tendency toward the extension of government mileage and the diminution of the mileage of privately owned roads has been constant. In some countries there is still competition between the government lines and the lines owned by private corporations, but experience leaves no doubt that the lines owned by the government will ultimately supplant the roads in private hands.

"Switzerland has within four years purchased the main railroad system within her territory; Japan has within a year extended the government railroads by purchasing some of the roads in private hands, and the Indian government is planning to absorb more of the privately owned lines. In France a number of the railroads hold fifty-year charters, which have now more than half expired and which provide for the surrender of the lines to the government at the end of that period—the government in the meantime guaranteeing a fixed interest and an annual contribution to the sinking fund.

"While local considerations and local conditions have much to do in the determination of each case, there is one general principle which is

becoming more and more clearly outlined as the question of government ownership is discussed, namely, that when a monopoly becomes necessary it must be government monopoly and not monopoly in private hands. In other words, the principle now most familiarly applied is 'competition where competition is possible; government monopoly where competition is impossible.'

"In our trip around the world, we have had an opportunity to note some of the problems which most concern all people at all times. The first concerns the legitimate sphere of the government—what should the government, acting for all the people, do, and what should be left to the individual? This subject is under consideration in every civilized nation, and no two nations have reached the same solution.

"At the two extremes stand the individualist and the socialist—the former jealously guarding the individual and opposing any encroachments upon his sphere of action, the latter emphasizing the work of the state and seeking to convert the work of production and the work of distribution into state functions. Between these extremes stand the mass of the people, governed more by the exigencies of each individual case than by the theories put forward by individualist and socialist.

"In some directions the countries of Europe and Asia have extended the sphere of government beyond anything known in the United States, in some respects our government has enlarged the sphere of the state beyond anything attempted in the old world, but everywhere the tendency is to extend rather than to diminish the sphere of the state's activities."

Another question considered by Mr. Bryan is that of the relation of labor and capital:

"In Europe it is a question between labor and capital and the laborer is organizing for the advancement of his welfare. The guild and the labor organization have long sought to enlarge the laborer's share of the joint profit of labor and capital and to improve the conditions which form his environment. The efforts of these societies have mainly been directed, first, toward the improvement of sanitary conditions; second, toward the shortening of hours; and third, toward an increase in wages.

"It looks like a reflection on mankind in general to say that laboring men should have to ask legislation to protect their lives while at work. It would seem that employers would of their own accord regard the safety and the health of employees as of paramount importance, and yet, it has been necessary even in the United States to compel the building of airshafts in mines and to force the use of safety appliances on railroads and street car lines and in the operation of machinery.

"Still more strange is it that it should be necessary to fix a minimum age at which children can be employed. The very sight of little boys and girls working in factories at the expense of their

physical growth and their mental development is so revolting that one can hardly understand how such legislation can be necessary, and yet, throughout Europe and the United States the laboring men, through their organizations, have been compelled to fight for the protection of the children of the poor. In Asia the inauguration of factories has not yet been followed by the protection of the children.

"Reforms advance in groups. It is seldom that one real reform is achieved alone, so the limitation of hours of labor has, as a rule, accomplished legislation for the protection of children and for the improvement of sanitary conditions in mines and work shops. Those who now enjoy the eight-hour day can remember the nine-hour day and the ten-hour day, but can hardly recall the days of twelve or fourteen hours. In the factories that are starting up in the orient with long hours there is attendant degradation of the toiler.

"The demand for the eight-hour day is an international one, and the laboring man is gradually winning his fight, partly by an appeal to conscience and partly by proof that the highest efficiency is inconsistent with long hours.

"In the raising of wages two factors have been at work—the labor organization and the higher efficiency that has come with more universal education. The educated workman can earn more than the ignorant one, and he soon demands a compensation commensurate with his services.

"The labor-saving machine has played no unimportant part in increasing the workman's compensation. It has raised the quality of the work done, and has brought into use a higher grade of skill than was formerly employed. While the labor-saving machine is by some regarded as antagonistic to the welfare of the laborers, no farsighted observer can fail to note that it has increased rather than diminished the number employed at the work into which it has been introduced, while it has introduced a higher skill which, in turn, has secured a higher compensation.

"The handling of a locomotive requires more skill than the handling of a freight team, and the engineer commands higher wages than the teamster."

#### Telegraph Operator as King.

There is at present in Paris a monarch who at one period of his career was a telegraph operator. The story of his advancement reads like romance. Mademba is the name of this sovereign. He is of dusky hue, and hails from the vicinity of the Niger. He owes his royal rank of king of Sousouding to General Archinard. When he arrived at man's estate he entered the postal service.

With his rifle in hand he constructed the telegraph lines during a period of revolt in 1880-1881. In 1887, when General Gallieni was appointed governor of the forces of the French Soudan, Mademba was made a diplomatic agent, and com-

manded the auxiliary troops in the expedition organized against a rebel chief. In 1890-1891 the French Soudan was still in revolt, the rebels pillaging and burning everywhere. The district of Sousouding was particularly devastated.

When the rebellion came to an end General Archinard remembered the exertions of the telegrapher. He considered that his conception of morality and authority ought to be applied to the natives. And so it came about that Mademba was made king of Sousouding, the name of the town that had been burnt by the rebels. He was given as subjects 500 prisoners of war, bandits all, who were not worth the cord necessary for hanging them.

Once invested with royalty, Mademba set to work to make these black ruffians industrious cultivators. Soon prosperity returned to the district. The rebels and thieves speedily became thrifty workers in cultivating cotton, and fathers of families. For the rest, Mademba is a loyal friend to France. In 1896, on the proposition of General Trentinian, he was made a chevalier of the Legion of Honor and thanked for the services he had rendered to the country of his adoption.

#### Concrete Telephone Poles in Indiana.

The first concrete telephone poles ever manufactured in Indiana were made recently by the Richmond Home Telephone Company and are now being erected to test their efficiency. The post was designed by Superintendent Bailey. A skeleton framework of four corrugated-iron rods is covered with ordinary concrete, the material being "slushed" about the framework while enclosed in a box-like mold. The pole is octagonal in shape, 30 ft. long, and provided with mortises for crossarms, which are fastened in place by means of iron bolts, and also mortises to be used by linemen in climbing. The pole is as ornamental as pine poles and has the additional virtue of being symmetrically tapered and straight. Superintendent Bailey says that the strongest point in favor of concrete poles is their durability. Wooden poles must be replaced by new ones about every six years—the dryer the soil the longer the life of the pole. The concrete poles, it is declared, will be lasting, as soil conditions do not affect them. Mr. Bailey says the cost will also be less than pine poles. The manufacture of each pole can be carried on along the line where it is to be installed or planted.

Should the experiment prove successful, this telephone company as well as many other companies, will substitute them for pine poles for all new work or as fast as the wooden poles become unfit for service.

TELEGRAPH AGE is the only telegraphic newspaper published in America. It is up to date, covering its field thoroughly, and no telegraph official or operator, can afford to be without it.



### The Magnetic Club Dinner.

It was a delightful affair that challenged the admiration of Magnetic Club members and their guests at the Hotel Astor on the evening of November 21. The dinner was all that could be desired, even if Epicurus himself had presided at the feast; and from the members present as well as from the variety and extent of the menu offered, the excellence of the speeches delivered and from the entertaining character of the programme of music, etc., provided, the event adds one more to the number of like festive occurrences in the club annals. Telegraphers were out in force, the number being swelled by the presence (by invitation) of numerous delegates to the Telegraphers' Mutual Benefit Association which held its meeting in the afternoon, and by others well known in the general electrical field.

The dinner was served at half-past six o'clock in the large banquet room of the hotel which was fitly decorated for the occasion. Flowers were placed on each table. At the guests' table were seated: C. P. Bruch, William J. Dealy, C. C. Adams, S. S. Garwood, D. H. Bates, A. R. Brewer, J. B. Van Every, George G. Ward, J. W. Stover, Belvidere Brooks, C. A. Tinker, U. N. Bethell, E. J. Nally, James Merrihew, William H. Baker and F. W. Jones.

At the conclusion of the dinner, President Albert B. Chandler called the club from refreshments to labor. He said: "It has long been the custom of this club to entertain as its special guests at our autumn banquets the delegates from other cities and towns to the annual meeting of the Telegraphers' Mutual Benefit Association. We are fortunate in having with us to-night an excellent representation of this beneficent and yet business-like organization, which has proved a 'benefit' indeed to our whole fraternity during its thirty-nine years of existence. The present president of this association is, as most of you know, Mr. Belvidere Brooks, formerly of the Far West, but for some years past of New York city, whom I now request to aid us in welcoming this delegation, which is so fittingly represented by him—Mr. Brooks."

Mr. Brooks made a brief address in which he explained the objects of the association, dwelling upon the good it had accomplished and benefits it had conferred during the thirty-nine years of its existence. He made the impressive statement that it had collected approximately, the great sum of \$1,500,000 from its members and had paid out an almost equal amount to the heirs of deceased members, and at the same time had a reserve fund on hand of over a quarter of a million dollars. A statement so eloquent of good management, which has been a distinguishing trait, covering all the years of the association's existence, served to arouse much enthusiasm.

At the conclusion of Mr. Brooks' remarks, Mr. Chandler, who appeared to be in an exceedingly happy frame of mind, spoke as follows:

"Gentlemen of the Magnetic Club, and our guests:—Once more it has become my agreeable duty to greet you on an occasion such as, twice in each year, for nearly twenty years, you have made happy and memorable by the friendships formed and maintained through the opportunities thus afforded for closer acquaintance than is ordinarily practicable while in the pursuit of our various duties, and in the pressure upon us which their exacting character compels.

"While I was not one of your charter members, as I was of the Telegraphers' Mutual Benefit Association, I have felt a warm interest in your progress and success, from my first knowledge of the spirit and purposes which have actuated you; and it has seemed to me that every one who cherishes a genuine interest in the development of any one of the now numerous and exceedingly important industries which depend upon the wonderful agencies of electricity and magnetism must be glad to leave business aside and devote an evening or two in each year to the cultivation of personal acquaintance and good fellowship.

"The membership of this club is not made up from any one of these industries, but of all, and each one is of equal importance even though there may be a diversity in number and of those allied to the several interests.

"And now, in expressing to you my grateful recognition of the unflinching kindness and consideration which has been shown me while endeavoring to discharge my duties as your president, I wish also in saying my farewell, as president, to express the earnest hope that your future will be fruitful of still greater pleasures and benefits than those of the past.

"We have with us four of the seven past presidents of our club, from whom I hope we may hear a few words, in memory of their own affection for the club, and their experiences in it. Every one of the seven has been directly in my employment in past years, so that I may perhaps be appropriately mentioned as a grandfather of the club of which they have been the worthy fathers."

Mr. Charles P. Bruch, who was the first president of the club, expressed the pleasure at the growth and development of the club since his day and the delightful opportunity the recurring dinners offered for social intercourse.

William J. Dealy, the club's second president, spoke in a very happy vein on fraternity and urged the members to perpetuate the good feeling that had always existed both within the ranks of the Magnetic Club as well as the Telegraphers' Mutual Benefit Association, delegates to the annual meeting of which were the guests of the evening.

Mr. William H. Baker, the fourth president of the Magnetic Club, was the next speaker and he pointed out the objects and desirability of these

fraternal gatherings which did so much to cement the friendly feeling that existed between those who made up the vast army of electrical workers.

Mr. F. W. Jones was the seventh past president of the Magnetic Club to address the assemblage, and he delighted his audience with a few sentences expressive of the good fellowship that always prevailed among members of the craft no matter what their stations in business life might be.

The next speaker to respond to President Chandler's invitation was Joseph W. Stover, an old-time telegrapher, and for the past twenty years president of the Gamewell Fire Alarm Telegraph Company. In the course of an excellent speech he explained the good accomplished by the signal service which was a branch of the electrical industry that had not been previously brought to the attention of the members of the Magnetic Club. Mr. Stover met a large number of his old telegraph friends and appeared to fully enjoy the associations of the evening. The interesting fact was brought out that Mr. Stover was chairman of the committee that had in hand the forming of the Telegraphers' Mutual Benefit Association forty years ago.

Following Mr. Stover came U. N. Bethell, first vice-president of the New York Telephone Company. Mr. Bethell, who is an orator of considerable ability, humorously entertained his listeners by informing them of the difficulty he had to transmit his own name over the telephone before he became sufficiently well known to the employees of that great industry.

The concluding speaker was Mr. E. J. Nally, who briefly referred to his recent coming to New York to reside, and to the fact that hereafter he would be in closer touch with the club of which he had become a member.

Among those present were:

Boston, Mass.—H. B. Coughlan, E. B. Pillsbury, C. A. Richardson and W. E. Stimson.

Bradford, Pa.—J. E. Golden.

Hartford, Conn.—E. Ryder.

Lima, Peru—H. Kingsford.

New York, N. Y.—C. C. Adams, J. F. Ahearn, S. F. Austin, W. J. Austin, W. T. Austin, C. E. Bagley, William H. Baker, D. H. Bates, J. R. Beard, Louis Bender, Hon. W. S. Bennett, U. N. Bethell, T. M. Brennan, A. R. Brewer, Belvidere Brooks, Carlton Brooks, T. A. Brooks, F. E. Brouer-Anchor, C. P. Bruch, E. B. Bruch, John Burry, E. S. Butterfield, Walter Candee, F. X. Carmody, P. J. Casey, Col. A. B. Chandler, A. E. Chandler, F. H. Chandler, Willis Chandler, George Clapperton, M. R. Cockey, S. A. Coleman, J. Connors, John Costelloe, Theodore L. Cuyler, Jr., W. C. Daviet, W. J. Dealy, T. C. Delaney, S. S. Dickenson, B. M. Downs, J. A. Dupius, Clendenning Eckert, W. H. Eckert, W. S. Eckert, J. W. English, R. S. Eldridge, T. E. Fleming, J. H. Flood, W. D. Francis, David Fuchs, E. F. Geer,

William Gellatly, W. D. Hallett, George A. Hamilton, Jesse Hargrave, H. M. Heffner, Judge Helm, T. A. Herring, George B. Hewlett, Clarence Hodges, Gardner Irving, Francis W. Jones, W. J. Kenna, J. M. Klein, G. W. Ketchledge, A. S. Lurea, D. W. McAneeny, J. F. McGuire, C. P. McInerney, F. E. McKiernan, Frank Maier, P. S. Mallett, W. T. Mapes, William Marshall, W. H. Mathews, I. L. Meloon, James Merrihew, C. E. Merritt, A. L. Miller, C. W. Morrell, H. J. Morse, R. J. Murphy, E. J. Nally, M. J. O'Leary, C. F. Pearce, Frederick Pearce, J. M. Phelan, F. N. Plain, E. C. Platt, E. B. Pollister, G. F. Porter, A. E. Price, P. O. Purcell, E. J. Rankin, Dr. A. Y. Reid, Edward Reynolds, C. A. Rhodes, T. F. Rochford, F. H. Scheffer, W. D. Schram, Charles Shirley, T. G. Singleton, J. F. Skirrow, J. F. Stickel, Joseph W. Stover, George H. Tamlyn, J. B. Taltavall, T. H. Tierney, C. A. Tinker, J. H. Twyford, G. H. Usher, J. B. Van Every, George G. Ward and J. E. Wright.

Philadelphia, Pa.—S. S. Garwood, Harry Hetzel and J. A. McNichol.

Portland, Me.—A. L. Edgecombe.

St. Louis, Mo.—M. Tully.

Wilmington, N. C.—W. P. Cline.

### Messenger Boys Quit "Because His Nobs Got Chesty."

Fifteen messenger boys in the employ of the American Still Alarm Company, successor to the American District Telegraph, went on strike recently at Detroit, Mich., for a few hours, positively refusing to work unless allowed to suit themselves as to the hour in the morning at which they should report for duty.

The strikers made a demonstration of their forces at noon, and, after a grand parade to a three-cent lunch room called upon the manager of the messenger service for a settlement.

"Yes, sir, it's an actual fact," said the manager, "the boys wanted to dictate the time at which they should report for duty. That isn't all. Some of them have been insisting that we should send a call for them in the morning. We had to do it, too. Think of it. They made us actually pay a boy to go and call them when they were wanted."

"Great Scott," ejaculated the manager, "you never saw such an independent lot of kids in your life. They seemed to think that I was getting to be a regular autocrat when I told them they would have to get down early in the morning or they could not work."

At 5 o'clock in the afternoon the strikers, after a long conference in the alley off Wayne street, near Michigan avenue, decided to give the manager one more chance to be good, and returned to work.

"Remember," said the leader as a last admonition to the boys, "if his nobs gets chesty and t'inks he's it, us fer a nudder confunce."

## Telegraph Reminiscences of Philadelphia in the "Sixties."

BY I. D. MAIZE, OF PHILADELPHIA.

On May 1, 1860, when I first went to Philadelphia, green from the railroad, telegraphic conditions were, comparatively speaking, in a primitive state; there were but few wires entering the city, for established lines of communication were limited. I often, in a moment of musing, compare the narrow confines prevailing at that period, now over forty-six years ago, with those of the present day. How amazing the progress made! Recall the meagre little office of the past, then amply sufficient to meet all demands, and consider it in connection with the big, busy, multiplex and well appointed establishment of to-day, with its immense number of wires and large force required to handle the enormous business that normally centers at this point. No words are required to make the subject more impressive than is conveyed in a knowledge of the fact itself. The Western Union Telegraph Company, now so extended in its system, operations and giant influence, had not yet found lodgment on the Atlantic seaboard, and its headquarters up at Rochester, N. Y., gave to the concern after all but a reputation restricted in its scope.

But to revert to the subject of my article, I found employment with the Atlantic and Ohio Telegraph Company, whose office was located at the southeast corner of Third and Chestnut streets. The company at that time had three wires, numbered, respectively, 1, 2 and 3. Number 1 was a No. 9 galvanized wire hung on Brooks' iron-bound paraffine insulators and extended from Philadelphia to Pittsburg along the line of the Pennsylvania Railroad. It was originally constructed in 1856 by David Brooks in competition with the Atlantic and Ohio with whom he had differences. As Brooks could not use either the Morse or House patents, he operated his wire with the Hughes printer. Rufus B. Bullock had charge of the Philadelphia office, which was located on the east side of Third street below Chestnut. Brooks used that wire as a lever to force James D. Reid from the superintendency of the Atlantic and Ohio Company. When finally he accomplished that result a year or two afterwards and succeeded Reid as superintendent, he consolidated his printer wire with the Atlantic and Ohio and worked it with the Morse system. No. 1 was at that time looked upon as the most perfect and reliable wire in this country, and was used principally for through business from New York. Numbers 2 and 3 were four strand, No. 14 wires. No. 2 extended from Philadelphia via Harrisburg, Carlisle, Shippensburg, McConnellsburg and Bedford, to Pittsburg, offices being worked at all those places. No. 3 pursued the same route to Harrisburg, thence along the Juniata river, over the Allegheny Mountains and down the Conemaugh to Pitts-

burg. The offices west of Harrisburg were Mifflin, Lewistown, Huntingdon, Altoona, Hollidaysburg, Johnstown and Greensburg. Pennsylvania was pretty well supplied with lines at that period. Lines were in operation in the Lehigh and Schuylkill valleys, from Baltimore to Harrisburg, along the north and west branches of the Susquehanna, from Philadelphia to West Chester, from Williamsport to Elmira, New York, and other lines.

The superintendent of the company, as I have said, at Philadelphia, was David Brooks, and Ambrose Zeigler was the office manager. Col. Joseph S. Greene, a forty-niner, a phrase then referring to a date only eleven years previous, who held his original appointment from Professor Morse himself, and who is still employed in the Western Union office here, was one of the operators, while Col. William B. Wilson, now the president of the United States Military Telegraph Corps, who with me had served his early apprenticeship on the Pennsylvania Railroad, of which corporation he is now an honored official, was another operator. I numbered as the third, and Forbes O. Gilbert was the clerk. Not a formidable staff, it must be admitted. There were no alternate day and night men in those days, and our hours consequently were long, ending at ten o'clock in the evening, when the office was closed for the night, except when a "pony express" arrived overland at St. Joseph, Mo., from the Pacific Coast, when the office was kept open to accommodate the newspaper press. Otherwise business conditions were such that each man was excused two evenings of each week, while on Sundays the office remained closed.

William J. Dealy, who had served as office boy just prior to this time, left two weeks before my advent, going to New York, where he has since made an honored name for himself, and where he is now superintendent of the Commercial News Department of the Western Union Telegraph Company. Mr. Dealy was succeeded by Joseph Bradley, who afterwards developed into a brilliant operator.

Our office, that is, the Atlantic and Ohio Telegraph Company, was located on one side of a room, the other being occupied by the American Telegraph Company, with which relations were cordial and business freely exchanged. It cannot be said that competition between telegraph companies existed in those early days, for each company controlled but a small system, wires were few and points reached limited. Hence it was that a spirit of reciprocity prevailed rather than one of rivalry, and the friendliest of relations existed.

Of the American company, W. P. Westervelt was superintendent, Emmons M. Thayer, local manager, and James Merrihew, chief operator. Mr. Merrihew was an extremely likable man, and all were proud to number him as a friend. His memory is still treasured in telegraphic cir-



cles here in Philadelphia, the success that attended him in after life was applauded, and now in his retirement only kind remembrances follow him. The operating staff included Amos A. Morrow, who was noted as a practical joker; Dr. Day, a steady, sedate elderly man, and Harry L. Harris, who was a descendant of the family of that name who founded the city of Harrisburg. Old "Pop" Heist was clerk, and had for his assistant James M. Sailer, now of the Pennsylvania Railroad. The printing operators were Robert J. Black, Jacob R. Woodruff, Joseph W. Dyer and George W. Snyder, the two former of whom are dead. Mr. T. P. Scully, now retired and living in Brooklyn, and Mr. J. K. Calvert, also retired, came over from New York occasionally to help out when any one was sick or there was a rush. There are but four or five of the force that were here in 1860, now living. The Western Union had not poked its nose east of Pittsburg at this time and there was no opposition whatever. The American Company furnished the Atlantic and Ohio Company a wire between New York and Philadelphia, which we switched on to the Pittsburg circuit, thereby permitting New York to send its business direct instead of relaying it at this point.

The Civil War breaking out in April, 1861, I joined the corps of military telegraphers, and for one year saw continual service in the field, passing through many interesting experiences, sufficient to make a chapter by themselves. When I returned to my home in Huntingdon, Pa., on a leave of absence, I was induced to join the force at Pittsburg to help out during a rush. The result was that I remained there one year, returning to Philadelphia in 1863. I recognized the many changes that had occurred in the telegraph during my absence, such as the expansion of systems and greatly increased facilities. Many new men had been added to the Atlantic and Ohio force and I met such fine operators as Francis Marion Smith, Foster W. Davis, Joseph E. Zeigler, William P. Curl and Winfield Scott Burleigh. Of these only Mr. Curl and Mr. Burleigh are living. The latter holds a fine position in a banking house here.

On the opposite side of the room associated with the American company, were also many new faces, included among whom were Edward Steacy and Nicholas J. Snyder, the latter developing from an office boy into one of the finest operators in the country at that time. At a trial of speed, authorized by Professor Morse, he accomplished the remarkable feat of receiving a little over 2,700 words in one hour, and that with a pen, not a letter being omitted. This feat proved to be a difficult task for four senders, each of whom took turns of fifteen minutes each in transmitting. Mr. Snyder received as a reward the gift of a gold medal from Prof. Morse, accompanied by an autograph letter. The second prize, consisting of a gold pen and holder, was won by Walter P. Phillips, now of New York.

Shortly after this time numerous opposition telegraph companies began to come into existence, such as the United States, the People's, Bankers and Merchants, Bankers and Brokers, Pacific and Atlantic, Atlantic and Pacific, and the American Union, all long since passed into history absorbed by the Western Union which reached Philadelphia about the year 1867.

There are a number of names associated with the telegraph in Pennsylvania in the middle and later sixties, that I well recall. While in Pittsburg I met such gilt edged operators as Richard C. Duncan, the Spencerian penman; his brother George S. Duncan; Jesse Robinson, who afterwards went with the Alaska expedition, and W. W. Kelchner, who of late years was interested in brush manufacturing at Altoona, Pa., but who died in April, 1905. At the outer depot in Pittsburg was the man whom we all knew as "Andy" Carnegie, who was operator and train despatcher for the Pennsylvania Railroad. Then there were a trio of operators that have never had any superiors, namely David Fleming, Marion H. Markle and Mark D. Buckwell.

