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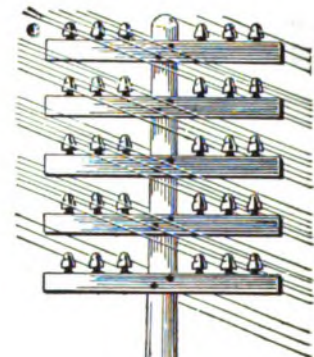
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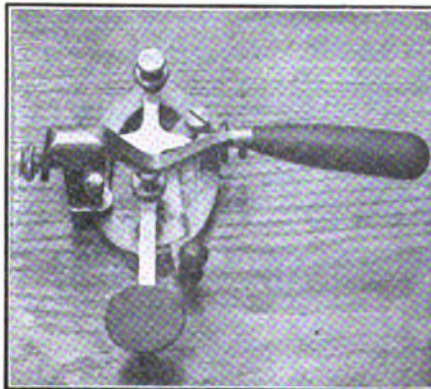
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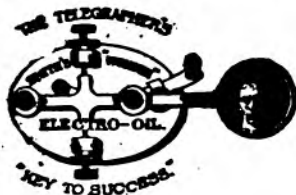
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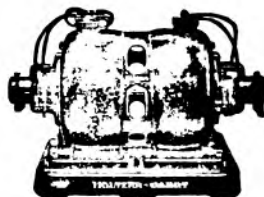
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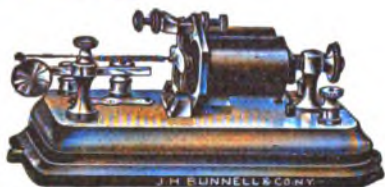
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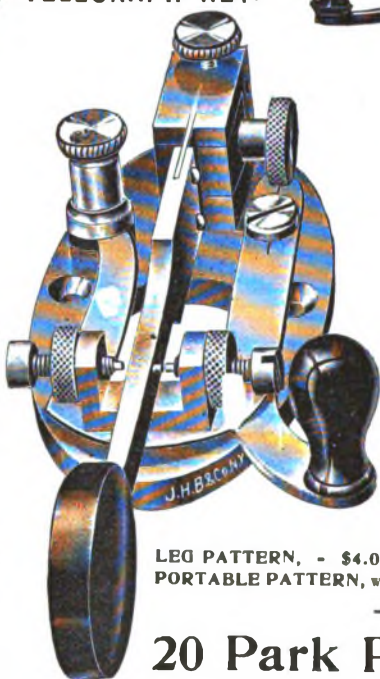
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# TELEGRAPH AGE

No. 17.

NEW YORK, SEPTEMBER 1, 1906.

VOL. XXIV.

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## SOME POINTS ON ELECTRICITY.

### The Loopswitch and Loopswitch Testing.

In Four Parts—Part Four.

BY WILLIS H. JONES.

In discussing the subject under consideration, up to this point the description of the various methods of testing have been confined to branch office or external circuits only. In addition to this duty it also devolves upon the loop chief to test and locate from his central position defects in various apparatus located throughout the operating department.

Such apparatus are those of which the connections begin and terminate in the loopswitch board itself; such, for example, as office loops, repeaters, intermediate batteries, and certain local apparatus.

#### OFFICE LOOP.

An office loop or leg, as it is sometimes called, consists of two loops extended to some convenient desk containing a four-ohm sounder each at that point, the two cords and wedges of which loops are located in the loopswitch board in order to be available for connecting them with any desired multiplex set in the office. The accompanying diagram illustrates the connections. It will be seen that when the levers of the two three-point switches are turned to the left the circuit of each sounder is complete from the upper side of the wedge where it takes battery from the multiplex set back to the under lip of the same

wedge. Both conductors are thus used. When the levers are turned to the right, the return half of the loop is cut off and the current simply flows through a resistance lamp on the desk to a "ground," and the circuit ends at that point.

It is quite evident, therefore, that when an office loop is reported "open" the loop chief is in the best position to locate the fault quickly. For instance, if the circuit opens on the office loop while the latter is "grounded" on the desk, but closes with the levers turned to the left, after the loop chief has grounded the under side of the wedge at his board, he knows at once that the fault lies in a defective connection with the desk lamp or ground terminal at that point, because the two conductors show clear from start to finish while the lamp is cut out.

On the contrary, should the circuit close when the levers are turned to the lamp side only, the fact would indicate that the opening was on the return half of the loop, probably in a loose fuse plug behind the loopswitch, or at the cord binding posts at that point. Now and then an exceptional case arises that often perplexes one at first. An office loop will work all right "intermediate," but will not close to the "ground," although that connection shows no evidence of a defect. It will eventually be learned that a new cord has either been reversed when put in, or the lineman when repairing an old one has reversed the conductors in connecting them with the lips of the wedge. The result is that when the lever is turned to the "ground" the battery and conductor containing the sounder is left open. The loop chief only can detect this defect from his board. This he does by applying a battery to the return or "wrong" side of the office loop wedge, when he immediately discovers that the sounder on the desk responds. In repairing defective cords, therefore, it is evident that great care should be exercised to prevent reversing the two conductors.

#### DOUBLE-LOOP REPEATERS.

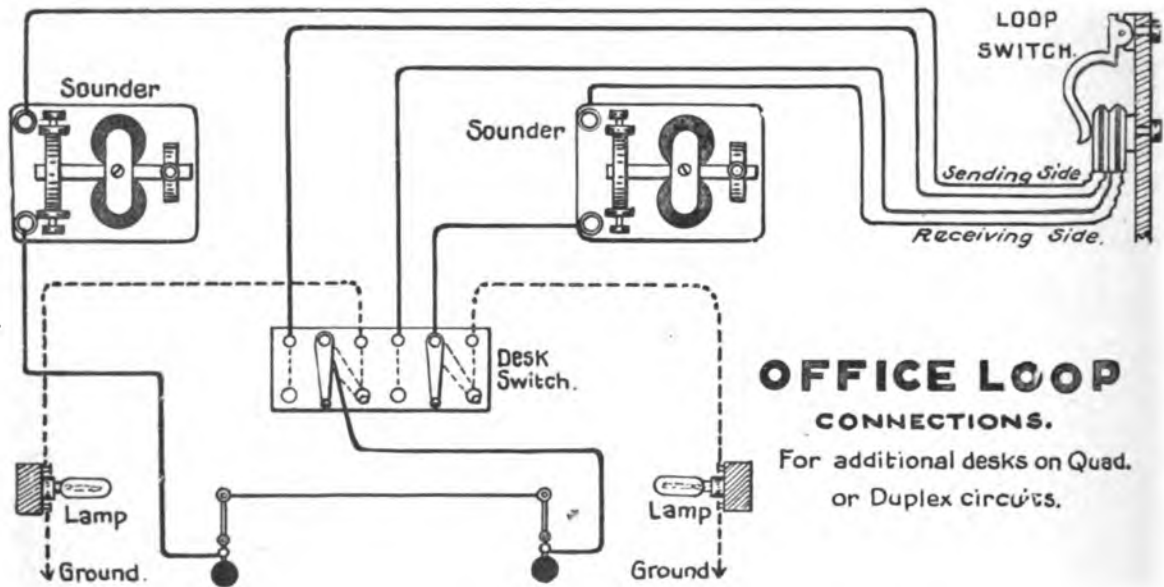
While the double-loop repeater is a very valuable apparatus and requires but little or no readjustment as a rule, when irregular loops are substituted it has one unfortunate defect which is very annoying, because the fault is not at first suspected and cannot be determined except by the loop chief at his board. We refer to an accidental opening on the receiving side of the loop that is inserted in the springjack which furnishes a separate current for such loop, other than that of the multiplex battery which feeds the companion loop. This loop is run through the con-

tact points of a repeating sounder, which latter is controlled by battery from the multiplex set. Should this loop open in the conductor, or in an improper adjustment of the contact points of the repeating sounder there will be no evidence of it at the multiplex set or interference that will prevent all offices on the companion from operating their loop as usual, but those on the defective side, of course, do not hear a tick.