At other points in Pennsylvania Frank Zeigler was manager at Columbia; the Harrisburg office was managed by Oliver Sees, a gilt edged operator, who was assisted by John Fottrell; Chambersburg had Blair Gilmore, a brother of Colonel J. R. Gilmore, still a resident there, and who early during the Civil War, had charge of the military telegraphs at Washington; James Fisher was at Bedford and T. F. Sloan at McConnellsburg. The last named as referred to in Telegraph Age of November 16, is the test operator for the Western Union Telegraph Company at one of the highest and most isolated points in the Allegheny Mountains, distant about fifteen miles from McConnellsburg, where he still maintains his home. At Lancaster James McGonigle was located, and here, too, was Jacob Hatz, lineman. Mr. Hatz still holds his old position, has become well to do and is only working now, as he says, for the sake of employment.

At Wheeling was Thomas G. Kennedy, whom we all knew, and who afterwards became night chief operator of the Western Union office at New York, and who died about fifteen years ago. At Cincinnati was stationed that peerless operator, L. C. Weir, now president of the Adams Express Company, New York, whom I had the pleasure of knowing personally.

The late James D. Reid, so often during the latter years of his life affectionately termed the "Father of the Telegraph," so high was he held in general esteem, presented to the operators of the Philadelphia office of the Atlantic and Ohio Telegraph Company a Bible, in which were recorded the names of all comers and goers. This Bible disappeared unfortunately at the time of the consolidation of the company with that of the Western Union, and all trace of it has been lost.

Its records, could they be found, would be interesting and would have been an aid to memory in recalling names after a lapse of so many years.

[This Bible is now in the reference library in the office of TELEGRAPH AGE.—Editor.]

### New York Herald Secures Peary Report After Hard Fight.

The New York Herald of November 21 printed in full Robert E. Peary's own story of the Roosevelt expedition. With maps, cuts and explanatory matter the report filled about two pages of the paper. It was the first news of the dash toward the North Pole received directly from Peary since a dispatch dated August 16, 1905.

The difficulties attending the transmission of the news were in keeping with the tale of almost unexampled hardship and danger. Mr. Peary started his dispatch November 15, while he was on board the Roosevelt in Chateau Bay, Labrador. A storm raged over the Gulf of St. Lawrence, strewing the coast with wrecks and tearing down telegraph lines. Stress of weather compelled the Roosevelt to put to sea after the dispatch had been filed.

Between Chateau Bay and Quebec are 1,150 miles of wires. Repeating stations at Mutton Bay, Natashquan, Long Point and Bersimis are on an average about 300 miles apart. The report was repeated in sections of about 200 words. About 800 words of the 6,000 in the story had been transmitted when an interruption occurred near Bersimis.

The next relay station is 250 miles distant. Four linemen were sent out east and west into the storm-swept waste to make repairs. Equipped with snowshoes, the men carried their tools and coils of wire between fifty and seventy-five miles. At times they had to guide themselves by throwing ropes over the wires, so dense was the whirling snow.

Friday night, November 16, men who had been sent eastward from Bersimis returned saying that they could not find the break. The weather turned warm after the storm, and the linemen plodded through the slush, fearing to sleep in their damp clothes, lest they be frozen to death in the night.

One of the corps who started from Bersimis was unable to proceed because a river usually fordable had swollen over its banks. He came back for a canoe. There were found to be interruptions between almost all stations from Murray to Chateau bay. Messrs. Tache and Tetu of the Canadian telegraph service, alive to the importance of the occasion, were at their posts night and day.

The repairs were finally effected by the regular staff of linemen. In many sections it was found that great trees had been blown over and had carried the wires with them or that the poles

themselves had been lifted from the earth. Temporary repairs were quickly and skilfully made under the most adverse conditions.

The first section restored was that between Quebec and Bersimis, which was completed on the evening of November 16. The section between Bersimis and Long Point, which was the most affected, was not cleared until two days later. The message was finally sent through to Quebec, from which city it was transmitted to New York.

### Old-Time Telegraphers' and Historical Association Appointments.

Mr. Harvey D. Reynolds, of Buffalo, N. Y., president of the Old Time Telegraphers' and Historical Association, has appointed the five local members of the executive committee as follows: James W. Tillinghast, Grand Island, N. Y.; Nathaniel Hucker, Buffalo, N. Y.; L. M. More, Buffalo, N. Y.; Edgar W. Collins, Cleveland, O., and Henry J. Kinnucan, Detroit, Mich. The gentlemen named, together with President Reynolds and Vice-President G. A. Burnett, I. McMichael and George S. Macdonald, will virtually have charge of the arrangements pertaining to the Niagara Falls reunion of the association, which will be held next summer at a date yet to be determined by this committee.

The plant of the Atlantic Insulated Wire and Cable Company at Stamford, Conn., the well-known manufacturers of wires and cable for aerial and submarine telegraph and other purposes, was entirely destroyed by fire a few days ago. With characteristic energy the company soon had a force of over one hundred men actively engaged in rebuilding the burned structure. Work will be pushed forward with all speed and it is expected that within a comparatively short time the company, housed in a new building and with new machinery equipment, will be in a position to fill orders with which it was rushed when the fire occurred. Mr. George F. Porter, 120 Liberty street, New York, well known in telegraph and electrical circles, is the sales agent of the company.

A new independent oil pipe line will be constructed from Bartlettsville, I. T., to Port Arthur, Tex., by Mellen and Company, independent oil producers, of Pittsburg. The line will cost about \$8,000,000. A subsidiary pipe line will also be built. The Mellen Brothers own the Mellen National Bank and control the Union Trust Company, of Pittsburg, and have long been opponents of the Standard Oil Company. An extensive private telegraph plant will be built to parallel this pipe line.

If you are not familiar with TELEGRAPH AGE, a postal card request will bring a sample copy to your address.

### Letters from our Correspondents.

#### NEW YORK, WESTERN UNION

William H. Gunning, formerly of this office, died of pneumonia November 13, after a brief illness. During the Spanish-American war he was a commissioned ensign, United States Navy, and was assigned to take charge of the Eastern District Coast signal service.

J. M. Becker, the well-known fast sender of the Commercial News Department, who broke all records on the Philadelphia Atlantic Coast Line stock wire, has been transferred to the Boston grain wire.

James Dunn, aged fifty-six years, a well known messenger in the produce district at Greenwich street, was asphyxiated by gas at his home on November 20. Although only a messenger Mr. Dunn was well known to the telegraphic fraternity and was sufficiently enterprising in his chosen occupation, which he had filled for over twenty-five years, to maintain a family.

#### NEW YORK, POSTAL.

The late arrivals at this office include: James Wilton, L. M. MacKenzie, G. White, Jacob Smith, J. N. Twigg, C. H. King, P. O'Donnell, W. Braunwarth, C. D. Bills and Miss H. Kreutzinger.

The resignations embrace the following: M. M. Fielding, J. T. Fox, W. P. Dowd, G. F. Reilly and Mrs. P. M. Morris.

Joseph Howard, formerly of this office, but more recently of the Western Union, has returned and has been assigned to the cable office test wire.

Miss Setma L. Raab has accepted a position as telephone operator with the New York and New Jersey Telephone Company, of Brooklyn.

Edward Cassidy has been transferred from the "tube" to a position as operator at the 182 William street branch office.

**My motto, honorable dealing.**—All makes factory rebuilt "mills." Send stamp for interesting booklet. The latest model Mecograph at \$5.00, quick while the offer lasts. Have the Commercial Telegraphers' Journal sent to your house address, \$1.00 per year. Send your orders direct to D. A. Mahoney, 253 Broadway, New York.

#### OTHER NEW YORK NEWS.

Mr. John K. Greene, a well known operator, who has been working in Boston for several months, has returned to New York.

Assessment No. 456 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of George L. Bryant, at Lake Hopatcong, N. J.; Philip D. Givens, at Yemasee, S. C.; W. E. Jermaine, at

phia; A. J. Benjamin, at Salisbury, Md., and C. B. Horton, at Omaha, Neb.

The quarterly statement of the New York Telegraphers' Aid Society for the quarter ending September 6, is as follows:

Balance on hand June 6, 1906.....	\$19,162.54
Receipts to date.....	1,512.00

Total .....	\$20,674.54
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Disbursements .....	\$ 1,388.80
Balance on hand September 6.....	19,285.74

Total .....	\$20,674.54
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#### Relief Fund.

Balance on hand June 6, 1906.....	\$ 3,841.66
Receipts .....	52.61

Total .....	\$ 3,894.27
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Disbursements .....	\$ 190.33
Balance on hand September 6.....	3,703.94

Total .....	\$ 3,894.27
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#### Balances.

Aid Society .....	\$19,285.74
Relief Fund .....	3,703.94

Total .....	\$22,989.68
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On deposit .....	\$22,915.18
Cash on hand.....	74.50

Total .....	\$22,989.68
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J. H. Driscoll, W. T. Rogers and F. D. Murphy, auditors.

#### THE ASSOCIATED PRESS.

Mr. Edward J. Cox, of the New York office, has been appointed correspondent at Baltimore, Md., to succeed Colonel A. B. Cunningham, who resigned to become managing editor of the Baltimore News. Colonel Cunningham, who was formerly one of the leading journalists of St. Louis and later occupied responsible positions among the newspapers of Baltimore, was appointed Associated Press correspondent at Baltimore about five years ago, and served with great efficiency until his retirement. Mr. Cox has been connected with The Associated Press for a great many years, beginning as a telegraph operator at Cleveland, and later advancing to an editorial position in the New York office. For the past two years he has been editing the West day wire from New York. He has justly been regarded as one of the most efficient men in the Eastern Division.

Mr. George Black, the retiring manager of the Great North Western Telegraph Company, at Hamilton, Ont., who was succeeded by Mr. John Jamieson, as mentioned in Telegraph Age, November 16, was presented by the force with a magnificent leather easy chair, the presentation being made by Mr. Jamieson.

### Mr. Sunny Sums Up Mr. Nally.

Mr. B. E. Sunny, the old-time telegrapher who for the past twenty-five years has been at the head of important electrical industries in Chicago, was toastmaster at the farewell banquet given in that city to E. J. Nally, prior to his departure for New York to accept a vice-presidency of the Postal Telegraph-Cable Company.

Mr. Sunny, in a humorous address, in referring to the career of Mr. Nally in Chicago, said:

"I notice that when New York wants an enterprising, energetic, up-to-date manager for one of its large corporations, it sends to Chicago for him. It has done this so many times during the past four or five years that there is no use in going to New York to get away from home, for the reason that you meet more Chicago men in that city than you sometimes meet in Chicago, and when you do meet them, that subway expression which they have acquired gives way for the moment to an expression of cheerfulness, when they ask you, 'How is old Chicago, anyway?' way?"

"The latest victim of the New York splendid commercial marksmanship is our friend Nally, and we are here to-night for the purpose of giving testimony, and taking his ante-mortem statement.

"Mr. Nally's offense lies in his having begun his business career as a messenger boy in St. Louis, in 1875, in which position he broke the record for speed, having made a mile in two and a half hours against the previous high record of three hours and seventeen minutes, made by myself in 1870. Mr. Nally was quickly promoted to a clerkship, and then to a higher position, and, in fact, the promotions came thick and fast from one position to another, until in 1890, he landed in Chicago, where all good fellows ultimately find themselves.

"Since he has been in Chicago, when he has not been busy being promoted, he has done his best to advance the cause of geography by having pictures of the globe painted on the plate glass windows down town, and has taken all of the business he could get away from the Western Union.

"The competition between these two great companies, by the way, as you have probably observed, has been of a terrific character, and has been a boon to the business community.

"Many of you will no doubt remember that a dozen years ago, the rate to New York was fifty cents. On the advent of the Postal, and Mr. Nally, the rate was made half a dollar. This forced the Western Union down to four shillings, and the Postal quickly responded with two and one-half francs—and so the battle waged, for months and years, until now, you can get the same service that then cost fifty cents for two marks! How long this will keep up, no one can tell. Mr. Nally is going to New York to see about it.

"We are all proud of the record which Mr. Nally has made in Chicago, and we congratulate him

on this well deserved recognition and promotion.

"We hope, too, that there are additional promotions to come to him, and above all, we hope that he will be almost as happy in New York as he has been in Chicago."

### General Craigie as a Telegrapher.

Brigadier General David J. Craigie, United States Army, retired, who recently made application for membership in the Old Time Telegraphers' and Historical Association, basing his claims therefor to his early telegraphic experience in Missouri dating back to the historic period of the Civil War, has this to say reminiscent of his efforts to become a Knight of the Key.

"It has been my privilege to have met and to have been associated with many of the old time war military telegraphers, in camp, on campaign and on the field of battle, covering a period of time from 1861 up to about three years ago, when I was retired from active service while serving in the Philippine Islands. I am glad to bear testimony here to the splendid courage and bravery of the Civil War and later war telegraph veterans, men who were ever willing and ready to take their chances with their army comrades, in the line of duty wherever it calls, putting up with many privations, sleeping on the ground, or on the soft side of a plank, if they were fortunate enough in securing such a luxury; many times up most of the night at their keys when others were sleeping, and this, too, without a murmur.

"In the fall of 1863, when stationed at Rolla, Mo., on staff duty as a lieutenant and aide de camp, United States Volunteers, the present president of the Western Union Telegraph Company, Colonel Robert C. Clowry, then captain and assistant quartermaster, U. S. Volunteers, and in charge of the military telegraph lines in Missouri, wired from St. Louis to Charles Gregg our staff telegraph operator at Rolla to 'rig me up a key and sounder on my desk,' which he did; and also for him to teach me telegraphy, etc. Mr. Gregg instructed me faithfully, but I found that my other staff duties occupied most of my time, and therefore I did not acquire a knowledge of the business. Sometime afterwards Colonel Clowry came to Rolla to inspect the lines and pay me a friendly visit. He sat down at my desk, took the key and began telegraphing to me. He said, 'Craigie, what is this?' 'Oh,' I said, 'that is easy, that is what the Governor of North Carolina said to the Governor of South Carolina, usually a pleasant reference. Well, I was short on 'dots,' but long on 'dashes,' and dashed out at the door. Colonel Clowry, I believe expressed himself modestly, by remarking 'damn fool,' or something like it. But I thought he may have meant it for Charlie Gregg, for Charlie fell on the floor and howled as only he could. So you see I was an 'Old Time' telegrapher, although it must be admitted in a small way."

TELEGRAPH AGE has helped many a telegrapher in his career. It will help you. Send for a free sample copy.



### BOOKS ON THE TELEGRAPH.

ABERNETHY, J. P.—The Modern Service of Commercial and Railway Telegraphy, in Theory and Practice, including the Railway Station and Express Service; arranged in Questions and Answers; \$2.00.

CREHORE, ALBERT CUSHING, PH. D.—Synchronous and Other Multiple Telegraphs. Some methods of obtaining independent telegraph circuits on a single wire, both with and without synchronism. 124 pages; 42 illustrations; working diagrams; \$2.00.

CROCKER, F. B. AND WHEELER, S. S.—The Practical Management of Dynamos and Motors. Has a special chapter by H. A. Foster. Contents: Descriptions and Directions; Examination, Measurement and Testing; Localization and Remedy of Trouble in Dynamos and Motors; Arc Dynamos and Motors requiring special Directions. Illustrated; \$1.00.

HASKINS, C. H.—The Galvanometer and its Uses. \$1.50.

HOBBS, W. R. P., AND WORMELL, R.—The Arithmetic of Electric Measurements. \$0.50.

HOUSTON, E. J.—A Dictionary of Electrical Words, Terms and Phrases; 980 pages; 582 illustrations; \$7.00.

HOUSTON, E. J.—A Pocket Dictionary of Electrical Words; leather; \$3.00.

JONES, WILLIS H.—Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students. This standard work has been carefully revised and 74 pages and 30 diagrams added, including full descriptions of the newest apparatus lately adopted by the Western Union and Postal Telegraph companies. It presents the finest study of the complex subject of the telegraph ever published; it explains clearly the equipment of a modern telegraph office, and is a text book that no student, operator, engineer or official, no matter what his grade, can afford to be without; 334 pages, 52 chapters, 160 illustrations; \$1.50.

LOCKWOOD, T. D.—Electrical Measurement and the Galvanometer and its Uses; 144 pages, fully illustrated with diagrams of connections, engravings of apparatus, etc. \$1.50.

LOCKWOOD, T. D.—Electricity, Magnetism and Electric Telegraphy; A Practical Guide and Handbook of General Information for Electrical Students, Operators and Inspectors; 376 pages; 152 illustrations; \$2.50.

LYNDON, LAMAR—Storage Battery Engineering; 360 pages; 178 illustrations and diagrams; 4 large folding plates; \$3.00.

MARSHALL, PERCIVAL.—A. I. Mech. E. Small Accumulators; How Made and Used; an Elementary Hand-Book for the Use of Amateurs and Students; \$0.50.

MAVER, WM., JR.—American Telegraphy and Encyclopedia of the Telegraph. This fine work, revised and enlarged, treats of the systems, apparatus and operation of telegraphy; 656 pages; 490 illustrations; \$5.00.

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### Caught Napping.

Mr. F. M. McClintic, of New York, has the following communication in the Railroad Man's Magazine:

Various wonderful deeds of "copying behind" have been attributed to Thomas Edison, dubbed by Andrew Carnegie, who is himself an old-time telegrapher, as the "King of Telegraphers;" to "Old Bogardus," "Tip McCloskey" and other lights of the "olden days," until even the incredulous ones have begun to wonder if they really did perform such feats. John Oakum tells how McCloskey, on a wager in Atlanta, Ga., once walked from his instrument to the door of his office where he met a boy from a neighboring restaurant with a gin sour on a waiter, drank the "medicine," and returned to his key without interrupting the wire. However, the Atlanta paper had an editorial paragraph two days later which said: "Our article of yesterday on the indiscretion of J. C. Lamont would have been characterized by less spirit had we known him to be a relative of the late Henry Clay. The Associated Press despatch, on which our article was based, stated distinctly that Lamont was a nephew of old Dan Webster, of Massachusetts." The other operators along the line had it "Henry Clay" but McCloskey was "copying behind" and filled in "Daniel Webster" with a nonchalant air that made his admiring audience believe that he was delivering the real article.

McCloskey is credited with having worked a wire in New York during 1863 that was so hot it sizzled, yet he was a sleepy fellow through an inordinate appetite for dramatic performances at the Bowery Theatre and a thirst that was second to none. So, whenever there should happen to be a moment's let-up during his night's work, McCloskey would lay his head on the table for a nap. The office-boys, who looked upon him as a sort of demigod, manifested their interest in his welfare by always being on the alert for calls. They became proficient enough to recognize "N Y" when the Pittsburg office called, and would then arouse the slumbering operator. He would open the key, stare around sleepily for a moment and then lazily request his friend at Pittsburg to "let 'em come, and hustle up a bit." Then, to the admiration of all about, he would sit and copy message after message in a flowing chirography, often carrying on a lively conversa-

tion with his companions at the same time.

"But there were bigoted citizens in New York who conspired against him," remarks Mr. Oakum. "A Dr. Janvier received a message from his wife stating that 'Mr. Sage had caved and is satisfied!'" Mr. Oakum maintains that under the circumstances Mr. Sage at least should have been satisfied. Not so with Dr. Janvier. He demanded a repetition, and the corrected copy which was taken by McCloskey, who was now attending closely to business, told Dr. Janvier "Message received and is satisfactory."

The occasion of the memorable Army of the Republic celebration in Boston in 1868 found McCloskey a night operator at Titusville, Pennsylvania. It was on that night that he demonstrated to a coterie of friends the feasibility of reciting "Casabianca" and receiving "press" simultaneously. The next morning a Boston paper announced in its telegraphic columns that "Post No. 1 was commanded by an Irishman from New Bedford." The New Bedford Standard hastened, a day or two later, to copy the despatch and explain that Post No. 1 was really commanded by A. N. Cushman from New Bedford. It added, moreover, that Mr. Cushman was less a Milesian than was the telegraph.

The story is told by a veracious chronicler of "Old Farmer" Lawton, the genial night manager of the Western Union Telegraph Company, at Denver, Col., who visited his farm in Illinois lately, that he was arrested for killing quail out of season, but that the old judge before whom the game warden brought the Denver farmer, ordered the latter discharged, remarking that it was certainly an accident if any were killed, as he had seen Lawton shoot at them hundreds of times without getting a bird. Thus the "Old Farmer" had to return to his Denver home without the court evidence that he had been fined for killing quail.

While on his trip the "Old Farmer" met Frederick H. Tubbs, the superintendent of the Western Union Telegraph Company at Chicago, who back in 1865 had patted the former on the head and recommended that he learn telegraphy and become a "sound" operator, at the same time remarking that if he did so a position awaited him.

A special cable despatch from Bilbao, Spain, says: "Senor Leonardo Torres Quevedo, the inventor of the "Telekino," an electrical apparatus for directing from land the movements of vessels at sea, who is now in Bilbao, was asked by King Alfonso to make experiments with his invention from Giralda. The apparatus was placed on board the royal yacht and Queen Victoria who had seen the "telekino" before followed the trials with great interest. Her majesty told the inventor what movements she wished the boat to

make, and Senor Torres Quevedo, carrying out her instructions, caused the craft to turn or stop with admirable facility. Finally the craft was brought alongside the Giralda, and their majesties congratulated the engineer on his invention."

Aristippus, being asked what were the most necessary things for well born boys to learn, said, "Those things which they will put in practice when they become men."

The General Electric Company as well as many other manufacturing concerns producing telegraph and electrical instruments, has made a general advance in prices of telegraph apparatus and supplies.

A newspaper item sent us states that a certain manager of a telegraph office who is also a Seventh Day Adventist farmer, piano tuner, collector and distributor of advertisements as well as a practical operator, had been arrested for exceeding his authority in one of his various avocations.

The "Rainy Day," with its too frequent sadness and misery, comes inevitably into the life of every one. Provide against it; learn to save. A bank account promotes manhood and affords a source of substantial relief when all else fails. Consult the Serial Building Loan and Savings Institution, 195 Broadway, New York, conservative and safe, managed by telegraphers for telegraphers.

Advertising appear in this col will be accepted to ulm at the rate of three cents a word, estimating nine words to the line.

#### Wanted.

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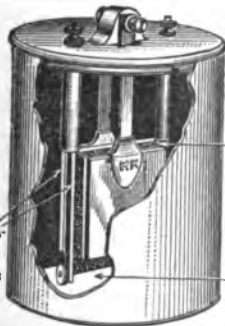
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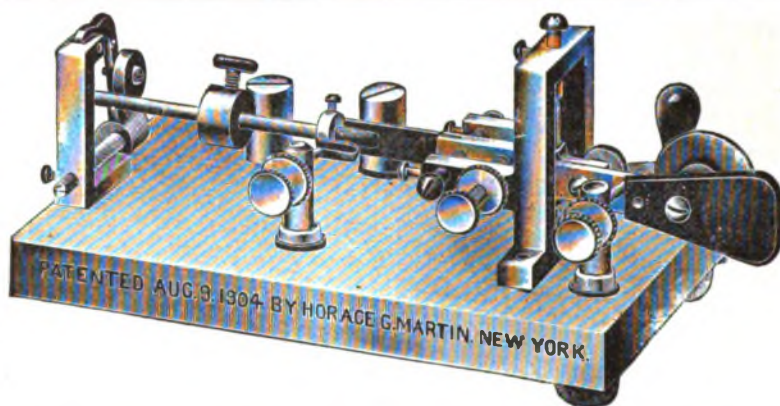
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### HAVE YOU HEARD THE AUTO-DOT?

And when you go to lunch or dinner, just take our booklet (sent on request) out of your pocket, carelessly exposing the title, chuckle over the original manner in which we defy competition, or some other amusing feature, and then addressing your companions generally, ask in the same quiet, sweet way:

### HAVE YOU HEARD THE AUTO-DOT?

Then there is the man who already uses the AUTO-DOT. Ask him about the instrument. Ask him to talk AUTO-DOT for all he is worth. Ask him to oblige you by showing it to his or your friends. Tell him it means gr enbacks for you. Don't, of course, attempt to bribe him. Simply say you are greedy or selfish.

Again, when your friends call around on Sunday or you visit them, don't waste time talking about the weather or the "roast" you had last week, but come at once to the point:

### HAVE YOU HEARD THE AUTO-DOT?

Then read them a bit from your booklet—first warning them not to have any candy in their mouths for fear of choking, as the joyous news is "sent" out.