This fault is easily detected at the loopswitch by inserting an instrument in each springjack. If both test sounders do not work in unison, the loop is first tested, and if found to be closed the repeater attendant is notified that the repeating sounder contact points require readjustment.

In like manner the repeater chief attending a single line set cannot readily determine from that point whether a near-by "ground" is on the wire or in his apparatus, but the loop chief by removing the repeater wedge from the circuit

which a charge of twenty-five cents apiece will be made: A Useful and simple Testing Device, January 1, 1904; The Bad Sender, His Past and Future, January 16; The Transmitting Typewriter Wire Connections, February 16; A New Transformer for the Alternating Current Quadruplex (J. C. Barclay, patent), March 1; Definitions of Electrical Terms—Unabridged, March 16 to April 16, inc., June 1 to July 16, inc.; The Future Quadruplex (S. D. Field's invention), May 1-16; The Ghegan Multiplex, August 1; Proper Adjustment of Telegraph Apparatus, August 16-Sept. 1; Practical Information for Operators, October 1 to Dec. 1, inc.; Switchboard Notice at Intermediate Stations, December 16; Definition of the Terms Cycle, Period, Frequency, etc., Diagrams Interpreted, January 1, 1906; Lessons from the December Storm, January 16; The Bonus Wire, February 1; A Few Useful Methods, February 16; Co-operation, A Hint for Wire and Quad Chiefs, March 1; Measuring Resistance by Voltmeter Alone—Something About Ground Wires, March 16; Elementary Information Concerning Household Electrical Appliances, April 1 to May 1, inc.; The Barclay Printing Telegraph System, May 16; Polarized and Self-Adjusting Relays for Single Line Circuits, June 1; Limitations of Quadruplex Circuits, June 16; Electric Power from the Clouds, July 16; Concerning Condensers and Retardation Resistance Coils, August 1; District Call Box Service, August 16; The Art of Studying, Sept. 1; Other Methods of Splitting a Loop, Sept. 16; The Sextuplex, Oct. 1; A Few Questions Answered, Oct. 16; Positive and Negative Currents, Nov. 1; The Education and Evolution of a Chief Operator, Nov. 16; A Study of an Electric Circuit—Definition of the Principal Terms of Factors Which Regulate its Practical Output, Dec. 1; The Telephone—First Principles, Dec. 16, and Jan. 1, 1906; Questions Answered, Jan 16; The Dynamo—Series, Shunt and Compound Wound, Feb. 1-16, March 1; The Storage Battery, March 16-April 1-16-May 1-16; A New Double Loop Repeater—Comparative Efficiencies of a Polar and a Neutral Relay, June 1; Influence of Weather on Static—An Electrical Phenomenon, June 16; Induction, Leakage, Crossfire, July 1; The Loopswitch and Loopswitch Testing, July 16-Aug. 1.]



and tapping the same with his battery test wedge can immediately ascertain that fact. A "ground" of this kind often appears in the repeating apparatus, due to defective insulation of the fine wire attached to the transmitter bar, resulting in contact therewith.

The number of tangles the loop chief alone can straighten out is too great to attempt a description of each, hence his line of testing is distinctively different from the general rule and tends to give one a pretty thorough knowledge of the operation and connections of every piece of apparatus in the office.

(Concluded.)

[Important articles by Mr. Jones, appearing in back numbers are as follows, and may be had at the regular price of ten cents a copy, except those appearing prior to a year from the current date, for

"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.

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Mr. J. B. Bertholf, manager of the Western Union office, Jersey City, N. J., in remitting to cover a renewal of his subscription, writes: "My subscription to TELEGRAPH AGE goes back to the first issue, and I should feel lost, indeed, if I were to be deprived of the paper now."



### Personal Mention.

Mr. William Marconi, it is announced, has joined the experimental staff of the Columbia Phonograph Company. His inventions in the talking machine art will be the property of the company.

Mr. Wm. H. Young, president of the Old Time Telegraphers' and Historical Association, and Mr. W. H. McKelden, chairman of the finance committee of the same association, were visitors in New York on August 27.

Mr. George W. Madeley, an old timer, well known on the Pacific Coast, has resigned his position with the Western Union Telegraph Company at Sacramento, to accept the agency of the Northern Electric Company at Oroville, Cal.

Mr. Ralph W. Pope, secretary of the American Institute of Electrical Engineers, has returned to his home in New York, coming by the way of Montreal, which port he reached on August 11. He has resumed his duties at 95 Liberty street, New York, after an absence of two months in England and Scotland.

### Western Union Telegraph Company.

#### EXECUTIVE OFFICES.

Mr. William J. Lloyd, assistant superintendent of the company at Chicago, who has been in Europe with his family for two months, passed through New York on August 20, en route to his home in the windy city.

Mr. Leonard Cox, traveling auditor of the company, sailed for Naples, Italy, on August 25, whither he has gone on a combined business and pleasure trip. Before returning Mr. Cox will visit the principal countries of Europe.

Mr. A. G. Saylor, chief clerk in the office of General Superintendent Belvidere Brooks, accompanied by his wife, is spending his vacation visiting various Canadian points along Lake Ontario and the St. Lawrence River, between Toronto and Quebec.

Mr. P. G. Kern, superintendent of the American District Telegraph Company, at Louisville, Ky., was a recent visitor at these offices, as was also F. A. Gentry, inspector, of Chattanooga, Tenn.

Mr. Ralph E. Bristol, of the general superintendent's office, accompanied by his wife, is in Michigan, where he is experiencing a very pleasant vacation.

### Postal Telegraph-Cable Company.

#### EXECUTIVE OFFICES.

Mr. Jesse Hargrave, assistant electrical engineer, who was recently transferred to New York from Atlanta, Ga., is located in the office of the electrical engineer on the seventh floor.

Mr. C. E. Diehl, manager at Harrisburg, Pa., was a recent visitor at these offices.

This company will soon install a motor generator plant at the Bangor, Me., office, where it will replace eight hundred jars of battery.

Mr. W. H. McCollum, superintendent of construction of the Eastern division, has resigned, and he has been succeeded by Mr. T. W. Lane, now assistant superintendent of construction. Mr. McCollum's resignation takes effect on September 1.

This company has remodeled its St. Louis, Mo., office, so that it is now one of the best equipped offices in the service.

Superintendent Charles Shirley is again at his desk, after an absence on vacation.

### Recent Telegraph Patents.

A patent, No. 827,914, for an electric battery, has been secured by Isidor Kitsee, of Philadelphia, Pa.

A patent, No. 827,918, for an electric circuit, has been obtained by Isidor Kitsee, of Philadelphia, Pa.

A patent, No. 827,916, for submarine telegraphy, has been secured by Isidor Kitsee, of Philadelphia, Pa. The submarine cable is supplied with a device with the aid of which sounders or other electromagnetic devices may be actuated to increase the receiving capacity of the cable.

A patent, No. 827,573, for a clamp and support for telegraph and telephone cables, has been awarded to Howard E. Sheeley, of Michigan City, Ind. At the center of sections having semicircular grooves are means for securing the sections to a pole or other support, the upper surface of the sections being beveled downwardly from the pole.

A patent, No. 827,919, for telegraphy, has been awarded to Isidor Kitsee, of Philadelphia, Pa. The invention consists of means for simultaneously transmitting two messages over a line comprising two transmitters, a key adapted to be manually operated, a source of current for one transmitter, a variable resistance, means for automatically varying the resistance, a manually operated key and source of current for the second transmitter, both transmitters being in operative relation to the line of transmission.