And when you talk over the wire to your chum down south, up north, out west, or over east, always conclude your remarks with

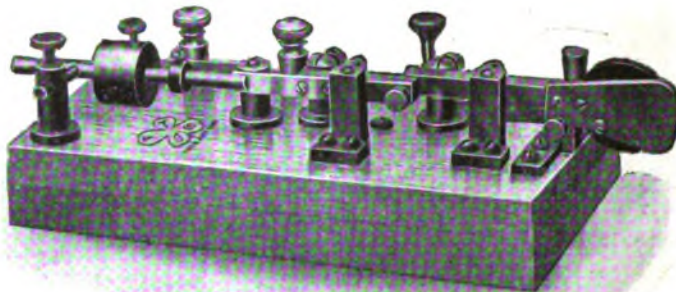
### HAVE YOU HEARD THE AUTO-DOT?

And when the office cat, the kid messenger, the "bug" chaser, the Short Relief, the Dinner Relief, the Chief Operator, the Manager, the Superintendent, the General Manager, the Secretary and Treasurer, the Vice-President, the President and even the Voucher Man (don't forget him) comes around, always the same old question:

### HAVE YOU HEARD THE AUTO-DOT?

Of course, in all these cases, you will follow up by saying: "What a swell time-saving, nerve-sparing, 'bum mit' reviver it is; how short and easy the

day's work seems with it; how the finest hand senders are using it and saving their arms," or anything else that may occur to you at the moment. Don't be disheartened, if now and then you get a rude reply. Remember the story of the Old-Timer, "Old Bogy," who told a friend that whenever he found himself alone with a pretty girl, he



asked her to let him kiss her.

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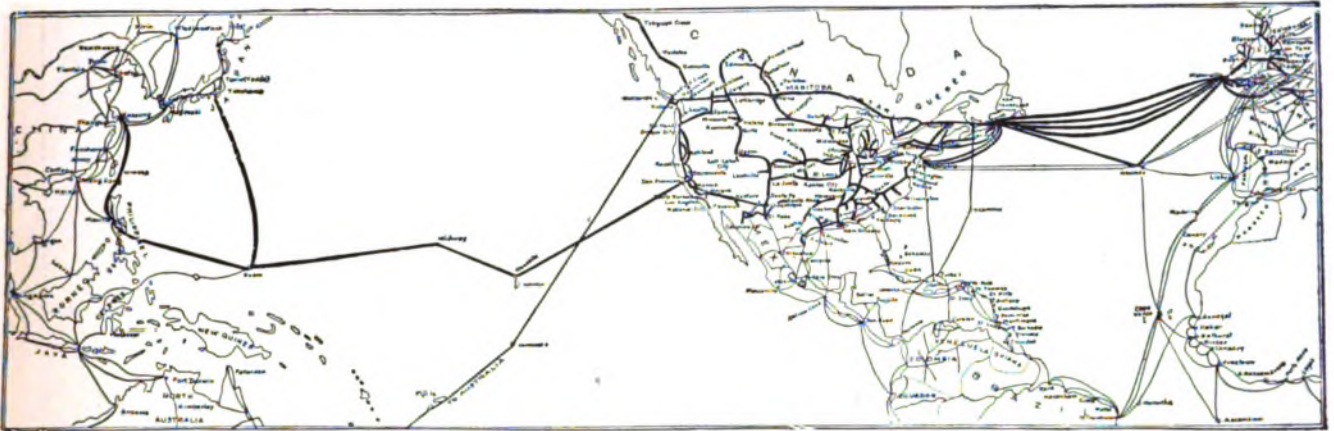


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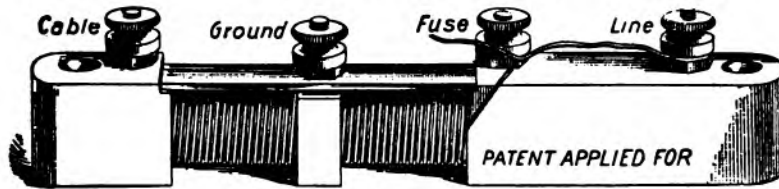
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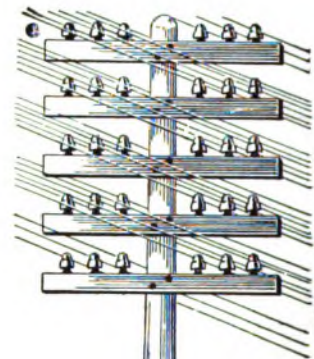
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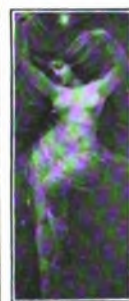


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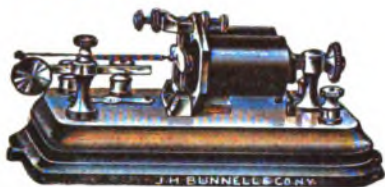


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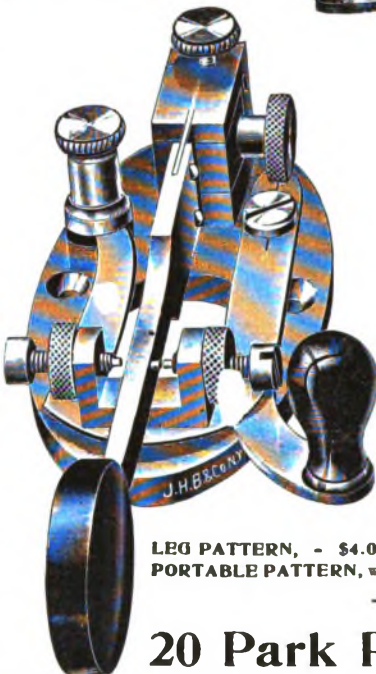
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# TELEGRAPH AGE

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VOL. XXIV.

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## SOME POINTS ON ELECTRICITY.

### Conductivity Measurement by the Three-Wire Method.

BY WILLIS H. JONES.

While conductivity measurement by the three-wire method is a very old form and in almost daily use in most of the larger telegraph offices, the younger members of the profession are constantly seeking information regarding the formula or order of procedure.

The purpose of using three wires in the operation is principally to enable us to make calculations by means of a metallic circuit, and thus avoid earth currents and other foreign influences which interfere to a great extent with accurate results. Of course, this method can only be employed between stations possessing in common a number of available wires. For the benefit of laymen we herewith work out an example and accompany the same with such information as will explain the operation.

Suppose, for illustration, we select three wires extending between the testing office A, and a distant station B, one of which trio is the wire we desire to measure for conductivity. Call these wires No. 1, No. 2 and No. 3, respectively.

First I, ask Station B to loop Numbers 1 and 2, Then loop the same two conductors together at the testing station also. These two connections create a metallic circuit; that is to say, a cir-

cuit possessing no connection with the earth whatever. Now connect the galvanometer and wheatstone bridge apparatus in the circuit in the usual manner and make a note of the combined resistances of Numbers 1 and 2 conductors as indicated by the rheostat.

Next throw out No. 2, and loop Numbers 1 and 3 at both stations in the same manner and measure that circuit. Then connect Nos. 2 and 3 together and proceed as before. Having made a note of each measurement, add the three results together and divide the sum by two, because each wire has now been measured twice. The actual total resistance of the three wires singly is, of course, just half the sum of the three loops formed by pairing the conductors.

Now let us suppose that Numbers 1 and 2 looped show 3,000 ohms; Numbers 1 and 3 looped show 4,000 ohms, and Numbers 2 and 3 looped show 5,000 ohms, thus making a total of 12,000 ohms. Dividing 12,000 by two, gives us 6,000 ohms, the actual total resistance of the three wires.

To ascertain the resistance of either or all of the trio in turn subtract the ascertained resistance of any two wires looped from 6,000 and the remainder will represent the resistance of the wire omitted.

Thus to ascertain the resistance of wire No. 1, subtract the result obtained when Numbers 2 and 3 were looped, from 6,000. This leaves 1,000 as the ohmic resistance of the omitted No. 1 conductor. Numbers 1 and 3 looped gave 4,000 ohms, which amount, taken from 6,000, shows that wire No. 2 possesses 2,000 ohms. In like manner Numbers 1 and 2 looped gives 3,000 ohms, leaving 3,000 as the resistance of No. 3.

FLASHING OF CARBON FILAMENT IN ELECTRIC LIGHT LAMPS.

A Southern correspondent, among other questions, asks:

Why is it necessary for the carbon filament in incandescent electric light lamps to first go through a process called "flashing" before they are considered to be in first class condition, and how is it done?

It is necessary to flash a new carbon in order to render its resistance and diameter perfectly uniform throughout its entire length. The word "flash" was probably suggested as a fitting term to describe the operation owing to the glow or flash of light that appears first at the weak or thin portions of the filament when a current of electricity is first forced through them during the process.

Now, these filaments when first constructed, although moulded and cut with great care, sel-

dom possess strictly uniform resistance. It requires the accurate aid of chemistry to perfect them. When a current of electricity flows through a thin strip of carbon, light will not appear until the volume of current becomes a certain value over and above a certain carrying capacity. A thin filament will obviously not be able to carry as great a volume of current without overheating the conductor as a thicker strip would. The rule applies with equal force to a single filament possessing unequal diameters at different points in its linear dimensions. Taking advantage of this knowledge, the flashing or perfecting of the filament is very simple.

A comparatively feeble current of electricity is first passed through the lamp filament, placed in a bath of carbon vapor, and gradually increased in volume until a glow or light appears at some point in the carbon. This first manifestation of light will indicate the point of least diameter. The development of heat at this point causes the vapor to immediately deposit a coating of carbon thereon, which action increases the carrying capacity of the filament at the weakest point due to the resulting enlarged conductor at that point. As soon as the glow disappears the volume of current is again increased until the next weakest spot is found and chemically coated in the same manner. This process is repeated until each fractional portion of the filament has been treated and gives out an equal illumination with one and the same volume of current. While it takes considerable time to explain the process, the operation of flashing itself requires but very little.

During a recent period of wet foggy weather, when the resistance of the quadruplex circuits, as indicated by the rheostats, became very low, the fact seemed to strike several laymen about the same time that the balance showed actually less line resistance than the two quadruplex sets alone contained. In their perplexity they formulated the following question for the writer to explain:

"If each quadruplex set in the circuit contains 1,400 ohms resistance, counting that of the two 400-ohm relays and 600-ohm battery lamp at each end, or 2,800 ohms in all, disregarding that of the line conductor itself, how is it that a 'balance' will sometimes show but 2,000 ohms and often less?"

While the ohmic resistance of the line and apparatus as indicated by the balance may at first seem wrong, if the reader will stop and think for a moment he will find that the solution of the problem is very simple.

The value of the resistance contained in the rheostat simply represents the "joint resistance" of the quadruplex circuit, apparatus, conductor and all the numerous "leak" circuits via the wet poles to the earth. Each leak may possess a resistance many times greater than that of the multiplex circuit, but several of them at each wet pole may mean thousands in all, and thereby

create a joint resistance which will cause the legitimate circuit to have an apparent resistance of but 2,000 ohms or less. Of course, the reader should understand that the actual resistance of the conductor and apparatus do not alter in value, no matter what the weather may be.

#### Recent Telegraph Patents.

A patent, No. 836,307, for a circuit-controlling keyboard apparatus, has been issued to Patrick B. Delany, of South Orange, N. J. The method operates to send electric impulses at a rate which will operate an electromagnet instrument and to repeat the impulses reversely at a rate which will not operate the instrument.

A patent, No. 836,454, for a telegraph key, has been obtained by Edward M. McConihay, of Lewiston, W. Va. Automatic means are placed adjacent to the button of the key lever for preserving normally unbroken circuit through the key and occupy a plane below the top of the button. The means are operative to break circuit only by an uplifting force considered with reference to the base.

A patent, No. 836,936, for a temporary telegraph station, has been taken out by Charles S. Maynard, of Chardon, O., assignor of one-fourth to John Maynard and one-fourth to W. B. Treat, Cleveland, O. A cross-connection contains an instrument between two line wires, one line wire being open in one of the established stations, the other line wire being open in the other of the established stations.

#### Municipal Electricians.

A patent, No. 415,578, for a fire-alarm-telegraph repeater, held by F. A. Skelton, of Newton, Mass., has expired.

Mr. F. C. Mason, formerly superintendent of Police Telegraph of Brooklyn, N. Y., who recently retired on pension to his country place, Glen Alex Farm, at Washington Mills, N. Y., has been called to act as electrical expert by the Corporation Council's office of the Borough of Brooklyn. Mr. Mason will make his headquarters at Glen Alex Farm, his presence in New York only being necessary during the trial of important suits in which the city is interested.

#### Recent New York Visitors.

Mr. George W. Hann, an old time telegrapher, well known in New York and other sections of the country, for the past five years president of the Holbrook Company, Savannah, Ga.

Aristippus, being asked what were the most necessary things for well born boys to learn, said, "Those things which they will put in practice when they become men."

### Personal Mention.

Mr. Wm. Maver, Jr., an old-time telegrapher, and electrical expert, has an instructive article in the December issue of *The Review of Reviews* on "The Electrification of Steam Railways".

Mr. W. H. Sawyer, a retired wire manufacturer of Providence, R. I., and a former old time telegrapher, has gone to Pasadena, Cal., as is his custom, where he will spend the winter.

Mr. Harvey Williams, a well known Philadelphia broker operator, was recently elected Master of Perkins Lodge, 402 of that city. Mr. Williams is regarded as one of the finest telegraph operators in the United States, and if he makes as good a worshipful master of Masons as he does a master of the telegraph key, the brethren of his lodge will have much to be thankful for.

### The Cable.

Mr. W. J. Fraser, superintendent of the Direct Cable Company, at Boston, Mass., accompanied by his wife, was a recent New York visitor.

Hugh Latham, secretary of the Pacific Cable Board, London, Eng., was thrown from his horse while out hunting recently, and died from the injuries received.

Governor Magoon of Cuba, has ordered prepared a decree, which will permit the Commercial Cable Company, on December 6, to enter Havana, by way of Vedado from Key West.

Mr. Herbert Kingsford, superintendent of the Central and South American Telegraph Company, at Lima, Peru, who was in New York recently, has gone to England in the interest of the service where he will remain for six months.

Cable communication is interrupted with:

Venezuela.	Jan. 12, 1906.
Messages may be mailed from Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902.
Canary Islands:	
Island of Palma	July 12, 1906.
Steamer from Teneriffe	
Island of Lanzarote	Sept. 18, 1906.
Steamer from Las Palmas	
French Guiana	Nov. 26, 1906.
Mail from Paramaribo.	

So great has been the success of the Government telegraph lines in Alaska that it probably will become necessary to extend the duplex now working between Seattle and Sitka to the Sitka-Valdez section, in order to take care of the prospective heavy rush of business next summer. Reports reaching the chief signal officer show that in some instances the receipts during the past few months have exceeded by 100 per cent., and in many instances 50 per cent., those of a corresponding period last year. At present this system comprises a seventeen-hundred-mile stretch from Seattle to Valdez via Sitka, and fourteen

hundred miles of land lines, terminating in a one-hundred-and-ten-mile wireless jump from St. Michael to Nome, the extreme point westward. It is possible that Congress will be asked to authorize the expenditure of the telegraph receipts toward extending the system this year from Fairbanks to Circle City. The cable ship Burnside is now at work extending a branch from the Juneau-Sitka cable down to Wrangell and Ketchikan, an important point, in the estimation of the chief signal officer, for reporting shipping.

### Resignations and Appointments.

The following changes have occurred in the Western Union Telegraph Company's service:

Mr. W. K. Frank has been appointed manager at Jeanette, Pa., vice Miss Ruth Caldwell, resigned.

Mr. Louis Eisenberg has been appointed manager at New Castle, Pa., vice Miss E. R. Fitch, resigned.

Mr. W. W. Wagoner, manager of the office at Muncie, Ind., has been appointed manager at Terre Haute, Ind., vice P. L. Mounce, as already announced in this column, made manager at Indianapolis, Ind. Mr. Ralph E. Scolah, manager at Bedford, Ind., has been appointed manager at Muncie, vice Mr. W. W. Wagoner, promoted.

Mr. J. F. Reade, who has been appointed manager of the office at Denver, as announced in our previous issue, succeeding A. A. Gargan, is a Canadian, but has been a resident of this country since he was twenty-one years of age, since which time he has been mainly in the employ of the Western Union company. He went to Colorado in 1894, first going to Cripple Creek, afterwards becoming wire chief at Colorado Springs, of which office he was subsequently made manager. It was from the latter point that he was transferred to Denver.

Mr. J. B. Norris, manager at Chattanooga, Tenn., has been transferred to the electrical department of the company, an act which may be regarded as a promotion. Approximately thirty years ago he was appointed manager at Chattanooga. After several years service in that position he resigned and undertook the life of a farmer. Soon, however, he returned to the telegraph company and was assigned to the electrical department. He succeeded to the management of the office some ten or twelve years ago, a position he had since retained. He has a practical acquaintance with electrical matters and will carry with him to his new department a mind well trained for the position. Mr. Norris has been succeeded in the managership of the Chattanooga office by the appointment of Mr. E. Chadwick of Lake Charles, La.

The following changes have occurred in the Postal Telegraph-Cable Company's service:



Mr. William Roland, chief operator of Washington, D. C., has resigned his position to enter other service.

This company has opened an office at Alexandria, La., with Mr. J. E. Pennington as manager. The office will be located on De Soto street.

#### **Postal Telegraph-Cable Company.**

##### EXECUTIVE OFFICES.

William H. Baker, vice-president and general manager, has issued a circular letter respecting the franking privilege of which the following is a part: "On account of conditions that have recently been established, free service will be discontinued absolutely on and after January 1, 1907, and no franks whatsoever will be issued thereafter. Outstanding franks will be honored until February 28, 1907.

"Telegraph service that this company is obligated to perform under contracts or reciprocal arrangements having the effect of contracts will be provided for by the issue of cards to officers and representatives of railroad companies and others who are entitled to avail of such service.

"No officer or employe of the company will be entitled to the free transmission of telegrams except telegrams relative to the business of the company. Such telegrams will be checked D. H. Co."

Among the recent executive office visitors were: Charles M. Baker, superintendent of construction, Chicago; Guy E. Paine, general superintendent, Atlanta, Ga.; G. W. Ribble, superintendent, Washington, D. C.; H. D. Reynolds, superintendent, and president of the Old Time Telegraphers' and Historical Association, Buffalo, N. Y.

#### **Western Union Telegraph Company.**

##### EXECUTIVE OFFICES.

Mr. W. J. Austin, cable accountant of the company, has gone to California for the purpose of meeting Mrs. Austin, who has been sojourning on the Pacific Coast for some time, and who will accompany her husband on his return to New York within the next month.

Among the recent executive office visitors was Mr. Maurice Brick, of the Washington, D. C., office. Mr. Brick is a well known old time New Yorker and twenty-five years ago was one of the chief operators in the main office in this city.

#### **I. N. Miller, Jr., Becomes Superintendent at San Francisco.**

Mr. I. Newton Miller, Jr., who has held the dual positions at San Francisco of chief clerk to Frank Jaynes, general superintendent of the Pacific division, and as superintendent of the Pacific division of the American District Telegraph Company, has been appointed superintendent of the first district at San Francisco, vice F. H. Lamb, transferred to Los Angeles, Cal. Mr. Miller was born at New Vienna, O., November 29, 1868. He has seen extended service

both in railroad and commercial employ. He first went to California, resigning the post of operator on the Fort Worth and Gulf Railroad, at Denver, to accept the appointment of private secretary to Mr. Jaynes, his promotion to be chief clerk to the latter dating from January 1, 1903, his further appointment as superintendent of the district telegraph being December 1, 1902. The growing importance of San Francisco and of the Pacific Coast in telegraph business, gives peculiar significance to the actions of the telegraph officials in establishing an additional district.

#### **Frank H. Lamb Goes to Los Angeles.**

Mr. Frank H. Lamb may be regarded in the nature of a pioneer superintendent in the service of the Western Union Telegraph Company, on the Pacific Coast. When San Francisco became headquarters of the newly created Pacific division in 1902, Mr. Lamb was appointed its first district superintendent. Now, with the creation of still another district, with Los Angeles as headquarters, Mr. Lamb has been transferred to that point, and enters upon his duties there as the company's first superintendent in Southern California. His services at San Francisco have been marked by the exercise of excellent business sense, governed by good judgment, and if the same qualities of administration are maintained at his new post, the interests of the Western Union Company should be distinctly promoted. Mr. Lamb has been succeeded at San Francisco by I. N. Miller, Jr. Mr. Lamb has had a creditable telegraphic career, begun in 1859 in the old Williamsburg section of Brooklyn, N. Y.; he is of New England origin. He served in the military telegraph branch of the army during the Civil War, was twice taken prisoner by the enemy, and in Libby Prison suffered all the horrors for which that place was noted. After the close of the war, in October, 1865, he was appointed chief operator for the United States Telegraph Company at Cincinnati, O. When this company was absorbed by the Western Union, Mr. Lamb was retained in the employ of the latter by whom he was sent to the Pacific Coast as superintendent of its lines in British Columbia. Mr. Lamb was connected with the party engaged to survey the route from British Columbia to Russia for the projected overland telegraph system to Europe, but which was abandoned by the successful completion of the Atlantic cable.

The Montreal Daily Herald of November 17 devoted a half-page to what it termed "The Witchery of Telegraphy," the article referring at length to improvements which have lately been installed by the Canadian Pacific Railroad Telegraphs. The write-up contained portraits of James Kent, the general manager; W. J. Camp, electrical engineer, and J. P. Richardson, superintendent of the Montreal division, and altogether constituted an interesting and instructive feature of the paper.



### Radio-Telegraphy.

The Clark Wireless Telegraph Company of Detroit has opened stations at Detroit, Mich., and Cleveland, Ohio, and is erecting a station at Buffalo, N. Y., for commercial business.

The International conference on wireless telegraphy at Berlin, Germany, decided to adopt "radio-telegraphy" as the official name, and this name is being generally adopted by the technical press.

Announcement has been made from Copenhagen, Denmark, that Lord Armstrong has purchased the patent rights for America of the telegraph system invented by Waldemar Poulsen, the Danish engineer.

Work on a new radio-telegraph station in the Brooklyn navy yard has been started. The new building will be of brick and will cost about \$8,000. It will be equipped with two masts and will be about five times the size of the station now being used.

A result for which many have sought in radio-telegraphy is that of producing undamped electrical oscillations of fixed frequency, is a subject to which the *Electrical World* refers to editorially. A successful method of doing this would reduce the problem of tuning to a simple matter and would at the same time greatly increase the power of a given system, since it would make possible the utilization of a train of waves to actuate the receiving device, whereas with the ordinary methods where damping occurs dependence must be placed upon the energy of the first wave.

A patent issued to G. W. Packard on November 20, covers the use of the substance silicon as a means for receiving intelligence communicated by electric waves, remarks the *Electrical World*. The silicon is used either in the massive amorphous or graphitic solid form. It is pressed into good electrical contact between two good conductors, such as copper. The device is termed a "thermo-electric regenerative detector." The energy of the received oscillations is converted into heat at the high-resistance junction of the element having high thermo-electromotive force within the low resistance or metallic element, the amount of heat and consequent temperature rise being proportional to the square of the current and the resistance, according to the well-known law of Joule. This heat energy is then regenerated or converted into a direct electric current. The inventor states that he has been able to convert upward of ten per cent. of the energy of the oscillations into direct-current energy.

Mr. F. M. Barber, commander U. S. Navy, retired, now residing at Paris, in a letter to the *Electrical Review* of London, says:

"I note in your issue of November 16 a communicated article on the subject of the Wireless Telegraph Conference, in which the author states

that a proposal was sprung upon the conference by the American representatives to make ship-to-ship communication compulsory," etc.

"As an eye-witness, I beg to state that the American delegation never sprung anything on the conference. Within one week of the opening of the session, they made a declaration in favor of the fullest possible interpretation of Article III., which bore on the subject of intercommunication without regard to system. Within two weeks they put in an amendment to one of the articles of the regulations, stating specifically that they wanted communication between ship and ship to be compulsory. The president of the conference naturally did not wish to consider it, as it was not specifically set down in the protocol; but the American delegation insisted, in season and out of season, whenever there was a public opportunity, from that time on, and pointed out that in this matter we had had more experience than all the others nations together. Finally, towards the end of the fourth week, we got a vote, and the vote showed a very large majority in favor of the American idea.