#### Patents expired:

Patent No. 408,214, for mechanical telegraphic apparatus, held by A. Cazana, Madrid, Spain.

Patent No. 409,157, for harmonic telegraphy, held by F. Van Rysselberghe, Brussels, Belgium.

### Municipal Electricians.

The wire department of the city of Boston is sending out its annual report for the year 1905, a pamphlet of forty pages, with the compliments of the wire commissioner, Mr. Patrick J. Kennedy, under whose direction it has been compiled. As it gives a comprehensive summary of the work performed by the department for the year named, it affords a handy reference volume of the progress the New England municipality is making in the particular field alluded to.

### Resignations and Appointments.

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

Mr. James L. Harbuck has been appointed manager at Andalusia, Ala., vice Mrs. E. T. Gaillard.

Mr. Edmond J. Burke, of Springfield, has been appointed manager of the Holyoke, Mass., office.

Mr. E. T. Moore, manager at Vicksburg, Miss., has been promoted to be manager at Lexington, Ky., vice W. T. Batterson, resigned.

Mr. C. J. Heath, manager at Monroe, La., has been appointed manager at Texarkana, Tex., vice Mr. Frank Meisch, acting manager.

Mr. H. Van Devender, manager at Mobile, Ala., has been appointed manager at Atlanta, Ga., vice S. L. Burts, promoted to be inspector of the Southern division.

Mr. E. E. Cord, chief operator, New Orleans, for the past three years, has resigned to accept a more lucrative position with the American Telephone and Telegraph Company at that place.

Mr. J. M. Martin, manager at Anniston, Ala., has been appointed manager at Pensacola, Fla., vice D. F. Cason, made manager at Greenville, S. C., to take the place of James E. Stevens, resigned, the vacancy at Anniston being filled by the appointment of Mr. J. J. Barnett.

Mr. C. R. Hughes, manager at Hattiesburg, Miss., has been promoted to the managership of the Mobile, Ala., office, Mr. Thos. J. Ferrell, manager at Ellisville, Miss., being appointed manager at Hattiesburg, the vacancy at Ellisville being filled by the appointment of Mr. Lee S. Brown.

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

Mr. A. D. Holcomb, night chief of the Atlanta, Ga., office, has been appointed chief operator, vice J. H. Twyford, transferred to New York.

Mr. Clarence A. Stimpson, chief operator of this company at Philadelphia for the past twenty years, has resigned his position to engage in other business.

Mr. Arthur Hawker, for five years manager of the Bridgeport, Conn., office, has been appointed manager at New Haven, Conn., vice J. D. McDonald, who will continue in the employ of the company in Boston.

Mr. W. C. Lloyd, chief operator at Memphis, Tenn., has been appointed manager at that place, vice E. R. Bryan, resigned to engage in the real estate business. Mr. Lloyd is thirty-four years of age and is a native of Bladen Springs, Ala. He has had a valuable experience as a railroad and Associated Press operator. He has been identified with the commercial companies for the past ten years, filling important positions at various points.

### The Railroad.

It is announced that the Atchison, Topeka and Santa Fe Railway Company has given its one thousand telegraph operators, from Chicago to El Paso, an increase of wages, averaging about \$4 a man, effective at once.

A newspaper paragraph is going the rounds that the Delaware, Lackawanna and Western Railroad Company will dispense with its operators on account of the introduction of the telephone extensively along that system. This is not the case. In addition to its telegraph plant, the company has installed 1,200 telephones along its nine hundred miles of track. The telephones are to be used as an auxiliary system to the telegraph and not to supplant it.

The next meeting of the Railway Signal Association will be held at the Great Northern Hotel, Chicago, Tuesday, September 11. "Standard Specifications for Mechanical Interlocking" will be discussed, and certain revisions recommended for consideration and action at the annual meeting. Identification marks for wires and cables from a maintenance point will also be considered.

The secretary, H. S. Balliet, announces that on account of the presence in Washington, D. C., of two other large conventions on October 9, 10 and 11 (dates noted for holding the annual meeting), and a scarcity of room to hold sessions and facilities to display apparatus and materials, the executive committee left it to a vote of the active members to select a new date, which is now fixed by this vote as October 16, 17 and 18. The New Willard will be association headquarters.

Col. G. L. Lang, superintendent of telegraph of the Queen and Crescent system, has resigned his position, severing a term of forty years in railway telegraph service. As he has passed the age of sixty and has acquired a moderate competence he thinks very wisely that if he ever expects any enjoyment out of life he must take it pretty soon. Col. Lang began the business in 1866 with the Pittsburg, Fort Wayne and Chicago railway in Pennsylvania. From there he went to the Pittsburg, Cincinnati and St. Louis railway in Ohio; later, becoming superintendent of telegraph of the New York and New England railway at Boston. He entered the service of the Cincinnati, New Orleans and Texas Pacific railway in 1897 as superintendent of telegraph and signals, with headquarters at Lexington, Ky. Owing to the rapid extension of the automatic block signal system of the road it was thought best, between four and five years ago, to establish a signal department separate from the telegraph, which was done, Col. Lang retaining supervision of the telegraph lines, to which were added those of the Alabama Great Southern railroad with headquarters at Chattanooga. During his five years' residence in Chattanooga he has made a host of friends. He is a member of the Mountain City club, making the club his home.



**The Cable.**

Cables interrupted August 28:  
 Venezuela Jan. 12, 1906  
 Messages may be mailed from  
 Curacao or Trinidad.  
 Pinheiro "via Cayenne" Aug. 13, 1902  
 Santa Cruz de la Palma (Canaries) July 12, 1906

The Great Northern Telegraph Company has completed the last section of its cable between the Faroe Islands and Iceland, thus establishing communication between England and Iceland. The land lines on the Arctic island connecting the point of cable landing with the capital are now in process of construction.

In the *Journal Telegraphique* of July 25, published at Berne, Switzerland, there appears an illustrated article, one of a series, descriptive of the cable station of the Eastern Telegraph Company, at Alexandria, Egypt, which is an important center of submarine cables. This station is especially interesting since it is provided with the most modern apparatus of submarine telegraphy. In the present installment the testing room is described.

The Emperor of Japan has appointed Mr. George Gray Ward, vice-president and general manager of the Commercial Pacific Cable Company, New York, a Commander of the Order of the Rising Sun. Mr. Frederick Ward, manager in England of the same company, has been appointed Commander of the Sacred Treasure, and Mr. Albert Beck, secretary of the company, Officer of the Rising Sun. These appointments have been made in connection with the extension of the Commercial Pacific Company's cable system to Japan.

On the opening of the section of the Commercial Pacific cable, connecting Japan with America, an attractive postcard in colors was issued in the Island Kingdom commemorative of the event. In the center, within a circle, the route of the entire Pacific cable is shown, including both the lately effected connections with Japan and China. Flags of America and Japan are draped on either side, while at the outer edges of the card the national flower of each land is shown. Above the circle a recording slip appears, while still above that there is a coiled tape. We were indebted to K. Kawasumi, an electrical and telegraph engineer of the Japanese telegraph service at Tokio, for the card.

Commercial receipts from the Alaskan cable and telegraph lines amounted to \$24,000 in July, or \$2,000 in excess of the amount in any previous month. The official despatches sent would have cost \$12,000 had they been paid for at commercial rates. This rapid increase in the demands upon the Alaskan cable and telegraph system will be met by the government by the duplexing of the cable. This duplexing apparatus is the first ever manufactured in Washington, and was made by

the Army Signal Corps in that city at a cost that is said to be \$22,000 less than manufacturers offered to make it. The cable ship *Burnside*, which is to install the duplexing apparatus at the Alaskan end of the cable, will probably leave Seattle about September 15. It will carry 200 miles of new cable for the extension of the cable service south of Ketchikan. This extension will be effected by tapping the line from Sitka to Juneau at Cape Fanshaw. From that point a branch line will be extended down to Wrangell, thence to Hadley on Prince of Wales Island, and thence to Ketchikan, sixty miles from Port Simpson, the British town which is to be the terminus of the Grand Trunk Pacific Railway.

The report of the Pacific Cable board for the year ended March 31, has just been issued, remarks the *Electrical Review* of London, and although it is pleasing to note that the receipts have increased, they have not done so in a manner which could be called satisfactory. The revenue figures are £91,952 (thirteen months' Australian receipts), against £87,446 in the preceding year. The number of words increased by 45,568, and it is to be hoped that the opening of new offices in Australia to compete with the Eastern Extension Telegraph Company will greatly increase the revenue of the cable board. Owing to the refusal of the Eastern Extension Company to accept the Commonwealth agreement as defined by the conference, the Commonwealth Government at once withdrew the privileges provisionally extended to the company at Melbourne, and accorded to the board facilities in Sydney similar to those enjoyed by the company under the New South Wales agreement. The board paid to the Canadian Pacific Railway and the Atlantic companies for the insertion of date and time and duplicate copies, the sum of £2,642 os. 7d. The deficiency on the year's working of £72,556 1s. 9d. is shared in the following proportions, viz.: England and Canada £20,154 9s. 4d. each, Australia £24,185 7s. 3d., and New Zealand £8,061 15s. 9d. There will be a deficit for 1906-7, the board calculates, of £87,006, after allowing for a revenue of £88,600 and a special expenditure of £8,000 in connection with the opening of offices and competitive tactics in Australia. It does not appear to us, however, that the opening of new offices is warranted at this expenditure if the traffic is to be less in consequence. An increased income must surely be secured when new offices are opened. The estimated traffic appears to us to be too slow, unless, of course, the board has been influenced by circumstances not mentioned in the report.

Orders, if sent to Telegraph Age, Book Department for any book required on telegraphy, wireless telegraphy, telephony, electrical subjects, or for any cable code books, will be filled on the day of receipt.

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### Wireless Telegraphy.

A De Forest wireless telegraph station is being constructed at Sault Ste. Marie, Canada. It will have a capacity of sending and receiving 600 miles over land and 2,000 miles over water in daytime. This system is being extended all through Canada and to the Pacific.

A patent, No. 827,524, for a wireless telegraph system, has been obtained by Lee De Forest, of New York. One claim covers a transmitting system, a key for energizing the same, a receiving system, a responder associated therewith, and magnetic means, energized by the key, for moving one element of the responder away from the other element thereof.

A patent, No. 827,523, for a wireless telegraph system, has been issued to Lee De Forest, of New York. Separate multiple antenna are provided for the transmitting and receiving systems, the transmitting multiple antenna comprising a larger number of conductors than the receiving multiple antenna and having its conductors more closely spaced than those of the receiving antenna. Means are provided for attuning the transmitting and receiving antennae to different frequencies.

The United States leads the world in the number of wireless stations now in operation, according to a list compiled by the Bureau of Equipment of the Navy Department. There are in the United States and its possessions, 88 stations, of which 32 are directly under the control of the Navy Department. Great Britain (and Ireland) comes second, with 43. Other countries follow: Belgium 1, Denmark 4, Germany 13, France 6, Holland 8, Spain 4, Portugal 1, Gibraltar 2, Italy 18, Malta 1, Montenegro 1, Norway 1, Austria-Hungary 2, Roumania 2, Russia in Europe 3, Sweden 3, Turkey 6, Argentina 5, Brazil 5, Canada 5, Chile 1, Costa Rica 1, Mexico 2, Panama 2, Uruguay 1, Trinidad 1, Tobago 1, Andaman Islands 2, Burmah 1, Hong Kong 1, China 5, Japan 2, Dutch East Indies 5, Russia in Asia 1, Egypt 2, Morocco 2, Mozambique 2 and Tripoli 1.

A curious story of an effort to put the wireless telegraph out of business by means of fog-horns is told in the following despatch from Chicago: "Someone with great ingenuity furnished a wonderful scheme to put the wireless telegraph gambling boat, the City of Traverse, out of commission. The idea was to eliminate the wireless communication with the craft, depriving it of race results by sounding a huge fog horn, of which the vibrations would 'blur' the wireless message. The results were grotesquely disastrous. The gamblers laughed at the police in the tug Andy. The life-saving crews from Jackson Park and South Chicago, believing the sounds to be distress signals, hurried to the Hyde Park crib; sailboats, launches, motorboats, and an armada of small craft rushed to the rescue, while

the shore from Kenwood to South Chicago were lined with persons fearing an excursion boat disaster. No difficulty with the wireless apparatus was found on board the Traverse, according to employees of the boat and patrons on board. The messages of the race results came without mishap and with regularity, they said. The chief inconvenience suffered was the blatant noise sounded from the foghorn of the Andy, which hovered close to the side of the larger boat all afternoon, and made the deck of the ship a bedlam."

### The Death of Cornelius Dwyer.

The death of Cornelius Dwyer, on August 8, removes another old time and United States Military Telegrapher, a man well known in the profession throughout the country. He was born in Ireland, December 18, 1838, but came to this country in 1851. His early experience in the telegraph service began in 1854, when he acquired the art under Capt. Randall P. Wade, son of Jephtha H. Wade. The consolidation at this time of telegraphic interests under the name of the Western Union Telegraph Company, brought young Dwyer into the employ of the new organization. He saw service in the West under Gen. Thomas T. Eckert. During the last half of the Civil War he served as a telegrapher in the army, subsequently filling many positions of responsibility in telegraphic employ in various parts of the country. His spine suffered injury in Nashville because of being thrown from a horse. From this he never recovered.

C. R. Tracy, aged fifty-five years, for twenty-two years, and until within three years ago, manager of the Western Union Telegraph Company at Wheeling, West Va., died August 27. He was a native of Maryland. He took an active part in municipal affairs at Wheeling for many years.

Howard S. Larcombe, who died August 22, at Beltsville, Md., will be remembered by some of the old New Yorkers, as he worked in "195" many years ago. Of late years he was employed at the Washington, D. C., office of the Western Union Telegraph Company. If he had lived he would have been fifty-eight years old on September 4. He was a native of Pittsburg, and his entry into the telegraph dates back to 1860, beginning as a messenger in the service of the old South Western Telegraph Company at Huntsville, Ala. Both Mr. Larcombe's father and mother were telegraphers, the former being superintendent of that section of the company named, covering the north portion of Alabama. When the federal troops occupied Huntsville, April 11, 1862, and took possession of the telegraph lines, young Larcombe's services with the company terminated forthwith. In November, 1869, he commenced to work for the Western Union, in whose employ he subsequently remained with the exception of about a year and a half in 1884-85.

### Underground and Overhead Construction.

Mr. W. H. Thompson, superintendent of fire alarm telegraph at Richmond, Va., read an interesting paper at the convention of the International Association of Municipal Electricians, held at New Haven, Conn., August 15, 16 and 17, entitled "Comparison of Underground and Overhead Wiring and the Relative Values of Single Rubber-Covered Wire and Lead Incased Cable," from which we print the following extracts:

"It is clearly understood and can hardly be denied that the best, safest and most economical system, in the long run, for the transmission of electrical energy, is the underground system, if we except possibly the long-distance telephone. As yet we have been unable to overcome the induction and retardation on these lines where any considerable portion is underground. Electric lighting and power circuits in which a difference of potential of from one to ten thousand volts is maintained, can be operated much better in underground ducts than when suspended in the air. The insulation resistance of underground wires and cables can be maintained at from one to six megohms per mile, something that cannot be approached by any overhead line except where they are made up in the form of cables equally well insulated and protected by an outer covering of lead or other equally durable material.