"On a motion of Great Britain, it was then made an additional article to the convention in order that those in favor could sign it separately in addition, so that, as the matter finally stands, the convention proper is signed by twenty-six nations; then comes our article with its regulations, which is signed again by twenty nations. The nations not signing our article are Great Britain, Italy, Japan, Mexico, Persia and Portugal.

"The American article is the most important of the whole convention, because it is new matter. When the conference was called, it was practically a foregone conclusion that some kind of an agreement would be reached as regards ship to shore communication, and the vote for Great Britain's proposition when we finally reached it was practically unanimous.

"The preliminary conference of 1903 showed that the majority of the nations represented were in favor of ship to shore communication without regard to system. The conference of 1906 while confirming the previous one, has shown that the majority of the nations represented are in favor of ship to ship communication, but unlike the conference of 1903, there is now a convention to that effect in binding form, subject only to the ratification of the different governments."

Professor Ferdinando Lori, of the School of Engineering, Padua, Italy, is the inventor of a new arrangement or system of wireless signaling, in which a phenomenon of electro-magnetic resonance is utilized for obtaining a separation of the radio-telegraphic signs. A non-magnetic metallic wire is extended between two points, having the north and south poles of the magnet on each side of the wire near its centre. The wire is joined up to a detector of electric waves and a battery. The tension of the wire is so controlled that when vibrating freely it performs

a predetermined number  $n$  of vibrations every second. If the detector is reached by electric waves emitted from a radiator with the same frequency  $n$ —viz., by oscillatory sparks produced with a speed  $n$  per second—the electric wave detector will be influenced  $n$  times per second, and the current passing through the wire is a pulsating or alternate current having the same frequency  $n$ . The wire is in this way enabled to act as the receiver of wireless signals only if they are emitted by a series of sparks at a rate of  $n$  per second. This apparatus is therefore selective of the messages received.

### A British View of the Wireless Telegraph Conference.

(From the Electrical Review, London.)

Although the text of the decisions of the International Conference, which has just concluded its labors at Berlin, has not yet been made public, it is satisfactory to learn that agreement has been arrived at upon all the substantial issues, and this without imperiling the special interests of the naval and military services of the nation. So much that is irrelevant and misleading has been permitted to appear in the public press, that it is the more important that readers who belong to the electrical profession should have a clear understanding of the scope of the conference and the matters involved in its decisions.

There are recognized by the Admiralty four different kinds of wireless work: (1) Signaling for tactical purposes to and from the ships of a squadron; (2) "long-distance signaling" over 500 miles or more, as from the wireless telegraph station at Poldhu, or the Telefunken stations at Nauen and at Vladivostok; (3) ship-to-shore signaling, or "maritime signaling," as the Admiralty call it; (4) "sea telegraphy," meaning thereby the receipt and transmission of messages to and from passengers on vessels. To these may be added two other kinds: (5) practical signaling, as practised by the army overland; and (6) ship-to-ship signaling between vessels passing one another at sea. These different applications have different aims; and it is certain that different forms of apparatus, possibly that totally different inventions, will be found best adapted to different cases. For example, it has been found—and the failures of the Marconi apparatus in Somaliland and elsewhere prove it—that for overland work, where the soil is of variable conductivity, no apparatus is satisfactory in which an earth-connection is used. On the other hand, a portable apparatus which will give perfectly good and certain signals over twenty or thirty miles overland may be totally unadapted for use on ship-board or at a coast station to signal to ships one hundred miles out at sea.

As for the secrecy which has so often been alleged to characterize one or other "system" of wireless telegraphy, every one who has worked at

the subject knows that there is no such thing in itself. Any and every system that has yet been devised pours out ethereal waves into space around the transmitter. Whether the transmitter is tuned or untuned, any appropriate receiver within range will pick up some of the waves. The use of code alphabets is the only kind of secrecy yet possible.

Interference between stations is a question for which tuning has hitherto been a partial remedy.

\* \* \* \* \*

Turning to the commercial developments of wireless work, one becomes aware that things are not exactly as the Dick Swivellers of journalism (to adopt Mr. Bernard Shaw's elegant phrase) have represented them to be. In the first place, by far the largest number of wireless stations over the world, including those on shipboard, have been erected by the Telefunken Company, which now has no fewer than 628. Of these 150 are in Russia, 13 in Norway, 11 in the Argentine, 11 in Brazil, 24 in Sweden, 29 in Austria, 2 in Portugal, 14 in Spain, 2 in the Philippines, 5 in the Dutch Indies, 2 in Siam, 2 in Tonking, 2 in Peru, etc. The Marconi Company comes next; it is said to have nearly 400 stations, and, thanks to its agreement with Lloyds, it has secured those on the south coast of England, and on most of the Atlantic liners. The De Forest Company follows on, but it has not more than fifty stations outside the United States. The Lodge-Muirhead Syndicate has a smaller number, some of them in the East. As for the other American systems, those of Stonemaker, Fessenden and Stone, there are no reliable statistics. The Ducretet and Rochefort systems appear to be confined to France and Spain.

This being the state of the art, it is not surprising that in the interests of the merchant service of all nations—and the merchant service of Great Britain far outweighs all others—it has been found desirable to establish some general understanding; so that all merchant and passenger ships, on passing a station or approaching a port, might report themselves, irrespective of the particular "system" installed on the ship or at the coast station. To achieve such an international understanding has been the chief, one might say the sole, aim of the conference at Berlin.

At that conference the nations were represented solely by official delegates. No inventors were invited or sent. The three great departments—the Admiralty, the Army and the Post Office—were represented. Their delegates went out with a perfectly defined policy. The Colonial Office was consulted by the Post Office, and concurred in the British policy.

When Demaratus was asked whether he held his tongue because he was a fool or for want of words, he replied, "A fool cannot hold his tongue."

## Washington Newspaper Correspondents' Copy.

BY W. H. YOUNG, WASHINGTON.

In a telegraphic career covering a period of more than fifty years, the ubiquitous press correspondents have given in considerable copy, called manuscript, that was nondescript. There are undoubtedly some "old timers" who have consumed greyish cerebral matter and endangered their prospects for a happy eternity after this life, in their endeavors to correctly determine what particular words were indicated by the pencil, or pen and ink scrawls, scratches, daubs and tortuous strokes of such brilliant and progressive journalists as Horace Greeley and John W. Forney. If the wishes made by the operators who were thus engaged were finally granted, one could easily conclude that these journalists are on the Celestial Sun, "both daily."

I recall to mind a bit of paper, on which was about one inch square of writing. After having sent from this one inch square for an hour without reaching the signature I felt that I was in the "sear and yellow leaf" of telegraphy.

Shortly my chief would be aware of this. I thought my grip was gone and the grand bounce would soon be apparent. I ran over in memory all that I could of "Adam Smith's Domestic Economy." I mapped out a line of parsimonious frugality, that I might be prepared for the disaster.

The next day by accident, I saw the story in type. It made two columns and a half of printed matter. I destroyed my economical plans and purchased a pair of spectacles that magnified 1,500 diameters, after which I had no more trouble with this advance matter.

I really believe this correspondent could copy in pen and ink "Dickens Complete Works" and the Bible from Genesis to Revelations, in the space occupied by a pin's head. He certainly merited a notice in "Disraeli's Curiosities of Literature." The students of later years had James W. Brooks, Colonel Ed. Brooks, and Hobart Brooks, whose efforts in pen and ink were as legible as the sounds are intelligible of the "Babbling Brooks."

In direct contrast to the diminutive style of writing mentioned a moment ago, there is now a member of the press corps who cannot or will not place more than two and three-eighths of a word on a piece of paper of legal cap size. He has been known, however, to write the words "Good Night" on a telegraph blank, but the "Good" and the "Night" when this occurs is always connected with a hyphen. His copy has other peculiarities. A new man (new to Washington) was once given some of this gentleman's copy. I was sitting beside the new man. After glancing at some twenty-six or twenty-seven pages of the matter, Mr. Newcomer said: "Is this a pile of Chinese laundry checks or are the boys guying me?" He

took the mass of paper, crushed it between his hands, crumpled it and dropped it in the waste. I saw his mistake, rescued the matter from the waste, smoothed, spread and read it to the new one, and The Fabatown Bugler printed its own alphabetical signature correspondent's special the next morning.

There is a new method of time saving coming into use among the correspondents. They begin a sentence, but do not finish it—a word or two, then start afresh. This mode of abbreviation is becoming more and more common every day.

The "Old Timer" is not to be outdone by any news vending story telling set on earth. Since Bishop's experiments, mind-reading has been simplified and is known now as a certain science. A press sending operator has about his person two pieces of very fine wire (spool wire). If the correspondent springs the unfinished sentence time-saver in his copy, the operator brings forth his wires, attaches one end of each wire to a wrist, the loose end of the left wrist wire is placed at the top of the first letter of the first word of the broken sentence. The loose end of the right wrist wire touches the key. Slowly move the business end of the left wrist wire to the end of the abbreviated sentence, and the key will send the sentence, just as the correspondent intended to write it.

This is well known to practical electricians but I believe expert electricians are as yet unaware of its workings.

What a great relief this would have been if the occult law of nature could have been found out in the days when McBride and some others filed specials. I have seen men in the throes of agony over his copper-plate. On one occasion it was so puzzlingly done that no one in the office could decipher it. The wretch to whose lot it fell, tied a wet towel about his brow and studied—but of no avail. Of a sudden an inspiration came! He retired to the coat-room, removed his clothing, then replaced it inversely, that is put it on inside out and upside down, came back to the table, grasped the back of a chair with his hands, threw his feet to the air, and in this position the copy became plain as day.

Laying jocularly aside, the operator has a kindly feeling for the newspaper man. Operators are ever ready with heart and hand to aid the correspondent. Operators are students of human nature. They can, without much difficulty, pick out a rising journalist.

The operator of a quarter of a century ago had different views of life than those possessed by the youthful student of to-day. At this time the profession has in its ranks men who recognize the responsibility and honor of their profession. The successful operator of to-day is intelligent, industrious, frugal, ever on the alert to keep from his door the wolf—especially Paul Wolf, who files his special written in the vernacular of the Staats readers, and transmitted from Washington by an old timer who is as familiar with the German language as is a mole with the science of astronomy.

As this ramble was begun without a commencement it will cease without peroration.

One little reminiscence and you wicked will be at rest.

Sitting beside a self-styled "expert copy reader" one evening, I heard sounds that would be decidedly out of order at a Young Men's Christian Association meeting. I turned toward him and inquired if he was ill. His reply was:

"No; but I have had my religious faith shaken. I have heretofore been of the belief that I had been on earth several times. All languages spoken and written are as plain to me as is a flaming circus poster to a small boy. Punic, Gallic, Greek, and Hebrew are bagatelle. But this sheet of paper holds signs, symbols and tokens of such a construction that there is but one way in which I can account for its presence on this earth. The inhabitants of the planet Mars, it is believed by scientists, are engaged in constant endeavors to propel signals from their world to ours. I believe they have succeeded and this is a message from Mars."

I looked at the copy. It was addressed: To—, The Sun, Baltimore, Md.

#### **Congressional Postal Commission Resumes Its Hearings—A Unique Proposition to Run Post Office by Private Corporation.**

The hearings of the Congressional Postal Commission were resumed in Washington on November 26. When the commission resumed work on Tuesday the day following, W. D. Boyce, publisher of the Ledger, the Blade and other Chicago papers, appeared with a proposition that must have made the commissioners wonder whether they were awake or dreaming. This is the substance of Mr. Boyce's offer:

To take over the post office business of the country, to be run by a \$50,000,000 private corporation under full Government regulation.

To reduce by half all postal rates, establish a rural postal express and apply business methods throughout.

To pay the Government rental for post office quarters, and charge it regular rates for its postal business.

To place in charge a well-known railroad traffic expert, to whom the place has been offered at \$30,000 annually.

To eliminate all sinecures, politics and the deficit.

To pay the Government all profits above seven per cent. on capital.

Mr. Boyce says his proposition is submitted in good faith. He did not name his associates, who will furnish the necessary capital.

"All I want is to get myself and my proposition taken seriously," he declared. "After that it will be easy, for the public wants lower postal rates. I am not the man to be making a bluff at a thing like this: I have too many interests that could be seriously injured by such a course. The backing is ready to form a corporation and

take over the postal service on the terms I have outlined.

"As the postal business is all cash-in-advance operation we have calculated that \$50,000,000 capital would be enough. Among the men associated with me in this proposal are a big advertiser, a great manufacturer, a merchant prince and a capitalist who has immense and widely divergent interests. But these men don't want to be set up to be shot at till they know whether there is a chance of the Government taking an interest in the proposal. If the Government shall indicate a friendly attitude toward us, at least a willingness to consider our scheme, they will come forward and let everybody know that there is plenty of financial backing."

[Such a proposition as that advanced by Mr. Boyce, providing for the running of the post office by a private corporation, while novel, and likely to startle some conservatives by its boldness of outline, we believe to be wholly consistent and quite within the potentialities of the future. Not only so, we believe that private parties would conduct the mail service of this country better in every way than that afforded by the Government. In our judgment, with the influence of politics eliminated and economy of management introduced, such as prevails in all corporate undertakings, a maximum of good results would follow, gratifying in the extreme to the people of this country. Existing deficits would be overcome, and we are quite willing to believe that the scheme if carried out would yield a handsome return on the investment. The idea is quite in line with that long entertained by Telegraph Age and expressed in these columns—Editor.]

#### **An Enquiry into the British Telegraph Service.**

In the House of Commons a few days since the question was asked the Chancellor of the Exchequer whether his attention had been directed to the recent return relating to the postoffice telegraph service showing that this service had been worked at a loss ever since 1872, that that loss had rapidly increased in the past few years, and now amounted to over £1,000,000 per annum; and whether he would consider the desirability of appointing a select committee to consider by what means, if any, the taxpayer could be relieved of this burden.

The Chancellor of the Exchequer said he was familiar with the return, and he was aware that the annual expenditure in respect of telegraphs largely exceeded the annual receipts. The account, however, included expenditure upon extensions of the system and other capital charges (amounting in 1904-5 to over £758,000) as well as the cost of earning current revenue. He did not think that any advantage would result from the appointment of a select committee.

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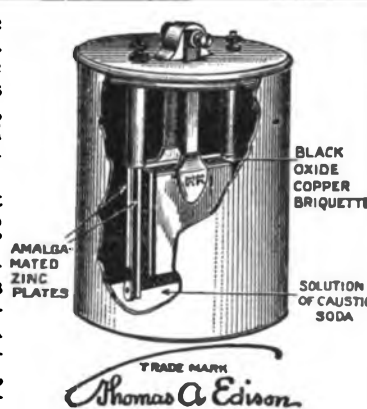
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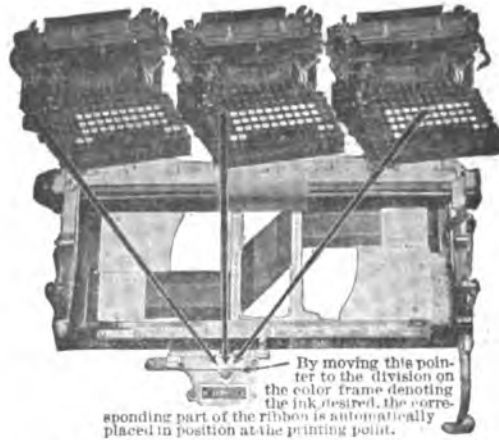
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NEW YORK, DECEMBER 16, 1906.

So many telegraph managers have written to us that they desired to be represented in the holiday issue of TELEGRAPH AGE, explaining that they were unable to get their photographs to be used for illustrative purposes, in time for cuts to be made therefrom, that we have yielded to a very general request to defer the publication of the special number in question until January 1. We should be sorry to shut out any who have counted on being included in this fine issue, yet we are compelled to say, and to emphasize the statement, that any photograph received after the 22d. inst. will be too late for use. It therefore behooves our friends to make all haste possible to get their photographs to this office promptly. Our decision practically grants a two weeks' extension of time and this concession should be sufficiently appreciated to cause all to expedite the sending of their pictures to the utmost.

### A Holiday Greeting.

Before another issue of TELEGRAPH AGE shall have appeared the holiday season will have come and gone. We, therefore, take advantage of this opportunity to extend to our readers the hand of good fellowship, and to wish them one and all a Merry Christmas! This we do with heartiness and in all sincerity, for in the twenty-four years this paper has been published it has established a wide circle of friends, both at home and abroad, between many of whom and ourselves deep and abiding evidences of love and respect exist, although the instances are more numerous than

otherwise that a personal meeting has never been vouchsafed.

There may be some who have dropped their names from our subscription list, because they have not always been in sympathy with our ideas, but on the other hand thousands remain who from the first have continued staunch and true to the early friendships formed years ago. Others have filled the places of those who have gone. To all such of the past and present we extend a greeting.

It is pleasant to know and feel that the great intelligent heartbeat of the fraternity is loyal and true to the journal that has stood for them, endeavored faithfully to represent them and to furnish them with telegraphic news. We believe and have always held, as a fundamental principle in life, eternal as the hills, that a quid pro quo, must be rendered by the individual to insure him advancement from lower to higher conditions. This "step by step" process cannot be ignored. We have earnestly advocated the telegraph, if not for a life work, yet in the experience it affords, as one of the best training schools to fit one for other employments in life. We believe that "honesty is the best policy," not alone between the individual and employing interests, but inversely in relation to the individual himself. For no man can afford to defraud himself by refusing or neglecting to develop the best there is in him.

We hope to serve our friends and readers conscientiously, fearlessly, and, as we believe, truthfully, advocating those principles that have distinguished our utterances in the past. We know that we have struck a responsive note in the great telegraphic body politic, and that the handclasp grows firmer and more binding with each succeeding year. The time is auspicious for progress, and progress is being made such as the world has never before known.

We are thankful for the good wishes so frequently expressed of late for this journal by our readers. We are not insensible to what they say, and it is a source from which to draw courage and inspiration for the future. Once again we salute and greet our readers and wish for them the best that their lives can provide.

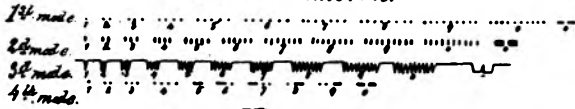
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EXAMPLES, OR DIAGRAMS, WHICH ACCOMPANIED PROF. MORSE'S ORIGINAL APPLICATION FOR A PATENT.

Example 1<sup>st</sup>

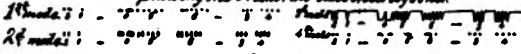
1<sup>st</sup> For Numerals.



Example 2<sup>d</sup>

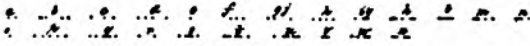
For Compound Numerals.

Showing the Numerals combined together



Example 3.

2<sup>d</sup> For Letters.

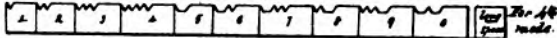


The System of Type.

Fig 1<sup>st</sup>. Example 4<sup>th</sup>. 1<sup>st</sup> For Numerals.



Fig 2<sup>d</sup>



Example 5<sup>th</sup> 2<sup>d</sup> For Letters

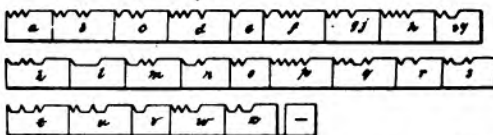
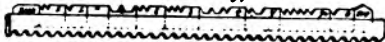


Fig 1.

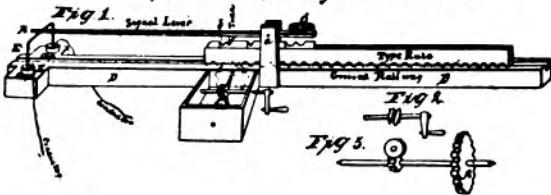
Example 6<sup>th</sup>



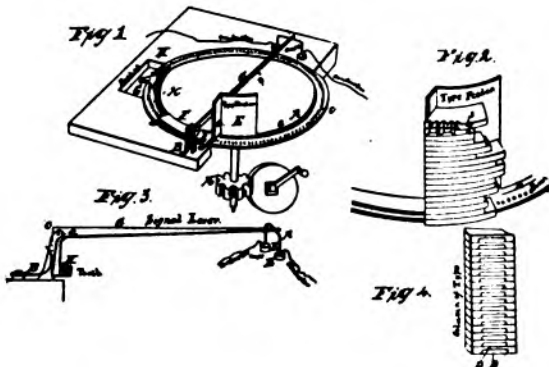
Example 7 Type Rule



Example 8<sup>th</sup> Straight Port-rule



Example 9<sup>th</sup> Circular Port-rule.



Example 10.

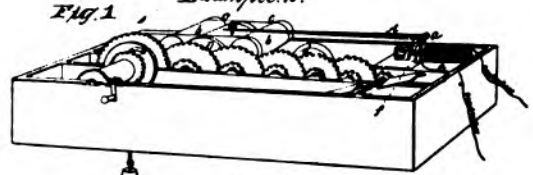


Fig 2

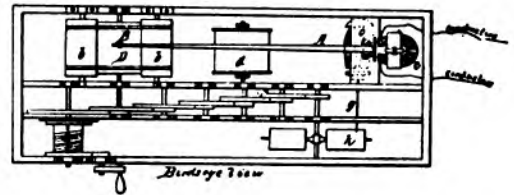


Fig 3

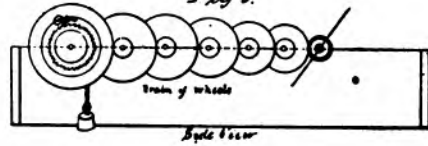


Fig 4

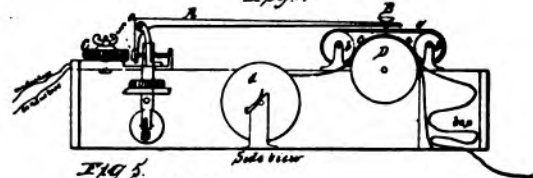


Fig 5

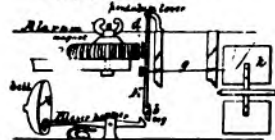
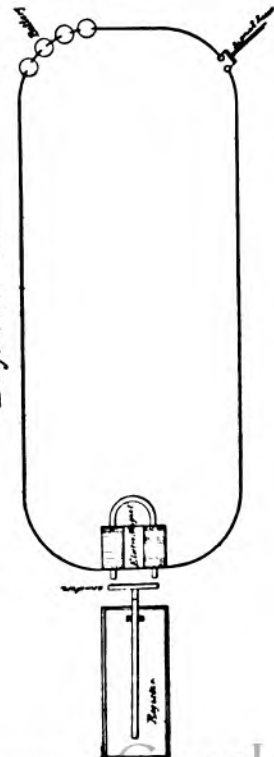


Diagram No 11.



### The Original Morse Patent Covering the Invention of the Telegraph.

A great milestone was passed in the pathway of the world's progress when the system of the telegraph was invented by Prof. S. F. B. Morse. How thoroughly the master mind of the electric telegraph grasped the complex subject he was introducing for the benefit of mankind, is shown by the fact that he had thought out and evolved from all that had gone before, practically a finished system, so that during all the years of subsequent use and extension no material change of method has successfully challenged Prof. Morse's plan as originally devised. To present a fac-simile of the original patent awarded Prof. Morse, together with the drawings accompanying the same, will be to interest a wide circle of our readers. It is given herewith:

#### UNITED STATES PATENT OFFICE.

Samuel F. B. Morse, of New York, N. Y.

#### Improvement in the Mode of Communicating Information by Signals by the Application of Electro-Magnetism.

Specification forming part of Letters Patent No. 1,647, dated June 20, 1840.

To all whom it may concern:

Be it known that I, the undersigned, Samuel F. B. Morse, of the city, county, and State of New York, have invented a new and useful machine and system of signs for transmitting intelligence between distant points by the means of a new application and effect of electro-magnetism in producing sounds and signs, or either, and also for recording permanently by the same means and application and effect of electro-magnetism any signs thus produced and representing intelligence transmitted, as before named, between distant points; and I denominate said invention the "American Electro-Magnetic Telegraph," of which the following is a full and exact description, to wit:

It consists of the following parts: first, of a circuit of electric or galvanic conductors from any generator of electricity or galvanism, and of electro-magnets at any one or more points in said circuit; second, a system of signs by which numerals and words represented by numerals, and thereby sentences of words as well as of numerals, and letters of any extent and combination of each, are communicated to any one or more points in the before-described circuit; third, a set of type adapted to regulate the communication of the above-mentioned signs, also cases for convenient keeping of the type, and rules in which to set and use the type; fourth, an apparatus called the "straight port-rule," and another called the "circular port-rule," each of which regulates the movement of the type when in use, and also that of the

signal-lever, fifth, a signal-lever which breaks and connects the circuit of conductors; sixth, a register which records permanently the signs communicated at any desired points in the circuit; seventh, a dictionary or vocabulary of words, to which are prefixed numerals for the uses hereinafter described; eighth, modes of laying the circuit of conductors.