"In the congested districts of all cities, all electric wires should be placed underground, as there is now no excuse for maintaining them on the overhead pole lines, an obstruction to travel and a hindrance to the fire departments in the performance of their duties. All services from underground systems should be continued underground until the interior of the building is reached. The greatest of care should be exercised in the construction of lines for the transmission of electrical energy for the production of light, heat and power and for the fire alarm and police telegraph, from which so much is expected.

"There are two systems of underground electrical services in my city of Richmond, Va., the drawing-in and the solid system. In the former, the conduits are laid in concrete and terminate in manholes, which are necessary owing to the fact that there is a limit to the amount of wire or cable that can be drawn through a duct. The ducts are made of terra cotta, and when properly laid in concrete they require little or no attention for years. The manholes are of brick, laid in cement, and they are provided with iron covers.

"Unfortunately, the use of underground systems as yet is the exception rather than the rule, and most electricians for some time to come will have to deal with the question of overhead lines. In the majority of towns and cities, these lines are constructed without any system or well-defined plan, the aim seeming to be to reach the desired point in the shortest, easiest, cheapest and, oftentimes, in the most flimsy manner pos-

sible. High and low potential wires are strung on the same poles, often on the same cross-arms and fixtures.

"The owners of electric light and power lines too frequently make a pretense of using insulated wire. The insulation resistance of a high potential overhead circuit should be not less than from fifteen to twenty megohms per mile; yet I have known them to drop to less than one-half megohm per mile after a soaking rain, and it is rarely that they reach from two to five megohms under the most favorable conditions. Yet the great public is lulled into the belief that these lines when covered with this useless substance are perfectly harmless, incapable of doing them bodily injury, and wrecking telegraph and signal systems. Almost perfect insulation of overhead and underground lines is possible and the only thing that stands in the way of this attainment is the added expense and the apathy of the municipal authorities and the public, who good-naturedly suffer great abuse without a murmur."

"While the fire alarm and police telegraph apparatus has been brought to its present high state of efficiency, the line construction is practically the same as it was in the earliest days of the fire alarm signal service. It is, of course, a fact we all recognize, that although we may have the best apparatus and the most costly, and although everything about the central office be kept in the most perfect condition, all of our efforts may be set at naught at a critical moment by the breaking down of some poorly constructed outside circuit.

"It is an almost universal practice to claim the top gain on all poles that have been erected for the use of the city wires. This practice of placing city wires above all others was a very good one at one time. But since the introduction of high potential wires it is a practice which, to say the least, should be discontinued. Many deaths and injuries have resulted from this cause, and many more will no doubt occur unless the practice is abolished.

"Roof construction is one of the things that should be avoided in a fire or police telegraph system, because it is not easily controlled; it cannot be readily inspected and can easily be tampered with through ignorance or design. Above all things, bare, uninsulated loops should be avoided. An instrument cut in on such a loop can never be depended upon to do its work, being liable at all times to be cut out of service by the slightest accident. Copper wire covered with the best grade of insulation, and this insulation in turn, covered with a lead sheathing, is the only proper thing to use in roof construction, and is the cheapest in the long run."

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### Some Valuable Telegraph Books.

All of the books described in the following list embody a choice number from which selections may advantageously be made, and furnishes an excellent catalogue for the consideration of telegraphers. 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—altogether 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.

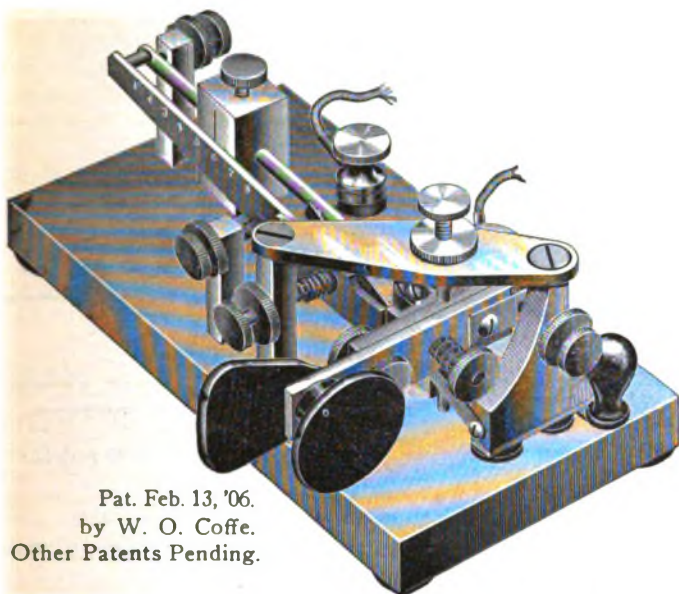
"The Practical Management of Dynamos and Motors," by F. B. Crocker and S. S. Wheeler, as indicated by its title, affords a clear understanding of the use, care and operation of these important adjuncts of the well equipped modern telegraph office. There is a constant demand for this book, for telegraphers 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.

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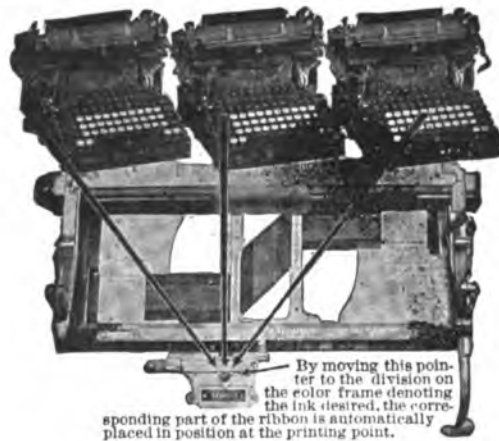
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**NEW YORK, SEPTEMBER 1, 1906.**

The Book Department of Telegraph Age, always a prominent and carefully conducted feature of this journal, has in obedience to continually growing demands made upon it, materially increased its facilities of late. The desire is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished, promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientele. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same. These will be of especial aid to buyers inasmuch as they contain brief descriptive references of each volume listed, frequently with full chapter titles.

### Governing Preferment.

The editorial entitled "Governing Preferment," republished in the August 1 issue from an earlier number of TELEGRAPH AGE of several years ago, in which we took occasion to enlarge upon the general proposition that proficiency and willingness are the elements in individual character that count, and that telegraph operators showing a disposition to acquire a mastery of their business are the ones who are going to get ahead, etc., has elicited the following letter from Mr. Guy E. Paine, general superintendent of the Southern division of the Postal Telegraph-Cable Company, at Atlanta, Ga., which speaks for itself:

Personally, I appreciate very much your republishing the editorial in your issue of August 1 on the subject of men in the telegraph business endeavoring to fit themselves for promotion. When the article first appeared I made good use of it and hope to do so again.

This expression of acknowledgment comes from a high official in the telegraph service, and as such is not without significance, and is regarded at its full value. Evidently Mr. Paine, from long experience, gained in the upward climb to preferment, and as an executive, recognizes the true meaning of the admonition to telegraphers expressed in the article in question, and hail's its republication because of the influence for good he perceives may result therefrom.

And yet, if a brave and struggling operator, fired with a determination to get ahead, had been moved to write as Mr. Paine has done, and as did our former correspondent, because of whose letter we reprinted the editorial, we should have welcomed the communication, even more than that received from Mr. Paine, as in that case it would have been indicative that the lesson we aimed to teach was, indeed, taking root in the minds of those who must heed the warning given if they are to attain success in their chosen calling. For it was more to the man at the key, whose future lay before him, that our remarks, as referred to, were directed.