The circuit of conductors may be made of any metal—such as copper or iron wire or strips of copper or iron, or of cord or twine, or other substances—gilt, silvered, or covered with any thin metal leaf properly insulated and in the ground, or through or beneath the water, or through the air. By causing an electric or galvanic current to pass through the circuit of conductors laid as aforesaid by means of any generator of electricity or galvanism to one or more electro-magnets placed at any point or points in said circuit, the magnetic power thus concentrated in such magnet or magnets is used for the purposes of producing sounds and visible signs, and for permanently recording the latter at any and each of said points, at the pleasure of the operator, and in the manner hereinafter described—that is to say, by using the system of signs which is formed of the following parts and variations, viz.:

Signs of numerals consist, first, of ten dots or punctures, made in measured distances of equal extent from each other, upon paper or any substitute for paper, and in number corresponding with the numeral desired to be represented. Thus one dot or puncture for the numeral 1, two dots or punctures for the numeral 2, three of the same for 3, four for 4, five for 5, six for 6, seven for 7, eight for 8, nine for 9, and ten for 0, as particularly represented on the annexed drawing, marked Example 1, Mode 1, in which is also included a second character, to represent a cipher, if preferred.

Signs of numerals consist, secondly, of marks made as in the case of dots, and particularly represented on the annexed drawing, marked Example 1, Mode 2.

Signs of numerals consist, thirdly, of characters drawn at measured distances in the shape of the teeth of a common saw by the use of a pencil or any instrument for marking. The points corresponding to the teeth of a saw are in number to correspond with the numeral desired to be represented, as in the case of dots or marks in the other modes described, and as particularly represented in the annexed drawing, marked Example 1, Mode 3.

Signs of numerals consist, fourthly, of dots and lines separately and conjunctively used as follows, the numerals 1, 2, 3 and 4 being represented by dots, as in Mode 1, first given above: The numeral 5 is represented by a line equal in length to the space between the two dots of any other numeral; 6 is represented by the addition of a dot to the line representing 5; 7 is represented by the addition of two dots to said line; 8 is represented by prefixing a dot to said line; 9



is represented by two dots prefixed to said line; and 0 is represented by two lines, each of the length of said line that represents the number 5. Said signs are particularly set forth in the annexed drawings, marked Example 1, Mode 4.

Either of said modes are to be used as may be preferred or desired and in the method hereinafter described.

The sign of a distinct numeral or of a compound numeral when used in a sentence of words or of numerals consists of a distance or space of separation between the characters of greater extent than the distance used in separating the characters that compose any such distinct or compound numeral. An illustration of this sign is particularly exhibited in the annexed drawing, marked Example 2.

Signs of letters consist in variations of the dots, marks, and dots and lines, and spaces of separation of the same formation as compose the signs of numerals, varied and combined differently to represent the letters of the alphabet, in the manner particularly illustrated and represented in the annexed drawing, marked Example 3.

The sign of a distinct letter, or of distinct words when used in a sentence, is the same as that used in regard to numerals and described above.

Signs of words, and even of set phrases or sentences, may be adopted for use and communication in like manner under various forms, as convenience may suggest.

The type for producing the signs of numerals consist, first, of fourteen pieces or plates of thin metal—such as type-metal, brass, iron or like substances—with teeth or indentations upon one side or edge of ten of said type, corresponding in number to the dots or punctures or marks requisite to constitute the numerals, respectively, heretofore described in the system of signs, and having also a space left upon the side or edge of each type, at one end thereof, without teeth or indentations, corresponding in length with the distance or separation desired between each sign of a numeral. Another of said type has two indentations, forming thereby three teeth only, and without any space at either end, to correspond with the size of a cipher, as heretofore described by reference to Example 1, Modes 1, 2, 3, of drawings in said system of signs. One other of said type is without any indentation on its side or edge, and being in length to correspond with the distance or separation desired between distinct or compound numerals, and with the sign heretofore described for that purpose. One of the remaining two of said type is formed with one corner of it beveled, (system of type, Example 4, Fig. 1.) and is called a "rest;" and the other is in a pointed form and called a "stop."

Each of said type is particularly delineated on the annexed drawing, marked Example 4, Fig. 1, and numbered or labeled in accordance with the

purpose for which they are designed respectively, and are used in like manner for producing each of the several signs of numerals heretofore described in the system of signs.

The type for producing the signs of numerals consist, secondly, of five pieces or plates of metal, first described above, four of which are the same as are numbered 1, 2, 3, and 4 in the annexed drawing, marked Example 4, Fig. 1, and the fifth one being the same as is denominated in the same example "the long space," and heretofore alluded to; also, of six other pieces or plates of said metal, varied in indentations and teeth and spaces, as represented on the annexed drawing, marked Example 4, Fig. 2, to produce signs of the denominations described in the fourth mode of the above-mentioned system of signs, Example 1.

The type for producing the signs of letters are of the same denomination with those used in producing signs of numerals, and only varied in form from one to twenty-three, as exhibited in the annexed drawing, marked Example 5.

The type for producing both signs of numerals and signs of letters are adapted for use to either a straight rule, called the "straight port-rule," and are in that case made straight lengthwise, as described in the drawings annexed, and heretofore referred to in Example 5, or to a circular port-rule, in which case they are lengthwise circular or formed into sections of a circle, as represented in the drawings annexed, marked Example 6, Figs. 2 and 3, and as will be further understood by the descriptions hereinafter contained of the straight and circular port-rules. On the under side of the type for the circular port-rule (which type are of greater thickness than those for the straight port-rule) is a groove (system of type, Example 6, A in Figs. 1 and 3) about midway of their width, and in depth about half the thickness aforesaid, and extending from the space ends, as B, Example 6, Fig. 3—that is, the ends without indentations—of said type, along the length, and conforming to the curve thereof, to a point, D D, equal in distance from the opposite ends to half the width of the pointed teeth cut upon their edges. For a delineation of these type reference is made to sections thereof in Figs. 1 and 3 upon the annexed drawings, marked Example 6.

The type-cases are wood or of any other material, with small compartments of the exact length of the type, for greater convenience in distributing, and resembling those in common use among printers.

The type-rules are of wood or metal or other material that may be preferred, and about three feet in length, with a groove, into which the type, when used, are placed. On the under side of each type rule are cogs, by which they are adapted to a pinion-wheel having corresponding cogs and forming part of a port-rule. The type-rule in use is moved onward as motion is given to the said wheel. A delineation of the

type-rule is contained in the annexed drawing, marked Example 7.

The straight port-rule consists of a pinion-wheel (before mentioned) turned by a hand-crank attached to a horizontal screw that plays into the cogs of the pinion-wheel, as the latter do into the cogs of the type-rule, or by any other power, in any of the well-known methods of mechanism. It is connected with a railway or groove, in and by which the type-rule, from the motion imparted to it by said wheel, is conveyed in a direct line beneath a lever that breaks and connects the galvanic circuit in the manner hereinafter mentioned. A delineation of said wheel, crank and screw is contained in the drawings hereunto annexed, marked Example 8, Figs. 1, 2, 3.

The circular port-rule is a substitute, when preferred, for both the type-rule and the straight port-rule, and consists of a horizontal or inclined wheel, Example 9, Fig. 1, A, of any convenient diameter, of wood or metal, having its axis connected on the under side of the wheel with a pinion-wheel, K, and as in the case of the straight port-rule. It is moved by the motion of the pinion-wheel, as is the type-rule in the former description. On the entire circumference of said horizontal or inclined wheel, and upon its upper surface, is a shoulder or cavity, *a*, Figs. 1, 2, corresponding in depth with the thickness of the type used, and in width, *b*, equal to that of the type, exclusive of their teeth or indentations. Near the outer edge of the surface of said shoulder or cavity are cogs *c*, throughout the circumference of the wheel, projecting upward at a distance from each other equal to one-half of the width of the teeth or indentations of the type, and otherwise corresponding in size to the width and depth of the groove D D, Fig. 4, in the under side of the circular type before described and illustrated by reference to Example 6, Figs. 1 and 3. Directly over said shoulder or cavity and cogs, and at one or more points on the circumference of said wheel, is extended, from a fixture outside of the orbit of the wheel, a stationary type-feeder, E, Fig. 1, formed of one end, *e*, and one side, E, perpendicular, of tin or brass plate or other substance, and of interior size and shape to receive any number of the type which are therein deposited, with their indentations projecting outward, as in Fig. 2, and their grooves downward, as in Fig. 4. Said type-feeder is so suspended from its fixture F F over the shoulder or cavity of the wheel A, before described, as to admit of the passage under it of said wheel in its circuit as near the bottom of the feeder as practicable without coming in contact therewith. The type deposited in the feeder, as before mentioned, form a perpendicular column, as in Fig. 2, the lower type of which rests upon the surface of the before-named shoulder of the wheel *b*, Fig. 2, and the cog of the wheel, projecting upward, enters the groove D D, Fig. 4, of the type hereinbefore described.

The operation of said circular port-rule in regulating the movement of the type in use is as follows: When the wheel A is set in motion the type resting immediately upon the shoulder of the wheel in the manner mentioned above, as in Fig. 2, is carried forward on the curvature of the wheel from beneath the column of type resting upon it in the stationary type-feeder by means of one of the before-named cogs coming in contact with that point D, Fig. 3, Example 6, in the groove of the type hereinbefore described as forming the termination of said groove, and which is particularly delineated at the points D D in the annexed drawing, marked Example 6, Fig. 3. As by said process the lower type in the column that is held by the stationary feeder is carried forward and removed, the next type settles immediately upon the shoulder of the wheel, and, after the manner of the removed type, is brought in contact with another cog of said shoulder within the groove of the type, and thence carried forward from beneath the incumbent column, as was its predecessor. Then follows consecutively in the same method each type deposited within the feeder so long as the wheel is kept in motion. The deposit of the type in the stationary feeder is regulated by the order in which the letters or numerals, or words they represent, are designed to be communicated at any distant point or points. After the type are respectively carried forward on the curvature of the wheel in the manner stated above beyond the point where they are acted upon by the signal-lever, as is hereinafter described, they are lifted, each in its turn, from the shoulder of the wheel A and cast off into a box or pocket, G, below the wheel by means of a slender shaft or spindle, H, made of any metal, and resembling in form a common plowshare, extending downward from a fixture, *o*, placed outside of the wheel, into groove K, within the before-named shoulder of said wheel A, and on the inner side of the cogs *c*, already described. By means of said groove the downward point of said shaft or spindle H is brought within the curvature and below the surface of said shoulder *b*, Fig. 2, and consequently under the approaching end of the type, so that each type successively, as it is carried forward on said curvature in the manner before described is lifted from the shoulder and forced upward on the inclined shaft or spindle by the type in contact with it at the other end, until turned off into the before-named box or pocket G below, ready for a redistribution.

For a more particular delineation of the several parts of said circular port rule reference is made to the annexed drawings, marked Example 9, Figs. 1 and 2.

The signal-lever, Example 9, Fig. 3, consists, first, for use with the straight port-rule (Example 8, Fig. 1, A), of a strip of wood of any length from six to twenty-four inches, resting upon a pivot, *a*, or in a notched pillar formed into a fulcrum by a metal pin, *a*, passing through it and the lever. At one end of the lever a metallic wire,

bent to a semicircular or half-square form, as at A, or resembling the prongs of a fork distended, is attached by its centre, as described in the annexed drawings, Example 8, at the point marked A. Between said end of the lever and the fulcrum *a*, and near the latter, on the under side of the lever A, is inserted a metallic tooth or cog, *b*, curved on the side nearest to the fulcrum, and in other respects corresponding to the teeth or indentations upon the type already described. On the opposite extremity of the lever is a small weight, C, to balance or offset in part when needed, the weight of the lever on the opposite side of the fulcrum. The lever thus formed is stationed directly over the railway or groove D D, heretofore described as forming a connected part of the straight port-rule. The movement of the type-rule brings the tooth of each type therein set in contact with the tooth or cog of the lever, and thereby forces the lever upward until the points of the two teeth in contact have passed each other, when the lever again descends as the teeth of the type proceed onward from the tooth of the lever. This operation is repeated as frequently as the teeth of the type are brought in contact with the tooth of the lever. By thus forcing the said lever upward and downward the ends of the semicircular or pronged wire are made alternately to rise from or fall into two small cups or vessels of mercury, E E, in each of which is an end or termination of the metallic circuit-conductors first described above. This termination of the metallic circuit in the two cups or vessels breaks and limits the current of electricity or galvanism through the circuit; but a connection of the circuit is effected or restored by the falling of the two ends of the pronged wire A, attached to said lever, into the two cups, connecting the one cup with the other in that way. By the rising of the lever, and consequently the wire upon its end, from its connection with said cups said circuit is in like manner again broken and the current of electricity or galvanism destroyed. To effect at pleasure these two purposes of breaking and connecting said circuit is the design of said motion that is imparted in the before-mentioned manner to said lever, and to regulate this motion and reduce it to the system of intelligible signs before described is the design and use of the variations in the form of the type, also before described. A plate of copper, silver, or other conductor connected with the broken parts of said circuit of conductors, and receiving the contact of the wire attached to said lever, may be substituted, if preferred, for said cups of mercury. For a particular delineation of the several parts of said lever reference is made to the annexed drawing, marked Example 8.

The signal-lever consists, secondly, for use with the circular port-rule, (Example 9, Fig. 3,) of a strip of wood, G, with a metallic wire, A, at one end, of the form and for the purposes of the lever already described above. It turns on a pivot or fulcrum, *a*, placed either near the middle or in the

end of the lever. At the end of the lever, at C, opposite to the metallic wire A, an elbow, *c*, is formed on a right angle with the main lever, and extending downward from the level with the pivot or fulcrum sufficiently for a metallic tooth, H, in the end thereof, corresponding with the teeth or indentations of the type already described, to press against the type projecting from the shoulder or cavity of the wheel A, Fig. 1, that forms the circular port-rule before described. Said wheel is placed beneath the said lever, as seen at G, Fig. 1, in a position to be reached by the extremity or tooth H of the arm of the lever just mentioned. The tooth H in the arm of the lever is kept in constant contact with the type of the circular port-rule by the pressure of a spring, B, upon it, as described in the annexed drawing, marked Example 9, at B, Figs 1 and 3 in the same example exhibit sections of the said lever. The action thus produced by the contact of the teeth of the type in the port-rule when said wheel is in motion with the tooth in the arm of the lever lifts up and drops down the opposite extremity. A of said lever having the metallic wire upon it as the tooth of said lever passes into or out of the indentations of the type, and in the same manner and to the same effect as the first described lever rises and falls, and accordingly breaks and closes the circuit of conductors, as in the former instance. In the use of this circular port-rule and its appropriate lever (Fig. 3) type may be used having the points of their teeth and their indentations shaped as counterparts or reverses to those delineated in the annexed drawings, heretofore referred to and marked Examples 4, 5, and 6, and thereby the forms of the recorded signs will be changed in a corresponding manner.

The register consists—

First, of a lever of the shape of the lever connected with the circular port-rule above described, and is delineated in the annexed drawings, marked Example 10, Figs. 1, 2 and 4, at A. Said lever A operates upon a fulcrum, *a*, that passes through the end that forms the elbow *a*, upon the lower extremity of which, and facing an electro-magnet, is attached the armature of a magnet, *f*. In the other extreme of the lever, at B, is inserted one or more pencils, fountain-pens, printing-wheels, or other marking-instruments, as may be seen in the Fig 4 of example last mentioned at letter B. The magnet is at letter C in the same figure.

Secondly, of a cylinder or barrel of metal or wood and covered with cloth or yielding coating, to turn upon an axis, and occupying a position directly beneath the pencil, fountain-pen, printing wheel, or other marking-instrument, to be used as exhibited in the last-mentioned example of drawing, Fig 4, D. Two rollers, marked *b b* in said figure of drawings, are connected with said cylinder, on the upperside curvatures thereof, and being connected with each other by two narrow bands of tape passing over and beneath each, near the ends thereof, and over the intervening surface of the cylinder, in a manner to cause a

friction of the bands of tape upon the latter when in motion, as delineated in the last-named example, Fig. 4, at points marked *c c c*. The distance between said bands of tape on the rollers is such as to admit of the pencil or other marking-instrument in the lever to drop upon the intervening space of the cylinder. Near by said cylinder is a spool to turn on an axis, and marked *d* in the said figure, to receive any desired length of paper or other substance formed into slips or a continuous ribbon, and for the purpose of receiving a record of the signs of intelligence communicated. When the register is in motion, one end of the paper on said spool being inserted between the under surfaces of said two rollers, under the strips of tape that connect them and the cylinder, it is drawn by the friction or pressure thus caused upon it forward from said spool gradually and passed over said cylinder, and is thence deposited in a box on the opposite side or is cut off at any desired length as it passes from the cylinder and rollers.

Thirdly, of an alarm bell, A, Example 10, Fig. 5, which is struck by means of a lever-hammer, B, that is acted upon by a movable cog, *b*, placed upon an axis or pin, *b*, that confines it in the lower extremity of a pendulum-lever, (marked E in Fig. 5 of Example 10) having an armature of a magnet attached to it at *d* and acted upon by an electro-magnet, *o*, placed near it and the before-named magnet, and in the same circuit of conductors with the latter. Said cog *b* moves in a quarter-circle only, as the motion of said arm of the lever passes backward and forward in the act of recording, as hereinafter described. When forced into a horizontal position in said quarter-circle it ceases to act upon the hammer: but when moved from a perpendicular position it presses upon the projection in the end of the hammer, causing the opposite end of the hammer to be raised, from which elevation it again falls upon a stationary bell, A, as soon as said cog reaches a horizontal position, and ceases, as before mentioned, to press upon the hammer. Thus a notice by sound or an alarm is given at the point to which intelligence is to be communicated as soon as the register begins to act, and such sound may be continued or not, at pleasure, for the purpose mentioned, or for any other uses, as the hammer shall be suspended or not from contact with the bell or with any number of bells that may be employed. Fig. 5 of said example, marked 10 in the annexed drawings, represents sections of said hammer and bell.

Said several parts of the register are set in motion by the communication to or action upon the before-named armature of a magnet attached to the lever of the register, of the electric or galvanic current in the circuit of conductors, and from an electro-magnet in said circuit, as before described, stationed near the said armature. As said armature is drawn or attracted from its stationary and horizontal position toward the said magnet, when the latter is charged from the

circuit of conductors, said lever is turned upon its fulcrum, and the opposite end thereof necessarily descends and brings the pen or marking-instrument which it contains in contact with the paper or other substance on the revolving cylinder directly beneath it. As said armature ceases to be thus drawn or attracted by said magnet, as is the case as soon as said magnet ceases to be charged from the circuit of conductors, or as the current in said circuit is broken in the manner hereinbefore described, the said armature is forced back by its own specific gravity or by a spring or weight, as may be needed, to its former position, and the pen or marking-instrument in the opposite end of the lever is again raised from its contact with the paper or other substance on the before-named revolving cylinder. This same action is communicated simultaneously from the same circuit of conductors to as many registers as there are corresponding magnets provided within any circuit and at any desired distance from each other.

The cylinder and its two associate rollers are set in motion simultaneously with the first motion of the lever by the withdrawal of a small wire or spindle, *g*, Example 10, Figs. 2 and 5, from beneath one branch of a fly-wheel, *k*, that forms a part of the clock machinery hereinafter named. Said wire *g* is withdrawn by the action upon said wire of a small electro-magnet, *o*, Figs. 2 and 5, stationed in the circuit and near the large magnet before named, as delineated in Fig. 5 of Example 10. Said cylinder and rollers are subsequently kept in motion by a train of wheels similar to common clock-wheels, as in Figs. 2 and 3, acted upon by a weight, raised as occasion may require by a hand-crank, and their motion is regulated by the same wheels to correspond with the action of the registering-pen or marking-instrument. Said train is represented in Figs. 1, 2 and 3 of said Example 10.

The electro-magnet thus used is made in any of the usual modes, such as winding insulated copper wire, or strips of copper, or tin-foil, or other metal around a bar of soft iron, either straight or bent into a circular form, and having the two extremities of the coils connected with the circuit of conductors, so that the coils around the magnet make part of the circuit.

To extend more effectually the length of any desired circuit of conductors, and to perpetuate the power of the electric or galvanic current equally throughout the same, I adopt the following mode, and also for connecting and using any desired number of additional and intervening batteries or generators of said current, and for connecting progressively any number of consecutive circuits, viz.: Place at any point in a circuit an electro-magnet of the denomination already described, with an armature upon a lever of the form and structure, and in the position of that used at the register to hold and operate the marking-instrument, with only a substitution therein for such marking-instrument of a forked



wire, A, Example 9, Fig. 3, like that upon the end of the signal-lever heretofore described. Directly beneath the latter wire place two cups of mercury, E E, or two metallic plates joined to terminations of a circuit leading from the fresh or additional battery or generator of said circuit, in the same manner as they are to be provided in the first circuit of conductors at the points where the cups of mercury are hereinbefore described. As the current in the first circuit acts upon the magnet thus provided the armature thereof and lever are thereby moved to dip the forked wire A into the cups of the second circuit, as in the circuit first described. This operation instantly connects the break in said second circuit, and thus produces an additional and original power or current of electricity or galvanism from the battery of said second circuit to the magnet or magnets placed at any one or more points in such circuit, to be broken at pleasure, as in the first circuit; and from thence, by the same operation, the same results may again be repeated, extending and breaking at pleasure such current through yet another and another circuit, ad infinitum, and with as many intervening registers for simultaneous action as may be desired, and at any distances from each other.

The dictionary or vocabulary consists of words alphabetically arranged and regularly numbered, beginning with the letters of the alphabet, so that each word in the language has its telegraphic number, and is designated at pleasure through the signs of numerals.

The modes which I propose of insulating the wires or other metal for conductors and of laying the circuit are various. The wires may be insulated by winding each wire with silk, cotton, flax, or hemp, and then dipping them into a solution of caoutchouc, or into a solution of shellac, or into pitch or resin and caoutchouc. They may be laid through the air, inclosed above the ground, in the ground, or in the water. When through the air they may be insulated by a covering that shall protect them from the weather—such as cotton, flax, or hemp—and dipped into any solution which is a non-conductor, and elevated upon pillars. When inclosed above the ground they may be laid in tubes of iron or lead, and these, again, may be inclosed in wood, if desirable. When laid in the ground they may be inclosed in iron, leaden, wooden, or earthen tubes, and buried beneath the surface. Across rivers the circuit may be carried beneath the bridges, or, where there are no bridges, inclosed in lead or iron and sunk at the bottom, or stretched across, where the banks are high, upon pillars elevated on each side of the river.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. The formation and arrangement of the several parts of mechanism constituting the type-rule, the straight port-rule, the circular port-rule, the two signal-levers, and the register-lever and alarm-lever, with its hammer, as com-

binning respectively with each of said levers one or more armatures of an electro-magnet, and as said parts are severally described in the foregoing specification.

2. The combination of the mechanism constituting the recording-cylinder and the accompanying rollers and train-wheels with the formation and arrangement of the several parts of mechanism, the formation and arrangement of which are claimed as above and as described in the foregoing specification.

3. The use, system, formation, and arrangement of type and of signs for transmitting intelligence between distant points by the application of electro-magnetism and metallic conductors combined with mechanism described in the foregoing specification.

4. The mode and process of breaking and connecting by mechanism currents of electricity or galvanism in any circuit of metallic conductors, as described in the foregoing specification.

5. The mode and process of propelling and connecting currents of electricity or galvanism in and through any desired number of circuits of metallic conductors from any known generator of electricity or galvanism, as described in the foregoing specification.

6. The application of electro-magnets by means of one or more circuits of metallic conductors from any known generator of electricity or galvanism to the several levers in the machinery described in the foregoing specification, for the purpose of imparting motion to said levers and operating said machinery, and for transmitting by signs and sounds intelligence between distant points and simultaneously to different points.

7. The mode and process of recording or marking permanently signs of intelligence transmitted between distant points and simultaneously to different points by the application and use of electro-magnetism or galvanism, as described in the foregoing specification.

8. The combination and arrangement of electro-magnets in one or more circuits of metallic conductors with armatures of magnets for transmitting intelligence by signs and sounds, or either, between distant points and to different points simultaneously.