As a telegraphic newspaper, supported by telegraphic interests, we would do all in our power to promote individual excellence within the ranks, for the telegraph has urgent need of the services of its intelligent followers. We would speak words of truth and of cheer; would seek to shape and guide manly initiatives, and stimulate worthy ambition, for it must be admitted that the telegraph itself must be the logical source of supply from whence to draw material for filling the higher positions it has continually at its disposal. We wish that the telegraph operating force everywhere might be actuated by a larger intelligence and stimulated by a deeper enthusiasm. We are satisfied that a better outcome would await such conditions. The service has urgent need of efficient men. Hundreds of good positions are open and waiting to-day for the right persons. The money value of those variously skilled above the level of the operating desk, is as relative in the telegraph as in other fields of endeavor. Ten to one it remains with the individual whether the prize, awaiting in one form or another, shall be his or not. Careful fundamental preparation, if of the right kind, will just as surely meet with recognition and reward by promotion, even if the latter lands one outside of the telegraph, as the sun will rise after its setting. Hence we would like to say to the operator, especially to the young men, to take life seriously. It is individual will and push, governed by integrity, sobriety of conduct and strict loyalty to employing interests, that tells; knowledge is the key that unlocks the door to the steps leading upwards. Let the brain be active, the mind pure, the body healthy, and one may defy the adverse influences of the world, and safely count on success.

TELEGRAPH AGE possesses hundreds of letters from persons now in other walks of life who have been stimulated to greater exertion in life's work by the advice so frequently expressed by this paper, and have found success as a reward for their earnest endeavors. Many of those to whom we refer, believing that promotion was too slow in the telegraph service, yet recognizing the excellence of training gathered in its employ, made use of their former profession as a stepping stone to other avocations where, with hardly an exception, they have attained success and wealth. There is need of further like results and in larger measure.

#### Postal Telegraphy in Australia.

Apropos of our article on postal telegraphy which appeared in the August 16 number of TELEGRAPH AGE in answer to the speech delivered in the House of Representatives by Congressman Smith, of Michigan, the following, taken from the July 18 issue of *The Transmitter*, printed at Sydney, New South Wales, a paper published in the interest of the telegraph in Australia, may be a comfort to the abounding egotism of the honorable gentleman who would introduce the Australian telegraph system into this country, as an improvement over that we now possess:

"Under the heading 'Postal Departmental Business,' a Brisbane daily said recently: 'One of the most satisfactory proofs of returning prosperity in Queensland is to be found in connection with the post and telegraph business. It is understood that the amount of business and the returns have been increasing steadily for some time back, and, though official figures are not now available, they run into many thousands on the right side of the ledger. At the time of the classification of the Commonwealth service, the staff everywhere was cut down to the lowest point consistent with efficiency, and the recent improvement in business necessitates an increase in the number of officers at several centers.' Another paragraph in the same paper some time ago said: 'There have been absolutely no appointments made to the service in this state since the beginning of 1901, except telegraph messengers at £26 per annum. This has been maintained despite numerous retirements, and the usual dismissals, resignations, etc., inseparable from a large service.' Undoubtedly, these are official statements, as the information could not be obtained except from an official source. The phrase which strikes our fancy is 'consistent with efficiency.' We have our own ideas as to what constitutes efficiency in a telegraph service, viz.: the quick despatch of business, while at the same time not curtailing the rights of the employees as set out in the public service act and the regulations. One could hardly talk of comparative efficiency in a business such as ours, as it must either be an efficient service or not. We incline to the latter view, and we have had some ex-

perience. We doubt whether an impartial board of inquiry into the working conditions, and the treatment of telegraph business generally, could have anything good to say of the Queensland service. We also doubt if it would be a pleasing experience for the telegram-sending public to learn that a cable can be sent to London and a reply received in a very much shorter time than it sometimes takes messages to reach Brisbane from offices situated in the state. The first mentioned paragraph contains two welcome admissions. We have never ceased from pointing out that business has increased largely, and that very many offices are undermanned. Taken in conjunction, the two statements point clearly to the conclusion that real telegraphic efficiency can not honestly be expected, nor can the men get the absolutely fair treatment to which they are justly entitled. Under the act we are entitled to certain rights which are not at present being granted; not perhaps that there is any objection to so doing, but because a sufficient staff is not available. Our complaint is that there appears to be no honest attempt to cope with an unsatisfactory state of affairs. Everything appears to be subordinated to a desire for economy. Boiled down, the facts are: No appointments have been made for five years, although numerous vacancies have occurred through deaths, retirements under the age limit clauses, dismissals, etc. Two years ago, the service was cut down to the lowest limit consistent with economy. Business has admittedly increased by many thousands. New offices are being continually opened and have to be filled from the present staff. The ranks of telegraphists are being reduced by each new appointment to a postmastership, as none are being introduced to fill any such vacancy. If the present system is continued, the telegraphist in the course of years will become as extinct as the dodo. In the face of all this it cannot be wondered at that officers cannot get their recreation leave in a reasonable time, or that numerous irregularities are allowed to continue. Perhaps we are old fashioned in our ideas, but we have always been under the impression that the one object of a telegraph service was the quick despatch of business, and that each message was entitled to the same consideration. If a suggestion recently made were to be carried out, this could not possibly be the case, and an invidious distinction would be made between messages handed in by the public. We are afraid our predictions stand a fair chance of an early fulfillment."

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.

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### Orrin S. Wood and the Early Telegraph.

It has been remarked many times within the past two weeks, and with evident surprise, that it should have been possible for us to publish a communication over his own signature, from the first manager of the first telegraph office established in New York, such as appeared in our issue of August 16. While the writer of that note, Orrin S. Wood, may be known to some of the older members of the fraternity, it is quite possible that the vast majority of telegraphers of the present day, only know him, if at all, as an historic figure, one of the master minds identified with the early development of the telegraph on this continent.

In assigning the small group of the most distinguished members of the early telegraphers to the rightful positions relatively held by them, of course Prof. Morse stands number one. Next to him comes Alfred Vail, whose home was at Morristown, N. J., and who was a valuable assistant to Morse in the construction of telegraph instruments. Place number three should be accorded to Ezra Cornell, who superintended the construction of the first line of telegraph ever built, that between Washington and Baltimore, and who afterwards became the founder of the university bearing his name. Next to Mr. Cornell comes Orrin S. Wood, whose brother-in-law he was, a gentleman who became identified with the telegraph service in August, 1844. All of the quartette named have passed away except Mr. Wood, and at the age of eighty-nine he is the only remaining link of the remote past with the present in the history of the telegraph.

Early in August, 1844, Prof. Morse and Mr. Cornell prevailed upon Mr. Wood to go to Washington to join with them in demonstrating the practical value of the electric telegraph. For it must be remembered that its utility had yet to be proved by Prof. Morse, for it was a new device and of a nature so revolutionary in character that much skepticism as to its real worth still existed in the public mind. Mr. Wood proved to be an apt telegraph scholar, and he quickly became expert at the key. His ability as an operator won for him the confidence and esteem of Prof. Morse, ending in an attachment that lasted until the death of the great inventor.

The telegraph office at Washington was originally located in the Capitol, occupying three rooms in the basement, one room for the recording instrument, another for the Grove battery of one hundred cells, and the third room for the heavy relay which required two men to lift when it became necessary to remove it to the post-office.

During the session of Congress, 1844 and 1845, Mr. Wood sent the proceedings of the Senate and House of Representatives free of charge to the Baltimore American, and after sending the inaugural address of President Polk, on the 4th of March, 1845, left on the following day to meet Mr. Cornell

New York, where they put up a wire on the roofs of the buildings from lower Broadway to Bleecker street. As a result of this exhibition a company was organized and a line was erected (using No. 16 copper wire) from Exchange place, by way of Broadway and Fourth avenue, to Fort Washington, and from Philadelphia through New Jersey to the Palisades above Fort Lee, where high masts were erected on each side of the river. But at this point an obstacle was encountered which led to the abandonment of this route, as no wire could be found to bear the strain of the long high stretch necessary to clear the masts of vessels passing up and down the river, at this point over a mile in width.