9. The combination and mutual adaptation of the several parts of the mechanism and system of type and of signs with and to the dictionary or vocabulary of words, as described in the foregoing specification.

In testimony whereof I, the said Samuel F. B. Morse, hereto subscribe my name, in the presence of the witnesses whose names are hereunto subscribed, on the 7th day of April, A. D. 1838.

SAML. F. B. MORSE.

Witnesses: B. B. French, Charles Monroe.

Aristotle was once asked what those who told lies gained by it. Said he, "That when they speak truth they are not believed."

### Specifications for Rubber Insulated Signal Wire.

The committee of the Railway Signal Association having in charge the compilation of specifications for rubber-covered signal wires, recommended at its recent meeting in Washington the adoption of the following rules for testing wires for signal purposes, carrying currents of 600 volts or less:

1. Conductors.—Conductors must be of soft-drawn annealed copper wire having a conductivity of not less than ninety-eight per cent. of that of pure copper. Each wire forming a conductor must be continuous without splicing throughout its length, must be uniform in cross section, free from flaws, scales and other imperfections and provided with a heavy uniform coating of tin.

2. Rubber Insulation.—The vulcanized rubber compound shall contain not less than thirty per cent. nor more than thirty-three per cent. by weight of fine dry Para rubber which has not previously been used in rubber compound. The gum itself shall not contain more than three and one-half per cent. of resinous extract. The remaining seventy per cent. of the compound shall consist of mineral matter only. The insulation must be tough, elastic, adhering strongly to the wire, must be homogeneous in character and placed concentrically about the conductor.

3. Taping and Braiding.—(a) The rubber insulation must be protected with a layer of cotton tape thoroughly filled with a rubber insulating compound, lapped one-half its width and so worked on as to insure a smooth surface.

(b) The outer braid must consist of one layer of closely woven cotton braiding one thirty-second of an inch thick, saturated with a black, insulating, weatherproof compound which shall be neither injuriously affected by nor have injurious effect upon the braid at a temperature of 200° Fahrenheit.

4. Tests.—The manufacturer must provide at his factory all apparatus and other facilities needed for making the required physical and electrical tests and must provide the manufacturer's representative with all facilities for assuring himself that the thirty per cent. of rubber as above specified is actually put into the compound. The inspector shall not be privileged to ascertain what mineral ingredients are used in making up the remaining seventy per cent. of the compound. The manufacturer shall give free access to the place of manufacture and opportunity to test at all necessary times. Tests will also be made upon the finished product after delivery, and the wire will be rejected if it fails to meet the requirements of the specifications. The manufacturer must pay freight charges for return of all wire that may be rejected by the railroad company.

5. Physical Test of Copper Conductors.—Each solid conductor must stand elongation of twenty-five per cent. of its length in ten inches before breaking. In torsion it must stand before breaking thirty twists in six inches. It must be capa-

ble of being wrapped six times about its diameter and unwound without showing signs of breakage after the process has been gone through twice. The tension and torsion tests will be made on separate pieces of wire.

6. Conductivity Test of Copper.—The conductivity of the copper shall be determined by measuring the resistance of a length of the wire and comparing with Matthiessen's standard of copper resistance.

7. Tests of Tinning.—Samples of the wire shall be thoroughly cleaned with alcohol and immersed in hydrochloric acid of sp. g. 1.088 for one minute. They shall then be rinsed in clear water and immersed in a sodium sulphide solution of sp. g. 1.142 for thirty-two seconds and again washed. This operation must be gone through with four times before the wire becomes clearly blackened.

8. Tests of Braiding.—Six-inch sample of wire with carefully paraffined ends shall be submerged in fresh water of a temperature of 70° Fahrenheit for a period of twenty-four hours. The difference in weight of the sample before and after submersion must not be more than ten per cent. of the weight of the sample before submersion less the weight of the copper and vulcanized rubber.

9. Physical Tests of Rubber Insulation.—A sample of the vulcanized rubber insulation not less than four inches in length shall have marks placed upon it two inches apart. The sample shall be stretched until the marks are six inches apart and then at once released. One minute after such release the marks shall not be over two and three-eighths inches apart. The sample shall then be stretched until the marks are nine inches apart before breaking and must have a tensile strength of not less than eight hundred pounds per square inch.

10. Chemical Tests of Rubber Insulation.—The vulcanized rubber compound shall contain not more than six per cent. by weight of acetone extract and not more than seven-tenths of one per cent. of free sulphur.

Size B. & S. gage.	Area in Circular Mills.	Thickness of Insulation.	Insulation resist. Megohms per mile.	Test voltage Alternating Current.
0	105,592	1/8" wall	1200	10,000
1	83,694	1/8 "	1300	10,000
2	66,373	1/8 "	1400	12,000
4	41,742	3/32 "	1300	9,000
6	26,250	3/32 "	1500	9,000
8	16,500	3/32 "	1700	9,000
9	13,000	5/64 "	1700	7,000
10	10,380	5/64 "	1800	7,000
12	6,530	5/64 "	2000	7,000
14	4,107	5/64 "	2100	7,000
16	2,583	1/16 "	1900	4,000
18	1,624	1/16 "	2000	4,000

"Pocket Edition of Diagrams," etc., by Willis H. Jones, electrical editor of TELEGRAPH AGE, embodies more practical information concerning the telegraph than any book or series of books hitherto published. See advertisement.

### Home of Paris's \$4-a-Week Telegraph Girl.

Being a government employee, and very badly paid, the Paris telegraph girl has had built for her comfort and safety a brand new, beautiful hotel, which will compare favorably with the Trowmart Inn, the Co-operate, and any other of the public or private hotels or homes which the single, unattached, working woman of New York has at present at her disposal.

The telephone and postoffice girls are sharers with the telegraph girls in their good luck, for together they form one division of the public service, with an under secretary of state to look after them. "La Maison des Dames des Postes," as the new working woman's hotel is called, is due to the fact that the present under secretary "aux Postes et Télégraphes" is a public spirited and humane man, who had been struck by the miserable food and lodgings which fell to the lot of a large number of the working women of Paris, when these happened to be living away from their families.

In all Paris, it seems, there are only a few "homes" built and run expressly for the wage-earning women, and those that do exist answer but imperfectly the needs of the class of women employed by the government. As for the restaurants run expressly for women, their number is exceedingly small, and they, too, for divers reasons, do not attract the patronage of business women.

Yet many of these poor telegraph, telephone and postoffice girls earn only \$4 a week, \$16 a month. The under secretary dreamed a dream of a co-operative hotel and restaurant, where these \$4 a week girls of his could find light, pretty, cheap bedrooms, and food that, costing but a few cents a meal, would yet be nourishing and appetizing. And to-day this dream has become a reality.

Such enterprises as hotels for women wage-earners not coming within the scope of the postal, telegraph and telephone department, a private company had to be formed and capitalized. This was done at the beginning of 1905. What with gifts amounting to \$20,000, a loan of \$60,000, and stock issued to the amount of about \$40,000, this company has succeeded in erecting a fine six-story building, which is already occupied, if its formal opening has not already taken place. The lot, at No. 41 Rue de Lille, cost \$43,600; the building, \$60,000; furnishing, running expenses, etc., \$16,400; in all a total of \$120,000.

Built in the favorite French fashion, around an interior courtyard (which in this instance has been made into a charming garden with an area of over two thousand square feet), this house is most attractive without as well as within and entirely up to date in its appointments. Each floor is equipped with bathtubs, shower baths, hot and cold water service, ample wardrobes, etc., and the plumbing is of the best. Rounded corners and angles make absolute cleanliness easy. The bedrooms, to the number of 111, are fitted up with

taste, even elegance, the furniture having been made expressly for the house. The walls, as is the case throughout the building, are frescoed instead of papered, and each bedroom is decorated with a frieze of spring flowers, giving a charmingly bright decorative effect. These bedrooms are steam heated, and let for from \$3.60 to \$7 a month—the most expensive of them being cheaper than the quarters, less hygienic in respect to light, heat and location, which a woman can find elsewhere. Seventy-five rooms were already rented before the opening day.

The ground floor is occupied by a spacious and imposing lobby, a large restaurant and, adjoining, a broad veranda and combination reading and study room. In the basement are situated the kitchens and lavatories for the use of patrons not residing in the house.

The reading and study room is open not only to the boarders, but to all women in the employ of the Postal-Telegraph-Telephone service, upon payment of a monthly fee of ten cents. The members of the reading room thus constitute a working girls' club. These girls already possess enough general culture to follow public events with intelligence, and it is hoped that in this club they will enjoy the advantages too many of them have been deprived of. The club work is, unfortunately, much handicapped at present by reason of the meagreness of its library, which has to depend for growth entirely upon outside sources. However, the managers of several publishing houses have come to its aid with contributions of books, and the editors of several newspapers and periodicals also contribute regularly. Complimentary tickets have also been received from several theatrical managers.

In order to complete the ethical and philanthropic work so wisely instituted, the managers of the restaurant have decided to open this department to all women, whether in government employ or not. This restaurant, notwithstanding the elegance of its appointments, offers a nourishing and attractive bill of fare at the most modest rates. It is open from 6.30 o'clock in the morning till 9 at night, and meals are served either a la carte or table d'hôte. For about eighteen cents one can enjoy a complete meal of bread, wine, a relish, meat, a vegetable and dessert.

At the very beginning M. Bliault, the architect of the government and the Musée Social, adopted as his rule, "Nothing to be wasted on superfluities." As a consequence, the decoration, while pleasant in detail and harmonious as a whole, is kept subservient to the practical. Nothing is purely ornamental; everything has a use. The whole building breathes an air of freshness, brightness and sunlight. It is a home where a girl may have privacy or society, as she pleases; a hotel, entirely up to date and as attractive as many a more pretentious hostelry; a woman's club as pleasant as any in the city.

Later the girls employed in the other government departments—the stenographers, copyists and so on—will be lodged in a similar house, to be erected on the same plan as this one.—New York Tribune.

**Some Recollections of John A. Brenner, of Augusta, Ga., of the Early Days of the Telegraph in Washington, D. C., and his Services with Various Companies, There and in the South.**

I went into the Bain telegraph office at Washington in 1848, then under the management of Cherry Westbrook, to learn the business. After becoming proficient enough to operate I was told that I would have to serve three months before receiving any pay. When the three months were up I was offered \$25 per month to go to the New York office, but declined the offer.

Soon after this I was employed by B. B. French, president of the Magnetic Telegraph Company, Joseph Bailey being the chief operator. The term chief operator was the title given to the manager of an office in those days.

My next employment was under William Linton, chief operator of the Washington and New Orleans Telegraph Company, whither I went with the consent of Mr. Bailey. Here I remained until 1852 when the entire force was dismissed for refusing to work after ten o'clock at night. Mr. Elam Alexander of Macon, Ga., was then the president of the Washington and New Orleans Company, and had promised us relief from excessive night work; failure to keep his promise caused the entire force to refuse to work after the published hour of closing, which was 10 P. M.

When I went into the Bain line office in 1848 their headquarters was on Pennsylvania avenue, north side, next to the corner of Four and One-half street. The Magnetic office was on Pennsylvania avenue, south side, between Four and One-half and Sixth streets, about two-thirds of the distance from Four and One-half street. The Washington and New Orleans office was over the old post office, on the west side of Seventh street between E and F streets; afterwards moved to the east corner of Seventh and D streets, over a butcher's shop.

I was employed at this place under Amos Kendall, president, and J. B. Tree, chief operator, after having been out of the telegraph service for about two years. In 1855 Mr. Kendall ordered me temporarily to Columbia, S. C., to take charge of that office and relieve Mr. Charles Edwards. This I did, and after renewing the office connection and seeing that everything was all right, I asked Mr. Kendall to allow me to return to my place in the Washington office. He replied that he could not consent, but I could name, in round figures, the amount I could live on with my family at Columbia, which I did, thinking the sum stated would cause him to return me to the Washington office. Not so, however, for he answered: "Terms accepted, you can have a furlough of a week or ten days to come after your family

when business will permit." I went after my family in August of that year, and Mr. Kendall then requested me not to make any permanent arrangements at Columbia, as he intended to move me to Augusta, Ga. This he did in September where I relieved Mr. R. H. Woodward, who was in charge of the office, Mr. Woodward being transferred to Savannah, Ga.

In May, 1856, I was appointed superintendent of the district, with headquarters at Augusta, Ga., in place of Mr. W. H. Heiss, and remained in charge until November, 1860, when I was relieved by Zenas Barnum of Baltimore, who had become the president of the company, no cause being assigned for my removal, and Mr. Heiss was again placed in charge of the district.

The Civil War breaking out in 1861, Mr. Heiss went north and after the separation of the lines, which were then in charge of the American Telegraph Company, I was asked to again take charge of the district, as superintendent, which I did and remained in charge from 1861 until shortly after 1903, when I retired from all active service.

After the close of the war the lines were again taken in charge by the American Telegraph Company as soon as released by the United States authorities, and later, in 1866, the Western Union Telegraph Company took control by absorption and continue in charge.

In my Washington days, and for several years afterwards the register was required to be used in receiving messages. On one occasion, while in Washington, I went out one night with some of the boys to get an oyster stew, leaving the register to do all the work. Charley Edwards at Columbia was sending. About the time we were ready to return to the office, the butcher, over whose shop the office was located, informed me the devil was to pay upstairs; that he thought the house was about to fall in. On reaching the operating room I found the cord attached to the register weight had broken, and Edwards still sending. I stopped him, explained the accident and after copying what had been received before the weight broke, got him to resend the remainder.

The first operator working by sound in my recollection was "Tom" Jolly at Augusta, Ga., in 1856. This method was not popular with the higher officials, but finally Mr. Kendall said if Jolly would receive by sound he must let the paper run so as to keep a record.

There were no clerks employed in the early days. The chief operator kept the accounts of the office, waited on the public, with the assistance of the other employees. The method of keeping accounts was of the most simple character. Nothing like a check report was used, and an error sheet was unknown.

Marcus Aurelius asserted: "How much time he gains who does not look to see what his neighbor says or does or thinks, but only at what he does himself to make it just and holy."



### A Civil War Time Message.

There is a little round prairie containing several acres of land twenty miles east of Independence, Mo., on the old Lexington road, which was the scene of a dramatic incident during the Civil War. W. F. Bassett, one of the old-time military telegraph operators, tells the story, says the *Kansas City Star*:

"I was operator on the staff of General Curtis during the raid of General Sterling Price in 1864. General Curtis was stationed at Independence with between 8,000 and 10,000 men to check the advance of General Price until General Pleasanton, who was thundering in his rear with 20,000 veteran cavalry, could overtake him. General Price was reported at Boonville, and one morning General Curtis summoned me to his headquarters.

"An escort of 200 men under Colonel Scott," said he, 'will be ready in an hour, and I desire you to proceed to Lexington to repair the wires where they have been cut and notify me from Lexington of the movements of General Price.'

"It required two days for us to repair wires along the route, and the second morning after leaving Independence we dashed into Lexington with a wild yell and sabers drawn, but found no one to resist us. Colonel Scott immediately sent out scouts east to reconnoiter, who returned about eleven o'clock and reported Price's advance under Shelby about twelve miles distant moving forward and likely to reach Lexington about three or four o'clock in the afternoon. Shortly after three o'clock scouts on the lookout reported Shelby only three miles from town, and soon we left the western part of town just as Shelby was entering from the east. We met with no serious opposition until darkness set in, when the guerrillas in force began to harass us from the woods on each side of the road. We soon discovered that considerable force had followed us from Lexington, and our situation became perilous. We were prevented from marching rapidly by the continuous firing of the enemy, a wounded man having now and then to be taken care of. The idea of the enemy was to retard our progress as much as possible until they received further re-enforcements sufficient to surround and capture our escort of 250 men.

"At midnight we reached the little round prairie east of Independence, and Colonel Scott concluded to halt there until morning. The situation was indeed discouraging and our chances for escape in the morning were not alluring. There was a little farmhouse in the center of the little prairie and the telegraph line ran along the road in front of the house, but, presuming as a matter of course that the enemy had cut the wires east and west, we did not at first consider them as a factor in the emergency we had to meet. The coming of daylight meant a hot fight and perhaps defeat and capture also. The men were held in line under arms outside and the officers sat in the little farmhouse smoking and telling stories, as if not an enemy was near to disturb their peace of mind. I remember that one of the officers told the story of the siege of Lucknow in India during the Sepoy rebellion of 1856, when Jessie Brown, the

half-witted daughter of a sergeant, three days before the coming of relief to the beleaguered garrison, ran around crying out excitedly:

"'Dinna ye hear it? Dinna ye hear it? 'Tis the slogan sound, 'tis the bagpipes of the Highlanders, the Campbells are comin'.' And the third day afterwards Lord Colin Campbell marched in with the clan Campbell regiment, the slogan sounding and the bagpipes playing, and the garrison was saved.

"About one o'clock an incident occurred which forcibly illustrated the saying that nothing should be taken for granted in war, but that every possible chance for relief should be taken advantage of. I said to Colonel Scott:

"There is one chance in a hundred that they have not destroyed the wires west of us; suppose we try it.'

"I put on my pole climbers, strapped my field instrument over my shoulder, and a haversack with a coil of wire and tools in it. I had also swung a lighted lantern over my shoulder. Getting to the top of the pole, I at once connected the instrument with the wire, a loop constructed for the purpose holding the two ends together. But the little instrument did not respond, and it seemed that the wires were dead. I took a coil of copper wire from my tool sack, and, holding to one end, let the coil drop to the ground.

"Stick the end of this wire into the ground as far as you can,' I cried to the men below. This I intended to use as a ground wire testing east and west. As soon as they struck the wire in the ground I touched the other end to the end of the telegraph wire and the little instrument snipped, and I knew the wire was all right west. The letter D was the call for General Curtis' headquarters, and I immediately began calling. I was answered after a few signals, and some one said:

"Who is that?"

"S. T.' was my telegraph signature, and I replied:

"This is S. T., twenty miles east of Independence on top of a telegraph pole. Take this message quick from Colonel Scott to General Curtis:

"Surrounded twenty miles east on the Lexington road by a large force. Badly in need of relief.'

"In five minutes a reply came, saying: 'Relief will start in an hour.'

"I was sitting on the pole well satisfied with myself when a rapid firing all at once opened up from the woods. I did not fully comprehend this sudden fusillade until one of the officers cried out:

"They have caught on, young fellow, and are firing at you and that lantern.'

"With one convulsive movement I threw out my left arm and let the lantern fall to the ground, for I could hear the spit, spit of the bullets, and knew they were getting a good aim on me. I lost no time in shinning down that telegraph pole, I can assure you.

"Nothing further occurred until just as dawn was

breaking. One of the officers went out and returned quickly, saying to Colonel Scott:

"The Campbells are coming."

"A few minutes thereafter a regiment dashed in and the enemy, observing the unexpected turn of events retired, and we were saved."

**Lincoln's Envy.**

(F. M. McClintic in the Railroad Man's Magazine.)

President Lincoln once stated to the late Jesse H. Bunnell, who was then military telegrapher to General George B. McClellan in Washington, that he would give a thousand dollars had he learned telegraphy when a boy. Mr. Lincoln used to talk to young Bunnell on matters of state, as will be seen by an excerpt from a letter written by a member of the military corps stationed in Washington to another in New York during the war, dated Washington, District of Columbia, December 14, 1861, and addressed "Dear Jack." The letter follows:

"Washington is a sight. I don't wonder Mr. Lincoln said one could not throw a stone down Pennsylvania avenue without hitting a brigadier-general. The town is full of them and the Army of the Potomac is stalled at Alexandria. McClellan is here and does business by telegraph. He has for an operator one of the handsomest young men I ever saw—Jesse H. Bunnell. He and Mr. Lincoln are very chummy. Jesse is considerably under twenty years of age, but the President talks to him in a way that is very funny. Jesse says he should feel complimented, but he realizes that the President is simply thinking aloud.

"It is one of the best possible tributes to the telegraph that it interests the very best minds. Up in Amherst some of the ginger-pop professors used to sniff a little at my enthusiasm about telegraphy. They regard it as a trade, and not just the thing for a college man. Now comes Abraham Lincoln, the foremost of all living men to-day, throws his long leg across the table where Bunnell is receiving dispatches, stays around until long after midnight, looks over Jesse's shoulder and says: 'Young man, I would give a thousand dollars if I had learned to do that when I was young. The ability to read those signals is a never-ending mystery to me.'

"Continuing his inmost thoughts, the President would say: 'And, Jesse, McClellan says he needs more men. What do you think? He has quite a few down there at Alexandria, and he seems inclined to keep them there until spring. Secretary Cameron is growing weary of running a war, and we are going to accept his resignation and put in a more active fellow. I have my eyes on one now. But, Jesse, he may be too active. The happy medium is a mighty hard thing to strike. Don't you find it that way in your own business? Some of the boys send too fast and some too slow, and some just right, eh? Well, that is just what is needed in the War Department, a man who can send just right; take a gait and keep it.

"It is with men as with horses; some of them are great at a spurt, but not many are all wool and

a yard wide at a pull. The new Secretary of War must be as good at a pull as he is at a spurt, or this war will hang along until everybody will be worn out. Well, Jesse, we are going to do something pretty soon—along in February we will begin moving. I guess McClellan doesn't need any more men to hold Alexandria with—no, indeed."

**Telegraph Earnings in the Early Days.**

The meagreness of the telegraph earnings in the early days is conclusively shown in the following official statement:

Daily receipts of telegraph, Washington, D. C., office, for the quarter ending March 31, 1846:

January.	February.	March.
1st—\$2.60	2nd—\$1.36	2nd—\$5.87
2nd— 3.56	3rd— 1.95	3rd— 3.75
3rd— 3.03	4th— 2.32	4th— 1.91
5th— 3.30	5th— 1.37	5th— 2.65
6th— .96	6th— 2.55	6th— 2.70
7th— 2.41	7th— 1.13	7th— 3.76
8th— 1.01	9th— 2.27	9th— 3.27
9th— 1.37	10th— 4.29	10th— 1.57
10th— 1.90	11th— 2.04	11th— 2.43
12th— 2.26	12th— 1.82	12th— 3.07
13th— 4.18	13th— 2.39	13th— 1.66
14th— 3.47	14th— 1.55	14th— 3.84
15th— 4.10	16th— 2.50	16th— 2.99
16th— 2.71	17th— 2.91	17th— 2.83
17th— 2.04	18th— 2.41	18th— 3.25
19th— 3.84	19th— 2.39	19th— 4.05
20th— 1.97	20th— 2.92	20th— 5.00
21st— 1.47	21st— 3.57	21st— 3.36
22nd— 3.56	23rd— 3.61	23rd— 3.03
23rd— 1.88	24th— 2.83	24th— 1.66
24th— 2.24	25th— 2.84	25th— 2.20
26th— 2.51	26th— 3.79	26th— 3.15
27th— 2.27	27th— 1.78	27th— 1.34
28th— 2.45	28th— 2.99	28th— 2.55
29th— 3.12		30th— 1.66
30th— 3.32		31st— 2.29
31st— 1.58		

Total—\$67.01      Total—\$60.58      Total—\$75.84  
 January, \$67.01; February, \$60.58; March, \$75.84;  
 Total, \$203.42.

ALFRED VAIL,  
 Asst. Supt. of Elec. Mag. Tel. for the U. S.

**Concrete Telegraph Pole.**

The Pennsylvania Railroad Company has decided to experiment with a concrete telegraph pole. Four will be erected between Mansfield and Crestline and a half mile of the new style posts will be used between Crestline and Bucyrus.

The new poles are thirty feet in height, eighteen inches in diameter at the base and ten inches at the top. They will be placed in the ground about five feet. The cross arm is also made of concrete and is ten feet in length, six inches high and two inches wide.

Should the cross arm not come up to the standard hoped for, the pole has been so constructed that the cross arm can be removed and replaced by the old style wooden cross arm. To erect the poles the company has been obliged to use a wrecking derrick.

The poles are manufactured by the company and should the experiment prove successful the expenses of the system will in the long run be cut down.