The line from Philadelphia was then diverted from Plainfield to Jersey City, from which point the messages were brought to New York by messenger, crossing the river by ferry. This method was continued for two years, until the practicability of the submarine cable for river crossings was demonstrated.

The first section of the New York, Albany and Buffalo line was finished and was put in operation by Mr. Wood between Albany and Utica in January, 1846. At Utica, during the winter of 1845-46, Mr. Wood taught a class in telegraphy to provide operators for the Syracuse, Auburn, Rochester and Buffalo offices, which were opened early in 1846, and with Albany and Utica constituted the first instance of more than two offices worked successfully in one circuit in the world's history. Leaving his brother, Otis E. Wood, who afterward became superintendent of the line, in charge of the office at Buffalo, Mr. Wood returned to New York in the autumn of 1846, and opened the first telegraph office for business in that city. It was located on the corner of Exchange place and Hanover street, in the Post building. The Boston line, in course of construction at this time, was also run into this office, but owing to the inexperience of operators at way stations interruptions for many hours at a time were very frequent during the winter of 1846-47 upon the New York and Boston line. Mr. Wood remained in charge of this office until March, 1847, when he accepted the position of superintendent of the Montreal Telegraph Company, which had just been organized.

For the past twenty-five years Mr. Wood has been living in retirement, spending his winters in New York City, and six or seven months in the country. A great lover of nature, he is the happiest when on his farm near Turner, Orange County, New York, where he is wont to dispense a most delightful hospitality.

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

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.



### The Convention of the International Association of Municipal Electricians.

The event of the eleventh annual convention of the International Association of Municipal Electricians, held at New Haven, Conn., on Wednesday, Thursday and Friday, August 15, 16 and 17, has taken its place in the history of the memorable meetings of this association. The "Elm City" gave the visiting electricians a cordial welcome, and much enthusiasm was manifest on all sides, both on the part of host and of guest. The weather was propitious, the programme of business and of a social nature was carried out in full, the attractions of the city and of its environments came in for their share of attention; the university was fully inspected, and the praises of old Eli were much in evidence.

The city officials, together with their wives, vied with each other in affording a reception to the visiting electricians, making the occasion one long to be remembered.

The place of assembly was in the aldermanic chamber in the City Hall, generously tendered by the board and who caused it to be handsomely decorated for the occasion with potted plants and palms and the walls draped with flags.

Amid such attractive surroundings the electricians met at ten o'clock on Wednesday morning, August 15, Louis M. Ullman, president of the board of police commissioners, presiding. The proceedings were opened with prayer by Rev. Franklin Knight, after which Mayor John P. Studley, of New Haven, welcomed the electricians in behalf of the municipality. He was followed by Governor Henry Roberts, who came down from Hartford for the purpose of tendering a welcome to the electricians broader than the city afforded, because co-extensive with the state itself.

Governor Roberts said that New Haven had been honored many times by national conventions, and that the state appreciated the honor. He said that Connecticut had been known under various names, among them being the land of steady habits, and also the Nutmeg State. He observed that the electricians took recognition of the latter appellation by the fact that they had nutmegs attached to their badges. The governor said that he believed that the proper name was the Constitution state. He said that the spirit of invention was widespread throughout Connecticut and that this had been the means of building up many thriving towns. He wished the electricians a successful convention and gave them a cordial welcome to the state.

After Governor Roberts had finished ex-Mayor Albert C. Hendrick presented the electricians with a handsome wooden gavel, made by members of the fire department of New Haven, to be used by the presiding officer at its conventions. The wood from which the gavel is made is red cedar and native elm. Mr. J. B. Yeakle, of Baltimore, and A. S. Hatch, of Detroit, responded to the addresses of welcome.

A short recess was then taken, after which President Jerry Murphy, of Cleveland, made the following address:

We are, I think, to be congratulated on the happy choice of the association of taking for its meeting place this city of New Haven, rich in its traditions and institutions of learning. That choice, too, besides being a pleasure to each individual member, has the additional point of an almost sure advantage to the association in general.

Not only is the result of higher education here to enable an appreciation which cannot help but encourage, but placed as New Haven is in the midst of municipalities which so generally employ municipal electricians, the advertisement, which the meeting affords, will be most noticed where it will do most good. An effort should be made by all members to see that none of that advantage is lost.

The topics for the papers selected by the committee on arrangements to be read at the meeting are of the utmost importance, and the chair feels that he cannot impress the fact too strongly upon the members. Let us have, too, a thorough discussion of each paper, to bring out and impress every good point of each.

I know that every member will mark the days of this meeting with white stones, in gratitude for the programme which has been provided for us. And in closing I take the opportunity to express for the association its heartfelt thanks to the citizens of New Haven whose appreciative guests we are.

Immediately following Mr. Murphy's opening address, he read the paper on "Advisability of Protecting Municipal Electricians by Civil Service Laws," of which he was the author. This was discussed during the entire morning session.

Will Y. Ellett, of Elmira, opened the discussion. He said:

"We hope to see the day when the superintendent of fire alarm and his assistants won't be under the whim of politicians. But suppose that the civil service law compels a man to pay heavy legal expenses in protecting himself from attack. Does it protect him in that case? If a man has to give a half-year's salary for legal expenses civil service does not protect. The laws should be amended so that when a man is tried and found innocent the expenses of the trial should be paid by the city."

Walter M. Petty, of Rutherford, N. J., moved that a permanent committee be appointed to take charge of the matter and to bring in a report at the next annual meeting on the conditions of the civil service rules. Mr. T. C. O'Hearn, of Cambridge, Mass., thought that some form of protection should be secured by the electricians. J. B. Yeakle, of Baltimore, said: "It will not do for this association to be anything else than an organization based on the intellectual superiority of its members, as far as their proficiency in their work goes. Don't ask for special legislation. Don't descend from the exalted one you now enjoy. The underwriters are now exercising a potent influence on this question and when they see that politicians are determining appointments in the fire department that are interfering they will have something to say on the subject." H. C. Bundy, of Watertown, N. Y., said:

"If you've got a political job, you've got a

political civil service. I think this civil service question is a little too broad for us to tackle just now. Civil service in New York state doesn't amount to anything at all. There you have to pass an examination to get in, but when they say get, you have to 'git.'"

William A. Barnes, of Bridgeport, said: "When politics gets in reason gets out in our fire departments."

A. S. Hatch, of Detroit, spoke of the deplorable condition in which Detroit was without civil service and moved that the proposed committee be chosen. The vote passed and the committee selected were: Messrs. A. S. Hatch, Walter Petty and J. B. Yeakle.

The afternoon session was an interesting one. Reports of the different committees were listened to, many questions asked, and a number of topics were discussed at length.

A. S. Hatch talked entertainingly of the general subject of the trackless trolley. According to Mr. Hatch there is only one trackless trolley line operated in the United States, although the system is working nicely in nearly all of the European cities. In France especially, they have things down to a science. The only trackless trolley line in this country is located at Nantasket Beach, near Boston.

President Murphy read letters from the Western Union and the Postal Telegraph companies and from the Southern New England Telephone Company, extending the courtesies of their several systems to the electricians.

Mr. A. S. Hatch, of Detroit, was elected a life member of the association.

Frank C. Mason, the founder of the association, who was unable to be present, sent a letter of regret, which was read before the convention.

Mr. Walter M. Petty, of Rutherford, N. J., chairman of the Question Box Committee, read questions taken from the box, the accumulation of a year. This was a feature of much interest and elicited considerable discussion.

W. Y. Ellett, of Elmira, N. Y., made a report on aerial construction, illustrating the same by blackboard sketches. He said in part: "In my experience I have found that fire alarm and telegraph wires should always be taut. This is neglected by many superintendents, with the result that constant swinging by the wind causes crystallization near the cross arm. There is no branch of the service requiring more attention than the overhead wiring department."

The discussion of the subject which followed became general and entered into the merits of the question very fully.