### Reno as a Repeater and Relay Office.

The City of Reno, which is having a substantial and rapid growth, and which is situated in the extreme western part of Nevada, not far from the California boundary, has become one of the most important repeater and relay offices west of Chicago. The office has fourteen wires west, five of them copper; twelve wires east, three of which are copper; six wires south and one north into Oregon. The equipment of the office includes a storage battery, lately installed; eight quadruplex and six duplex sets; Wheatstone repeaters, two single line repeaters, two half sets and six Morse sets. The office is under the management of T. H. Brown. J. E. Palmer is chief operator; A. O. Van Fleet night chief, and W. F. Sedgwick, all night man. Besides these there are

of Mayfair." It was filed at 9.39 o'clock December 3, by Frederic Thompson, of Thompson and Dundy, at the main office of the Western Union Telegraph Company, and after circling the earth, over 26,000 miles of submarine and overland wires, was received by the Postal Telegraph-Cable Company at 12.50. The time, two hours and eleven minutes, establishes a record which is considered marvelous by the officials of the telegraph companies.

It was the first commercial message ever sent from this city around the world. The dispatch sent by President Roosevelt in 1903, at the time of the celebration of the opening of the Commercial Pacific Cable, consumed but nine minutes, but preparations for its transmission had been made beforehand, and it went over clear wires.



THE OPERATING ROOM OF THE WESTERN UNION TELEGRAPH COMPANY, AT RENO, NEV.

ten operators, one book-keeper and assistant, three clerks and five messengers. The Reno office handles about 2,000 messages per day, including stock reports and considerable press.

The accompanying engraving of the operating room shows a large and busy interior, the magnitude of which, reflecting the importance of the office, will doubtless be a revelation to many of our readers.

### Message Circled Earth in Two Hours.

"I'm circling the globe to wish you a world of success.

"FREDERIC THOMPSON."

This was the message handed to Thomas Ryley at Daly's Theatre, New York, December 3, just before the curtain went up on "The Belle

Three minutes after the sending of Mr. Thompson's message, it was in the London office. Thence it went to Alexandria, Port Said, Egypt; to Aden, Arabia; to Bombay, Madras and Singapore, India; to Saigon, Siam; to Hong Kong, China; to Manilla, thence over the Commercial Pacific cable, touching at Guam, Midway Islands, and Honolulu to San Francisco, and from there across the continent to New York.

An exchange, in commenting on the action of a telegraph manager who is employing negro messenger boys, says that he probably aims at getting quicker service when he engages lads of fast color. That theory, however, won't hold water. A fast color is warranted not to run, so what's the use?

### Some Valuable Telegraph Books.

#### Suitable for Holiday Gifts.

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. 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 against 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 under the supervision of Mr. A. P. Velie, an expert press and code operator, for many years identified with The Associated Press, New York, a few revisions made and a number of contractions added, until now this "staunch 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 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 by 11 inches in size, has gilt edges and is bound in imitation Morocco—together a handsome volume.

Of this fine publication, becoming more and more valuable as time 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 \$1 a volume. On receipt of this amount the book will be sent to any address, express charges to be paid by the purchaser. At this low rate, a sum below 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 Quadruplex," by William Maver, Jr., and M. M. Davis, still holds its own as a work of authority in its treatment of its subject. A clear analysis of that system of telegraphy is afforded and telegraphers have constant need of the book. There are 128 pages in the volume and 63 illustrations; price, \$1.50.

The life of Prof. S. F. B. Morse, 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 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, \$1.50.

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 Practical Management of Dynamos and Motors," by F. B. Crocker and S. S. Wheeler, as indicated by its title, affords a clear understanding of the use, care and operation of these important adjuncts of the well equipped modern telegraph office. There is a constant demand for this book, for telegraphers find it an invaluable addition to their working library. There are 206 pages, and 99 illustrations; price, \$1.

"Electrical Instruments and Testing" is the title of a new volume by that industrious and excellent writer on such subjects, Norman H. Schneider. This book treats of the use of the voltmeter, ammeter, galvanometer, potentiometer, ohmmeter and the Wheatstone bridge. The explanations are practical, given with numerous worked out examples, fully illustrated with diagrams and drawings. The book is intended for practical, everyday use, and also as an introduction to the larger works on electrical testing. The apparatus described is modern and such as is generally employed. The volume is well printed on plate paper, contains 199 pages, including a fine index, and there are eleven chapters and 105 illustrations. The price is \$1; bound in cloth.



### Important Subjects Treated in Back Numbers.

TELEGRAPH AGE has published the best articles on telegraphic subjects that have ever appeared in print. Herewith are enumerated a few of the most important subjects treated, together with the date of the papers containing the same. Copies of these back numbers may be had at twenty-five cents apiece upon application. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Adjustment of Relays and Sounders.....	Oct. 1, 1902
Alternating Current Transformer for Quadruplex, W. H. Jones, Mch. 1-16, 1904	
American Cable Across the Pacific.....	July 16, 1903
Alaskan Telegraphs.....	Jan. 1-16, Feb. 1, 1905
Atmosphere and Earth Electrical Conditions, E. C. Walker, Dec. 16, 1904	
Aurora Borealis, The.....	Nov. 16, Dec. 16, 1903
Autoplax, The.....	Feb. 1, 1903
Barclay Combination Quadruplex Rheostat.....	July 1, 1903
Barclay's Direct Repeating Relay for Multiplex Circuits.....	July 16, 1902
Barclay Printing Telegraph System, W. H. Jones.....	May 16, 1903
Barclay's Repeating Relay, Main Line Relay and Box Relay.....	Jan. 1, 1903
Barclay Typewriting Telegraph System.....	Jan. 16, 1904
British Patent Office Rules.....	Jan. 16, 1904
British System of Timing Messages.....	Dec. 1, 1902
Buckingham Long Distance Page Printing Telegraph.....	Sept. 1, 1902
Burry Page Printing Telegraph.....	Apr. 1, 1903
Cables and Russo-Japanese War.....	Apr. 1, 1904
Cable Station in Mid-Pacific, Our, Dr. Martin Crook.....	Feb. 16, 1905
Central Cable Office, New York.....	June 1, 1902
Central Telegraph Office, London.....	Oct. 16, 1904; May 1, 1905
C. K. Jones' Automatic Telegraph Circuit Protector and Signaling Machine.....	June 16, 1903
Collins Overland Telegraph.....	May 16, 1903
Composite Circuits—Report Com. Assn. Ry. Tel. Supts., Sept. 1, 1904	
Composite Telegr. and Telep. on Canadian Pacific Ry.....	Mch. 1, 1904
Composite Telephone Lines.....	Mch. 1, 1905
Orchard-Squire Automatic Telegraph System.....	May 16, 1902
Definitions of Electrical Terms, Mch. 16, Apl. 1-16, June 1, July 1-16, 1904	
Delany's, P. B., Automatic Telegraph System.....	Mch. 16, 1903
Delany's, P. B., New System of Rapid Telegraphy.....	Apl. 16, 1904
Direct Polar Relay Repeater of the Postal Telegraph-Cable Company.....	Oct. 16, 1903
Earth Currents.....	May 1, 1903
Engraving of Clarence H. Mackay.....	Nov. 16, 1902
Engraving of Col. Robert C. Clowry.....	Apl. 16, 1902
Engraving of the Late John W. Mackay.....	Aug. 1, 1902
Field's, S. D., Amplifier.....	Nov. 1-16, 1904
Field's, S. D., Quadruplex.....	May 1-16, 1904
Flow of Electricity in the Earth.....	Dec. 16, 1903
Ghegan Automatic Repeater.....	June 1, Dec. 1, 1903
Ghegan's, J. J., Multiplex System.....	Aug. 1, 1904
Gray Submarine Signaling Apparatus.....	Jan. 1, 1904
Hand vs. Machine Telegraphy.....	Sept. 16, 1902
Hard Drawn Copper Wire, F. W. Jones.....	Nov. 1, 1903
Harmonic Telegraph, Prof. F. Lori.....	Mch. 16, 1905
Improvements of Robertson Quadruplex.....	Feb. 1, 1903
K. E. Law as Applied to Quadruplex Circuits.....	Jan. 1, 1904
Lefsey Telegraph Key.....	Jan. 1, 1904
Life of Storage Batteries.....	July 1, 1903
Low Resistance Relays.....	Oct. 1-16, Nov. 1, Dec. 16, 1902, Jan. 1, 1903
Midway Islands Cable Station.....	July 1, 1904
New York Fire Alarm Telegraphs.....	Aug. 16, 1903
Passing of the Quadruplex.....	Aug. 1, 1903
Phillips' System of High Speed Telegraphy, J. W. Larish, Nov. 1, 1904	
Pollak-Virag System.....	Mch. 1, 1903
Possibilities of Telephoning Over Tracks to a Moving Train, Mch. 1, 1904	
Postal Telegraph-Cable Company, History of (with portraits of officials).....	Feb. 1, 1904
Postal Telegraph-Cable Company Rules Governing Construction and Repair of Telegraph Lines.....	Apl. 1-16, May 1-16, 1904
Printing Telegraph Systems, Modern High Speed, J. C. Barclay.....	Nov. 1, 1904
Printing Telegraph Systems, Story of.....	Jan. 1, 1903
Progress of Telegraphy During Last Thirty Years, W. Maver, Jr. Mch. 16, 1904	
Progress in Fire Alarm Telegraphy.....	Jan. 1, 1903
Proper Adjustment of Telegraph Apparatus.....	Aug. 16, Sept. 1, 1904
Protection of Telegraph or Telephone Lines When in Hazardous Proximity to High Speed Lines.....	June 1, 1904
Random Recollections of 145 Broadway, W. P. Phillips.....	Feb. 1, 1905
Rapid Telegraphy, P. B. Delany.....	Nov. 16, Dec. 1, 1904
Recent Improvements in Telegraphy, J. C. Barclay.....	Feb. 1, 1905
Reminiscences of New York Telegraphers a Quarter of a Century Ago.....	Jan. 1-16, Feb. 16, Mch. 1, 1905
<b>Repeaters:</b>	
Atkinson.....	Feb. 16, 1902
Half-Milliken.....	Feb. 16, 1902
Horton.....	Mch. 1, 1902
Defective Loop.....	Mch. 1, 1902
Double Loop.....	Mch. 16, 1902
Lewis-McIntosh.....	Sept. 16, 1905
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Weiny-Phillips.....	Feb. 1, 1902
Wood Double Loop.....	Mch. 16, 1902
Bowland Multiplex Printing Telegraph System.....	Sept. 16, 1903
Scott-Phelps-Barclay-Page Self-Winding Telegraph.....	Oct. 1, 1903

Simultaneous Telegraphy and Telephony.....	Aug. 16, 1903
Skirrow Switchboard.....	Nov. 1, 1903
Specifications in Construction of 25-foot Pole Line, American Telephone and Telegraph Company.....	Feb. 16, Mch. 1-16, 1904
Stevens' Wheatstone Transmitter.....	July 16, 1902
Stick Telephone, J. C. Barclay.....	June 16, 1904
Stock Tickers, O. L. Healy.....	Mch. 1-16, 1905
Storage Batteries.....	May 1-16, June 1-16, July 1, 1902
Submarine Sounding Telegraphy.....	Mch. 1, 1904
Sullivan Outgoing Signal Recorder.....	Mch. 1, 1905
Switchboard Practice at Intermediate Stations.....	Dec. 16, 1904
Ago, Jos. Hollos.....	Feb. 16, 1905
Telautography.....	Aug. 1, Dec. 1, 1904
Telegraph Alphabets.....	Jan. 1, 1904
Telegraph and Weather Service.....	Nov. 1, 1902
Telegraphic Bookkeeping.....	Nov. 1, 1902
Jan. 16, Feb. 1, Mch. 16, Apl. 1-16, May 16, July 16, Aug. 1, Sept. 16, Oct. 1, 1903	
Telegraph Operator in Railroad Service, J. B. Taltavall, July 1, 1904	
Telegraphs in New England, W. P. Phillips.....	Apl. 16, May 1-16, 1904
Telephonone, The.....	June 16, 1902, Mch. 1, 1903
Telephone and Telegraph Bureau, U. S., Washington, D. C., May 1, 1903	
Telephone in Railway Service.....	July 16, 1902, Jan. 1, 1903
Telephony and Telegraphy at Internat'l Electrical Cong.....	Oct. 16, 1904
Testing Device, Useful and Simple.....	Jan. 1, 1904
Transmitting Typewriter Wire Connections.....	Feb. 16, 1904
Twentieth Anniversary Number.....	Jan. 1, 1903
Twenty Years of Standard Time, W. F. Allen.....	Feb. 1, 1904
Typewriting Telegraphs, L. S. Wells.....	Aug. 1, 1904
Typo-Telegraph (Dr. Cardwell), F. J. Swift.....	June 1, 1905
United States and British Telephones and Post Offices, F. W. Jones.....	Apl. 1, 1904
Use of Modern Telephone as Applied to Railroads.....	Jan. 16, 1903
Vibratory Telegraph.....	Aug. 16, 1903
Washington as a News Centre.....	Nov. 16, 1904
Western Union Telegraph Company, History of (with portraits of officials).....	Jan. 16, 1904
What Constitutes a First-Class Operator.....	Oct. 1, 1904
What Constitutes a First-Class Chief Operator.....	Nov. 1, 1904
What Constitutes a First-Class Manager.....	Nov. 16, 1904
What Constitutes a First-Class Superintendent.....	Dec. 1, 1904
What Constitutes a First-Class E. E. Operator.....	Dec. 16, 1904
Wheatstone Automatic Duplex.....	Apl. 1, 1902
When is a Storage Battery Fully Charged.....	Aug. 16, 1904
Wind Pressure on Telegraph Structures, F. W. Jones.....	Dec. 16, 1903
Wire Tables—How to Remember Them, C. F. Scott.....	Apl. 16, 1905
Wireless Telegraphy at Sea.....	Mch. 1, 1904
Yetman Transmitter (Description and Engraving).....	Aug. 1, 1903

### Books on the Submarine Cable.

The following list presents an excellent choice of books, with prices, treating on the submarine cable, about every phase of which is discussed. The works named are standard and are of a character that should insure ownership of the lot by every cable man who seeks to acquire a fuller knowledge of the subject of his profession. They are a library in themselves. They will be sent singly or collectively, as may be required, carrying charges prepaid, on receipt of price. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York:

Baines, G. M.—Beginners' Manual of Submarine Cable Testing and Working.....	\$3.50
Bright, Charles—Treatise on Submarine Cables.....	\$25.00
Hoskiaer, Capt. V.—Guide for the Electric Testing of Telegraph Cables.....	\$1.50
Fisher and Darby's—Students' Guide to Submarine Cable Testing.....	\$4.00
Kempe, H. R.—Handbook of Electrical Testing.....	\$6.00
Mullaly, John—The Laying of the Cable; or, The Ocean Telegraph.....	\$4.00
Parkinson, J. C.—The Ocean Telegraph to India.....	\$4.00
Smith, Willoughby—The Rise and Extension of Submarine Cables.....	\$9.00
Wilkinson, H. D.—Submarine Cable Laying and Repairing.....	\$5.00

Through the Book Department of TELEGRAPH AGE you can obtain any book desired. Send for the new catalogue.

### The Railroad.

H. St. J. Mitchell, aged fifty-five years, an old time telegrapher, for the past few years division superintendent of the 'Frisco line at Fort Scott, Kans., died on November 17.

Up-to-date managers of steam railroads are realizing more fully every day the value of the telephone in the successful operation of their systems. The importance of instantaneous communication between the various power houses, stations, offices, repair shops, car and round houses has been permanently established, and no modern equipment lacks a telephone exchange to keep each department in touch with the others. All the big steam railroads would no more think of dispensing with their telephone system than with their telegraph lines.

The general misgiving as to the efficacy of the precautions taken by railroads for the safety of their passengers, which resulted from the wreck on the Southern Railroad near Lynchburg, Va., on November 29, in which President Samuel Spencer and three guests lost their lives, is reflected in a bill introduced in the House December 4 by Representative George A. Pearre, of Maryland. Congressman Pearre's bill provides that telegraph operators engaged in signaling trains by the block system shall be required to pass an examination prepared by the Inter-State Commerce Commission and receive from that body a diploma attesting their efficiency before being given a position. The bill also provides that operators shall not work longer than eight hours of the twenty-four, unless after ten hours' consecutive rest.

The accident on the Southern Railway on November 29, near Lawyers Depot, Va., by which Samuel Spencer, president of the road, and others, including Gen. Philip Schuyler, guests of the president, who were on their way South for a brief vacation, places on record an occurrence that has elicited widespread comment and expressions of profound regret, especially in railroad circles. For President Spencer was regarded as one of the most efficient and progressive railroad men in this country. The disaster was due to a rear end collision and it is deplorable that the blame is traced to the fault of the telegraph, and to the imperfect workings of the block system. Singularly so as Mr. Spencer personally entertained a high regard for the accuracy of the telegraph and its operating force, and placed much faith in the workings of the blocks system. Singularly enough Mr. J. W. Davis, of Washington, one of the chief despatchers of the road, who was accompanying the train as an especial measure of protection, was also among the killed.

Mr. J. T. Harahan, the new president of the Illinois Central Railroad system, has appointed G. H. Groce, superintendent of telegraph, to be assistant general manager. This elevates to a position requiring the exercise of more than ordinary executive ability a telegrapher who has al-

ways shown marked capability in his department. By this change Mr. E. Parsons, the assistant superintendent of telegraph, has been promoted to be superintendent of telegraph, with headquarters at Chicago.

Young man of good habits, fine clerical and electrical knowledge, and experience, desires position with railroad as wire chief. Capable of taking entire charge of line in capacity of superintendent if necessary. Address "RAILROAD," care of Telegraph Age, New York.

### Mr. Boening an Assistant Superintendent at Boston.

Mr. Edward Boening, who since March 1, 1905, has been an inspector of the Western Union Telegraph Company at Boston, was on December 1 promoted to be assistant superintendent of the district, with headquarters at that point. Mr. Boening was born at Rolla, Mo., November 28, 1874, and entered the telegraph service at Chicago when twelve years of age, as a messenger of the Western Union Company, in whose exclusive employ he has since remained. His progress at Chicago was commendable, for he rose successively to the delivery and bookkeeping departments, thence to a position in the office of the



EDWARD BOENING.  
Assistant Superintendent of the Western Union Telegraph Company,  
Boston, Mass.

manager, afterwards, in 1899, being promoted to Superintendent F. H. Tubbs' office. Here he held the claim, estimate and requisition clerkships, respectively, and acquired valuable experience of the duties of a superintendent's office, which should be of aid to him in his present position. On March 1, 1903, he was appointed chief clerk to Superintendent C. F. Ames, Boston, where he accomplished much in looking after the detail of that office. Now that he has risen to the position of second in Mr. Ames' office, his power for performing more extended service ought to be considerably augmented. Mr. Boening is a hard and conscientious worker and affords another example of progress due to merit.

## LETTERS FROM OUR CORRESPONDENTS.

## ST. LOUIS, WESTERN UNION.

Arrivals: A. J. Mackler and T. G. Lewis, from New York; F. S. Patrick from Arkansas. L. L. Potter, formerly manager at Quincy, Ill., is also a recent arrival and has been placed at the board.

B. J. Schleuter, J. B. Dewitt and G. A. Folkrod, who have been serving the Armour Packing Company at East St. Louis, have returned to this office.

Elmer S. Blake and George Littlejohn have gone to Memphis.

George H. Douglass is back from an enforced absence of twenty-two days, occasioned by illness.

John Lane, formerly assistant chief operator of this office and now manager at Hot Springs, Ark., came North on a sad mission to bury his daughter, aged 12 years, who died recently at that place.

The new office is shaping itself for occupancy in the near future. The date, however, is rather indefinite, and can hardly be named earlier than the first quarter of 1907.

Messrs. G. V. Burns and L. A. Harrison of Kansas City, are here posting up on the Barclay printer, which is soon to be installed between Kansas City and Chicago, with every indication of a St. Louis-Kansas City circuit being put in ere long.

Miss Mary Halley, of this office, was married on November 28 to Mr. H. Seward French, of Binghamton, N. Y.

## NEW YORK, WESTERN UNION.

The sympathy of a host of friends is extended to Wire Chief George F. Stainton through the death of his wife (formerly Miss Josephine Bennett of this department), who passed away on November 29, after a lingering illness.

Miss Winifred Dalton, formerly of this office and lately located at Boston, died December 9, after an illness of three weeks.

Mr. C. W. Pennypacker of the eastern division has been transferred to the mechanical department.

John Rathbone, of the southern division, has returned from a vacation.

The following looked after the Western Union interests at Herkimer, N. Y., during the two weeks' trial of the celebrated Gillette case: Fred Johnson, J. Rosenbaum, Daniel Drew and William Diehm.

Miss Annette Olmstead, late manager of the office at Litchfield, Conn., was married to Mr. George C. Benedict, at the residence of her father, William Olmstead.

Miss M. E. Robertson has resigned to accept a position as private secretary.

Mr. Robert H. Smith of this department and formerly manager of the American Rapid Telegraph Company, Baltimore, has resigned, and will travel for his health.

Miss C. W. Stevenson and Miss A. D. Schwinger, from the Produce Exchange office, are among the late arrivals.

Edward W. Palmer, formerly of this department, was presented on December 7 with a very handsome solid gold watch and chain by the members of the Lodge of Strict Observance, F. and A. M., of which he is a past master.

Every day just about noon and shortly after that hour, passers by in the vicinity of 195 Broadway, may see a vast crowd looking up at the Western Union Building, their watches in hand, waiting to see the time ball drop. At the stroke of twelve the ball falls and the initiated adjust their timepieces and proceed on their way; but as they disappear a new throng gathers and take up their vigil, looking upwards, not exactly knowing why. It appears the adjoining building also has a flagstaff with a ball attached to the top and recently a wag was heard directing a number of strangers to wait until the ball fell, which of course never occurred, and it took some time and a little persuasion on the part of the Broadway policeman to adjust matters and disperse the expectant gathering, while the joker disappeared, his face wreathed in smiles.

## OTHER NEW YORK NEWS.

The regular meeting of the Electric Building Loan and Savings Association for the nomination of trustees was held in the office of the corporation at 253 Broadway, New York, on Friday, December 14, with the following result: David B. Mitchell, president; James R. Beard, vice-president; E. S. Butterfield, treasurer; Edwin F. Howell, secretary; John B. Sabine and Alexander J. Schem, counsel and attorneys. Directors, M. J. O'Leary, W. H. Jackson, Eugene P. Tully, J. B. Taltavall, M. W. Rayens, F. C. Leubuscher, G. W. Blanchard, G. H. Schnitgen, Henry Zweifel, Jr., M. S. Cohen and P. O. Purcell.

The annual meeting of the corporation will be held in the same place on Friday, January 11, 1907, at 5 P. M. Polls for the election of officers and directors will be open from 2 P. M. to 5 P. M.

The regular meeting of the Serial Building Loan and Savings Institution for the nomination of trustees, will be held in the office of the corporation at 195 Broadway, New York, on Tuesday, December 18, at 5 P. M. The annual meeting of this corporation will be held in the same place on Tuesday, January 15, 1907, at 5 P. M. Polls for the election of officers and directors will be open from 2 P. M. to 5 P. M.

The recent death of Augustus A. Rich caused the following resolution to be placed upon the minutes of the Serial Building Loan and Savings Institution:

"The board of management of the Serial Building Loan and Savings Institution of New York has received with profound sorrow the announcement of the death of the Hon. Augustus A. Rich,

counsel for New Jersey. Mr. Rich has been continuously our legal adviser and attorney for New Jersey since the organization of this society in 1885. His counsel has always been wise, disinterested and just, and his course of action for the best interests of the Institution and the welfare of every member of the association. Every officer of this Board has lost a charming companion and every member of the society an earnest and true friend."

#### Business Notice.

Mr. D. A. Mahoney, of 253 Broadway, New York, who deals in typewriters and supplies and whose motto of "Honorable Dealing" has become so familiar a headline in his advertising announcements in this journal, has made arrangements with the American Writing Machine Company, of New York, to handle their typewriters among the telegraph fraternity of this country. Mr. Mahoney has constantly on hand rebuilt machines for sale, practically as good as new, those of the Remington and Smith Premier patterns being rebuilt at their respective factories. Mr. Mahoney is a well-known member of the telegraph profession, has been a dealer in typewriters for the past ten years, and it is yet to be charged against him that he has failed to live up strictly to his engagements.

#### NEW YORK, POSTAL.

Mr. J. J. Kennedy has been appointed to the marine department, vice Mr. Edward A. Harvey, who has resigned to enter other business. Mr. Kennedy is well known in marine circles, having been identified with that service for a quarter of a century past.

George Young, aged thirty-five years, a brother of William W. Young, manager of the Sandy Hook, N. J., observatory signal station, was overcome by the bitter cold and frozen to death on December 4, while on his way from the boat landing at the hook to the telegraph office.

Mr. F. R. Holden, for the past three years clerk to Manager F. F. Norton, has resigned to accept a position with the New York Edison Laboratories, this city. He carries with him the best wishes of his friends here.

George B. Pennock, of the Hearst News Service Office, has returned from his vacation.

Miss E. Ferguson, formerly located at the Gerken Building, has been transferred to this office; also, Miss M. Carew, from the Queen Building.

Miss L. Jenkins, another branch office operator, is now located at this office.

Arthur Farrell has been added to the service department.

Miss Ethel Coleman has been appointed an operator from the check force.

The new arrivals include: D. Davis, E. L. Lipshield, E. C. Bailey, S. T. Barager, Thomas Fox, H. Bonney; R. Dorner, E. K. Burnham and J. A.

Murphy, coming from Cotton Exchange, New York.

The resignations are:

Miss H. Turner, W. Middleton, W. H. Flynn, J. A. McConnell, J. H. Johnston, R. Geslason and D. Ellington.

#### The Postal Branch Office Managers of Cincinnati Meet for an Evening's Enjoyment.

Manager C. E. Sawtelle, of the Postal Telegraph-Cable Company, Cincinnati, was again instrumental in affording the branch office managers of that city a pleasant evening, the affair in question occurring on the evening of November 20. Notwithstanding the inclemency of the weather about sixty persons were in attendance. The managers met in the lobby of the Postal office and in a body marched to the Bell Telephone Company Building. Here Superintendent Peavy was in readiness to receive the visitors, and personally conducted them on a tour of inspection throughout the building. Afterwards a musical programme was listened to in the assembly hall of the building, being followed later by a discussion of the four subjects of "Cooperation," "System," "Thoughtlessness," and "Advertising." This was entered into very heartily, fully a dozen or more taking part, and proved to be a highly instructive feature. Superintendent E. W. Collins from Cleveland, was present and made an address, taking for his subject "Cable Pointers."

Early in January the regular annual banquet will be held at the Havlin Hotel when it is expected that a number of out of town managers will be entertained.

The Western Association of Old Time Telegraphers, a society lately organized to especially conserve the social fraternity interests of the Far West, held its semi-annual banquet at Spokane, Wash., on December 14. The programme in part was as follows: Address of welcome, T. P. McKinney, president; toasts to the absent members, those who have passed away since the last meeting; Elks' quartet; "The Operator in Business and Political Life," J. T. O'Brien; "The Humorous Side of Telegraphy," W. F. Straub; Elks' quartet; "Telegraphy in the '60s," H. G. Stimmel; "Telegraphy of the Present Date," O. D. Campbell.

#### General Mention.

E. N. Tyler, a Jacksonville, Fla., telegraph operator, was accidentally killed by the premature discharge of his gun while hunting, on October 21.

r. M. Fitzgerald, lately of the Baltimore, Md., Western Union office, has accepted a position in the Birmingham, Ala., office of the same company.

William Fry, chief operator of the Western Union Telegraph Company at Grand Rapids.



Mich., who has been absent for the last six weeks on account of illness, resumed his duties on December 4.

Mr. C. F. Sweeney, of Montpelier, Vt., a telegraph operator who has had considerable experience in the South and in other sections of the country, has received a Government appointment as operator on the Isthmus of Panama.

E. E. Hungerford, aged sixty-five years, manager of the Western Union Telegraph Company at Rome, N. Y., a position he has held for twenty years, died on November 28.

The Atlantic Insulated Wire and Cable Company, whose factory at Stamford, Conn., was recently burned, is erecting a concrete building, 82 by 350 feet, at that place. New machinery has been ordered and the contract calls for the completion of the plant within sixty days.

Mr. M. J. O'Reilly, of the Great North Western Telegraph Company, Quebec, Que., when renewing his own subscription a few days since, and sending us one for another gentleman, expresses his satisfaction with *Telegraph Age*, of which he has been a reader for fifteen years, and states that he wishes the paper the full success it deserves.

The land-and-building-fund committee of the American Institute of Electrical Engineers, of which T. C. Martin is chairman and George H. Guy, 114 Liberty street, New York city, is secretary, has issued an appeal for additional subscriptions to the fund, which is needed to provide for the Institute's share of the necessary real estate and equipment for the Engineering Building given by Mr. Carnegie. This share is \$200,000, and \$150,000 has been already subscribed.

#### A Record Message.

"Never was a newspaper despatch of corresponding length between New York and London sent in such fast time as that printed in the *Daily Telegraph*, London, on November 29," says that journal. "That despatch containing seventy-nine words was telephoned to the Commercial Cable Company's office in New York at 8.36 p. m., American time, and by 8.40 p. m. (1.40 a. m. English time) every word had been received on the other side of the Atlantic, over three thousand miles away. Even that time might have been reduced by nearly two-thirds but the telephone is not so reliable as the ocean cable, and too much haste on the telephone spelt disaster.

In order to appreciate this achievement of which the Commercial Cable officials may be justly proud, one must realize the processes involved. The message as written by your correspondent was on three separate slips of paper, the first 29 words, the second 35 words, and the last 15, making the total 79. The first was telephoned to the Commercial Cable office, in New York at 8.36 p. m. It was written out by a receiving clerk there and handed to a cable operator. Fortunately the company's fastest cable

(they have five) was clear and the matter was speedily placed on the wire. Transmission from New York to Waterville, in the southwest of Ireland, whence there is direct retransmission into the office of the *Daily Telegraph*, in Fleet street, is practically instantaneous albeit it goes first to Canso, Nova Scotia, after leaving New York where it is automatically repeated on the longest stretch of cable connecting Canso with Waterville. In a word, the first instalment of the message received from the telephone operator at the cable office in New York at 8.36 was in Waterville and being flashed to Fleet street by 8.37. The second slip of 35 words was practically in London two minutes later and at 8.40 the entire message had gone through—four minutes only from the time of reaching the telephone clerk in New York until the last word was flashed across.

"To the uninitiated it may seem strange that it takes incomparably longer to telephone a few sentences a couple of miles than to cable the same over three thousand miles but to such a degree of perfection has Atlantic cable transmission between England and America attained. The fastness of a cable depends chiefly upon the amount of copper core used in the cables, the heavier the core, the quicker the transmission. The cable used so satisfactorily on this occasion is laid underground from New York, is carried across the famous Brooklyn Bridge on hangers, thence after a few miles further underground goes under the Atlantic from Coney Island. The times I have quoted above are official. No smarter achievement of the kind in ocean cabling has ever been performed."

Socrates thought that if all our misfortunes were laid in one common heap, whence everyone would take an equal portion, most persons would be contented to take their own and depart.

A good way to acquire a saving habit and so relieve oneself from the imputation of being improvident, especially charged against a man in time of need, maybe when wife and children are sick, is to open a bank account with the Serial Building Loan and Savings Institution, 195 Broadway, New York; managed by telegraphers for telegraphers.

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

#### Rubber Telegraph Key Knobs.

Price fifteen cents, reduced from twenty-five cents. 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. Remit in one or two-cent U. S. stamps and address:

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

## Texas Resources and Development

W. J. Clay, Texas state commissioner of agriculture, insurance, statistics and history, and state superintendent of banking, has prepared a very interesting article on the resources and development of Texas. He estimates the population of the state to be 3,500,000. He points out that there is great room for immigration in Texas. England, Ireland, Scotland and Wales have a combined population of 31,465,480 and an area of only 120,760 square miles. This area is less than one-half of Texas, while the population is almost eight times that of Texas. On this basis Texas is capable of supporting a population of more than 60,000,000 people. Mr. Clay, in his article, divides the state into three separate regions geographically, each differing in many respects from the others. These divisions are the coast plain, which borders the gulf coast; the undulating or rolling prairie region, which extends 200 to 500 miles inland, and the staked plains of western Texas. Practically all of this combined region is capable of agricultural development. In referring to Texas' greatness in an agricultural way, Mr. Clay says:

"Texas is the only state where temperature, humidity and soil are equally suited to the distinctively southern crops in conjunction with all the grains, fruits and forage plants of the more northern states, and likewise to the prolific breeding of all kinds of farm animals."

The Postal Telegraph-Cable Company of Texas connects all points in this great state, the executive offices being located at Dallas.

## The Great North Western Telegraph Company of Canada

H. P. DWIGHT,  
President.

I. McMICHAEL,  
Vice-Pres. and Genl. Mgr.

Head Office: TORONTO

DIRECT WIRES TO ALL PRINCIPAL POINTS

EXCLUSIVE CONNECTION IN THE UNITED STATES WITH THE WESTERN UNION TELEGRAPH COMPANY.

DIRECT CONNECTION WITH THREE ATLANTIC CABLE STATIONS.

The Great North Western Telegraph Company has a larger number of exclusive offices than any other telegraph company in Canada, and its lines reach 49,280 offices in Canada, United States and Mexico.

DOMESTIC AND FOREIGN MONEY ORDERS BY TELEGRAPH AND CABLE.

## THE Canadian Pacific R'y Co's Telegraph

Executive Offices, Montreal

JAS. KENT, Manager

The Largest Telegraph System in Canada  
63454 miles of wire; 1860 offices.

DIRECT CONNECTION WITH  
POSTAL TELEGRAPH-CABLE COMPANY  
COMMERCIAL CABLE COMPANY  
HALIFAX-BERMUDA AND DIRECT WEST  
INDIES CABLE COMPANY  
NEWFOUNDLAND GOVERNMENT SYSTEM  
UNITED STATES AND HAYTI CABLE  
COMPANY  
BRITISH PACIFIC CABLES  
COMMERCIAL PACIFIC CABLE  
DOMINION GOVERNMENT LINES TO THE  
YUKON

Direct Through Wires to All Parts of  
CANADA

NEW YORK CHICAGO SAN FRANCISCO  
BOSTON, ETC.

## The North American Telegraph Company.

Organized 1886.

GENERAL OFFICES, MINNEAPOLIS, MINN.

H. A. TUTTLE,  
Sec'y and Gen'l Manager.

CLINTON MORRISON,  
President.

Its lines extend through the States of Minnesota, Wisconsin, Iowa and Illinois.

Connecting with the  
POSTAL TELEGRAPH-CABLE CO.,  
and the  
COMMERCIAL CABLE COMPANY

Exclusive direct connection with the telegraph lines of the Minneapolis, St. Paul and Sault Ste. Marie Railway Company.

# "73" The Winner MARTIN'S FAMOUS VIBROPLEX

The most perfect transmitter ever invented.

Conceded by experts to be the acme of simplicity and reliability.

**EASILY ADJUSTED—EASILY LEARNED—EASILY MANIPULATED.**

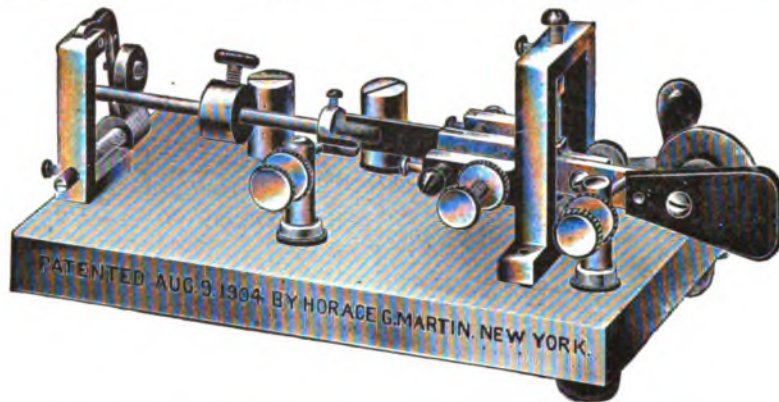
Enables any operator to become a rapid and perfect sender with less than half the labor.

Requires no local battery.

Endorsed by thousands of operators and all the companies.

**MONEY AND BRAINS CANNOT DEVISE A BETTER TRANSMITTER.**

**SPECIAL  
Price**



**\$7.50**

Do not be misled. Mr. Martin is the pioneer in the field. He originated the present art of sending and was granted the first patents ever issued for automatic dot-making transmitters.

**THE VIBROPLEX HOLDS ALL SPEED RECORDS AS  
WELL AS ALL LONG-DISTANCE SENDING RECORDS.**

There are more Martin transmitters in use than all others combined, for the simple reason that they are the BEST.

The regular price of the Vibroplex is \$12, but knowing the great value of this nerve-saving device we feel that one of these transmitters should be in the possession of every operator in the United States and Canada and we are offering a special inducement to attain this result. For a limited time the price of the Vibroplex will be \$7.50, f. o. b. New York.

These machines are the same high grade product which we have always turned out. As a matter of fact, they are better now than ever before.

If any improvements could be made we would certainly give our friends the benefit of them, but when we commenced the manufacture of the Vibroplex, it was then the perfect transmitter and to-day it is still the perfect transmitter as well as the standard. \$7.50 for a Vibroplex is the best investment that an operator can make.

Prices subject to change without notice.

During the past year we have added 4,200 feet of floor space and now occupy the entire building. These added facilities enable us to furnish the telegraph profession with anything they need in the electrical line at a lower price than any other house in the trade.

**WRITE US FOR QUOTATIONS ON EVERYTHING ELECTRICAL**

## United Electrical Manufacturing Company

HORACE G. MARTIN,

Vice-President and General Manager

53 Vesey Street, New York

**OFFER EXTENDED TO NOVEMBER 30, 1907**

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From the following  
Brands of **PLUG TOBACCO**

**ARE GOOD FOR PRESENTS**

“Horse Shoe” “Spear Head” “Granger Twist” “Old Honesty”  
“Pick” “J. T.” “Eglantine” “Ivy”  
“Razor” “Jolly Tar” “Sailor’s Pride” “Master Workman”  
Also Red Tin Tags from “Tinsley’s 16-oz. Natural Leaf”  
and W. N. Tinsley’s Picture Tags

**“COL. LONGLEAF”** The best package Chewing Tobacco  
A whole (1) coupon in each 5c. package

***THIS OFFER EXPIRES NOVEMBER 30th, 1907***

Send Tags for  
Presents to

**PREMIUM DEPARTMENT**

**THE AMERICAN TOBACCO CO.**

**JERSEY CITY, N. J.**

**ST. LOUIS, MO.**



WISE MEN INSURE THEIR LIVES AND PROPERTY.  
 WHY NOT INSURE YOUR SENDING SKILL ABSOLUTELY  
 AGAINST DETERIORATION AND PARALYSIS BY USING THE YETMAN

# TRANSMITTING TYPEWRITER

====(TWO MACHINES IN ONE)====

A modern, up-to-date, labor saving, **KEYBOARD SENDING DEVICE**,  
 And a completely **VISIBLE-WRITING TYPEWRITER FOR RECEIVING**.

**A COMPLETE "KIT OF TOOLS" FOR THE TELEGRAPH OPERATOR**

A single touch transmits the Morse signal for every letter and every figure.  
 No exhausting physical effort. No nervous strain.

**YOU FURNISH THE BRAINS,  
 THE TRANSMITTING TYPEWRITER DOES THE REST**

**SPECIAL!** We have on hand  
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 Transmitting  
 Typewriters—some having been used by our  
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 Every machine in absolutely perfect condition.

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Size (inches), base 11 x 13 1-2, height 11  
 (Smaller than an ordinary Typewriter)

All modifications and improvements, so called, on the out-of-date, nerve-destroying hand key, require a special skill for manipulating, and, even under the most favorable circumstances, can afford only a partial or temporary relief.

**THE TRANSMITTING TYPEWRITER**, with its keyboard touch, gives **PERMANENT** relief, and enables any intelligent operator quickly to become an expert, and to send absolutely perfect Morse easily and rapidly, with one-tenth the labor.

It is the only mechanism that with a single touch transmits the complete Morse signal for every letter, thus entirely doing away with the constant nervous and muscular strain of hand sending.

**Price only \$125.**

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 Special Ribbons at standard prices sent post-paid.  
 Write now for Catalog, full particulars and  
 convincing testimonials to

## Yetman Transmitting Typewriter Co.

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**NEW MODEL HAMMOND TYPEWRITER**

No. 12 VISIBLE

**Every Character in Sight All the Time**

This instrument is full of labor saving devices, right up to the minute,  
**SPECIAL FEATURES:** Work in sight, any width of paper, interchangeable type, perfect alignment, automatic impression, swift and true. Excels in beauty of work and durability.

Send to our nearest representative for full particulars

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MANUFACTURERS OF

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 INSULATED WIRES.

WORKS

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**THIRTY-NINTH YEAR**

FOR ALL EMPLOYEES IN TELEGRAPH OR TELEPHONE SERVICE

Insurance, Full Grade, \$1,000; Half Grade, \$500; or Both Grades, \$1,500; Initiation Fee, \$2 for each grade

**ASSETS \$250,000.** Monthly Assessments at rates according to age at entry: Ages 18 to 30, Full Grade, \$1.00; Half Grade, 50c.; 30 to 35, Full Grade, \$1.25; Half Grade, 83c.; 35 to 40, Full Grade \$1.50; Half Grade, 75c.; 40 to 45 Full Grade, \$2; Half Grade, \$1.

M. J. O'LEARY, Sec'y, P. O. Box 510, NEW YORK.

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For Telegraphers and Others in Electrical Service.

INITIATION FEE, \$1.00.

INSURANCE, \$500.00 in payments of \$50.00 per month for Ten Consecutive Months.

Dues according to age at entry:

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 Between 30 and 35, 80 cts. per month. Between 40 and 45, \$1 per month.

WM. J. DEALY, Secretary,  
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# 25000 DOLLAR BILLS

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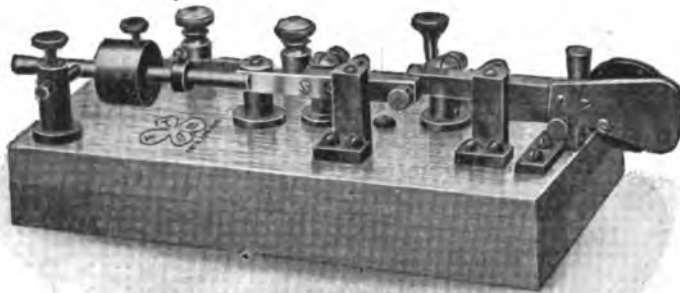
All past records have been eclipsed. "Beat it," "Skidoo," "23," the "Lemon" are all back on the "waiting list" while every operator has been "sending"

### HAVE YOU HEARD THE AUTO-DOT ?

in a-la-Gibson style. The clamor to get in on the wire first, to repeat the popular saying, has created tremendous rivalry in the scramble for Dollar Bills. The result is, we are compelled daily to dig our way into the office through heaps of mail orders and inquiries. In their anxiety to be first, the more energetic of our operator friends seeking dollars, have cut it down to

### AUTO-DOT FOR MINE

The Price is  
not attached  
to a baro-  
meter : : :



We began  
where the  
pioneers left  
off : : : :

**\$10.00 f. o. b. New York or Chicago**  
Carrying Case 75 Cents Extra

We do not object to the use of Code in this Bonus work, provided you do not get us working too far behind. The contractions already submitted to us would make Mr. Phillips green with envy if they were to become generally used. Here's a few of them:

HHA —Have you heard the Auto-Dot?  
SHS —Sounds like hand "sending."  
IRTG —It's the "real thing."  
EMPU—Easier to manipulate.  
ELRN —Easier to learn.  
NCB —Not the cheapest but the best.

"But what does all this mean?" you ask. Oh yes! Didn't you read our ad. last month? If not you had better get busy. Look it up and write us immediately. Just ask us to tell you about the

### 25000 DOLLAR BILLS

You know Christmas is coming, too, and any money you can secure without having to put "5 on a line" for it—well, it's a shame to take it. All you have to do is address us for the booklet and particulars.

20 BROAD  
STREET,

*Delany Telegraphic Transmitter Co.*

NEW YORK,  
N. Y.

CHICAGO OFFICE,  
263 La Salle Street.

GEO. W. CONKLING, Gen. Manager.

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for Ills., Ind., Iowa, Wis. & Mich.

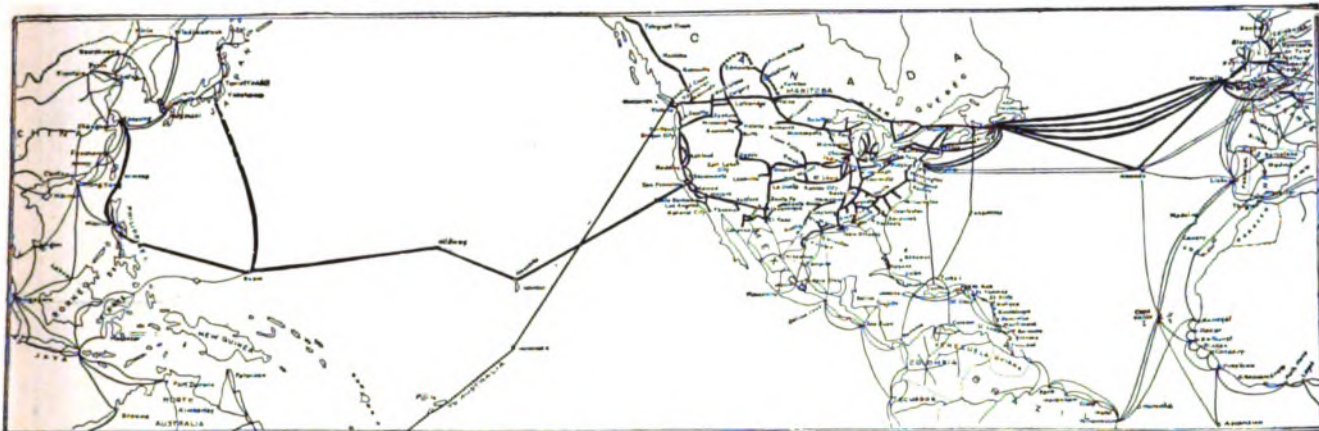


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PACIFIC



ATLANTIC



The Most Extensive Combined Ocean and Land Telegraph System—Over 26,000 Miles of Cable.

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 POSTAL TELEGRAPH CABLE CO.  
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All Companies and Administrations in Europe, Asia and Australasia. Shortest Route to South America.

CLARENCE H. MACKAY, President.

GEORGE G. WARD, Vice-President & General Manager.



## THE REASONS WHY THE POSTAL TELEGRAPH-CABLE COMPANY

IS THE

**ONLY SUCCESSFUL COMPETITIVE TELEGRAPH SYSTEM EVER MAINTAINED :**

Its proprietors and management determined from the first to establish a permanent business based on sound principles and business-like methods, and have steadfastly adhered to that policy.

Its employees are intelligent, diligent, energetic and enthusiastic. They are in sympathy with their employers and are working for the company's interests, recognizing that their interests are identical with the company's interests and that unless the Postal service is the BEST, public patronage cannot be retained.

Every man in the "Postal's" service is proud of the company's success.

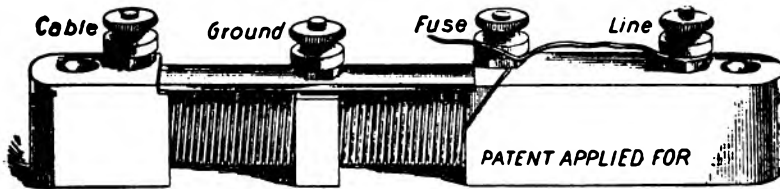
These are the reasons why the "Postal" Company has been successful in the past and will be successful in the future.

The progress of the Postal Telegraph System is evidenced by the continued extension of land lines, the numerous and important railroad connections recently made, the valuable connections with the German cables, the Pacific cable, the Direct West Indies cable, the Bermuda cable, etc.



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**New Principle**  
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**New Results**



**Always Ready**  
**No Carbons to Clean**  
**No Plates to Adjust**  
**No Ground to Clear**  
**But Ready Just the same for the next Storm.**

Lightning of any degree interrupted without grounding or disabling the line. Thousands in use last season. Not one case of loss of Instruments or Cables protected by THE ARGUS ARRESTER.

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**WIRES AND CABLES.**

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The Weston Standard Mill-Ammeters and Ammeters are infinitely superior to galvanometers for tests of current strength on lines and for tests of Relays, Sounders and other Telegraphic Apparatus. They are direct-reading, dead-beat, and are practically uninfluenced by the earth's field. No constants are required, and with careful use there is no necessity for recalibration. The Weston Standard Voltmeters are the very best practical instruments obtainable for determining the electro-motive force of single cells, or series of cells, or for ascertaining the voltage on lines. By the proper use of these instruments all tests of resistance, current, strength and electro-motive force required in telegraphic practice can be made with great ease and accuracy. Correspondence solicited.

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