An evening session was also held, the first thing in order being the discussion of the national code of rules. Mr. T. C. O'Hearn, the chairman of the committee having the matter in charge, stated that he strongly advised against any deviation from the national code rules on the part of the Municipal Electricians, for the national code is universal. If, however, any change be found

desirable, it should appear in the adoption of subsidiary rules.

Clarence R. George, of Houston, Texas, followed with his paper "Conditions Surrounding the Inspection of Wires in the Southwest, with Special Reference to the Advisability of One Inspector Completing Each Inspection Instead of Several Inspectors, Each Doing a Part of It."

Mr. George said in substance: "The use of electricity for lighting and power purposes is a very new industry. The means of offense always precedes defense, which is usually a little behind the times, and the older they grow and develop, the nearer they approach equality. This is true of electricity; its first growth was very rapid, and little, if any, care was taken to surround it with even the ordinary safeguards, but, as time moved on, no one seemed to move to the side of defense until along in the early eighties when the New York Board of Underwriters printed its first set of rules for the installation of electric wires.

"It was the practice in those days to staple electric wires the same as bell wires, or to use wooden cleats of the telegraph type; in other words, it was a case of 'get it in,' even in some cases using bare copper wire. It was about this time that the underwriters and those interested in the electric light business were beginning to understand that some steps must be taken to safeguard this new industry, and to protect property and life.

"As they considered the matter from two points—one from the underwriters', on account of the fire hazard, and the other from the lighting companies'—a business standpoint, this soon brought about a co-operation between those interested, and from this co-operation we have the National Electrical Code and Requirements for Electric Wiring.

"While the code is the same everywhere, yet we meet with different rules locally. These differences in some cases are provided by city ordinances, but in the majority of cases it is the result of different interpretation of the code. I have heard it said—and I am of the same opinion—that good workmanship and poor material are far better than poor workmanship and good material, in so far as the fire hazard is concerned."

Mr. George's interesting paper was fully discussed by Messrs. O'Hearn, Yeakle, Hatch, Petty and by Capt. William Brophy, of Boston. The latter spoke briefly on the danger of discarded wires, and of how many deaths such wires charged with electricity had caused. He also spoke of the necessity of grounding secondary wires, and of how difficult it is to secure permission from water companies to do this.

J. B. Yeakle read a paper entitled, "Details of Certain Auxiliaries to Fire Alarm Apparatus." Mr. Yeakle spoke briefly of a special form of light used in signal work at Baltimore, Md., and a long discussion followed.

W. M. Petty, of Rutherford, N. J., spoke on the subject of a municipal plant for gas and elec-

tricity operated successfully by a city of 6,000 inhabitants.

C. E. Bradshaw, of Charlotte, N. C., gave an interesting account of an electrically operated water plant in his city.

The secretary stated that the names of twenty active and three associate members had been added to the rolls during the year.

The proceedings of the second day, Thursday, August 16, began with the question taken from the question box, "What are the Restrictions Made Concerning Wires Strung on Buildings?" This subject opened a wide question of opinion and was thoroughly discussed by Messrs. Brophy, Hatch, Petty, Thompson and others.

Mr. L. A. Gascoigne, of Detroit, started the discussion on underground construction, a theme in which a number of others showed much interest.

At this point the paper entitled "The Comparison of Underground and Overhead Wiring, and the Relative Values of Single Rubber-Covered Wire and Lead Encased Cable," prepared by W. H. Thompson, of Richmond, Va., was read and discussed.

Messrs. W. Y. Ellett, Captain Wm. Brophy, Clarence R. George and Adam Bosch were appointed a committee on exhibits, with instructions to examine and submit a written report covering the displays made by associate members, the same to be incorporated in the printed proceedings.

The concluding session of the convention, on Friday, August 17, was opened by the reading of the report of Treasurer C. E. Diehl, of Harrisburg. The association was stated to be in a good financial condition.

Norfolk, Va., was selected as the next place of meeting, the date to be decided upon by the executive committee.

A nominating committee, consisting of Walter M. Petty, M. J. Donohue, J. B. Yeakle and T. F. Almon, presented the following names for officers of the association, all of whom were elected:

T. C. O'Hearn, Cambridge, Mass., president; James Grant, New Haven, Conn., first vice-president; Clarence R. George, Houston, Tex., second vice-president; John Berry, Indianapolis, third vice-president; W. H. Bradt, Troy, N. Y., fourth vice-president; Frank P. Foster, Corning, N. Y., secretary, and C. E. Diehl, Harrisburg, Pa., treasurer.

Executive committee: J. B. Yeakle, Baltimore; R. A. Smith, Norfolk, Va.; William Crane, Erie, Pa.; Jerry Murphy, Cleveland; W. M. Petty, Rutherford, N. J.; T. F. Almon, St. Louis, Mo.; A. S. Hatch, Detroit, Mich.; W. H. Thompson, Richmond, Va.; G. F. Macdonald, Ottawa, Ont.

Finance committee: L. W. Kittridge, chairman, New Haven, Conn.; C. E. Bradshaw, Charlotte, N. C.; W. D. Claiborne, Savannah, Ga.

New Haven and vicinity present many physical attractions, and to the various points of interest, both within and without the city, the ladies of the party were escorted by the members of the re-

ception committee, organized especially for their benefit. Of course, Yale University, with its multiplicity of noble buildings, came in for first place, but the beauty of the location and the magnificence and extent of the view from the Soldiers' Monument, perched high on East Rock, will not soon be forgotten. Then there were trolley rides in all directions, and one evening a fine band concert was given on The Green, opposite the City Hall. The visit to the National Steel Wire Corporation's plant in which the electricians generally were conspicuous, revealed the process of wire manufacturing on a large scale. The trip to Savin Rock to accept the generous hospitality of the Gamewell Fire Alarm Telegraph Company, of New York, at a "shore dinner," was remarked to be "immense."

The New Haven members of the association, James Grant, aided by his wife, and L. W. Kittridge, were conspicuous in their attentions to the visitors to their city. An apartment was set aside in the City Hall for the display of exhibits.

#### THE EXHIBITS.

The Gamewell Fire Alarm Telegraph Company, of New York, had an excellent exhibit of its up-to-date boxes, fire alarm and police telegraph apparatus. It made a comprehensive and suggestive showing. The company was represented by N. U. Sureen, J. E. Rogers and H. E. Stover, of Boston; F. F. Stover, of Chicago, and also A. D. Wheeler, of Boston, the New England agent.

The Gamewell Auxiliary Fire Alarm Telegraph Company, of New York, also made a neat display. Mr. H. M. Cross, of New York, general sales agent, and F. Olin Snow, of Bridgeport, Conn., chief inspector of the Connecticut Gamewell Auxiliary Fire Alarm Telegraph Company, were in charge.

The Holtzer-Cabot Electric Company, of Boston, Mass., showed its latest types of motor-generators, plating machines, motors, dynamos, telephone apparatus, watchmen's clocks, batteries, annunciators, etc. The company was represented by E. F. McCobb and A. P. Waterman, of Boston.

The exhibit of the Battery Supplies Company, of Newark, N. J., was in the care of its secretary and treasurer, Mr. E. E. Hudson. An exhibit of batteries was made by the company.

The Leeds and Northrup Company, of Philadelphia, had an exhibit of electrical measuring instruments, which attracted considerable attention because of their portability and handiness.

The Safety Insulated Wire and Cable Company, of New York, was represented by Mr. A. P. Eckert.

Mr. George L. Wiley, New York representative of the Standard Underground Cable Company, was in attendance to show his company's products.

The Corning Glass Company, of Corning, N. Y., was represented by Mr. Frank P. Foster.

Among those present were:

Allegheny City, Pa.—E. G. Loomis.



Atlantic City, N. J.—A. C. Farrand.  
 Baltimore, Md.—J. B. Yeakle.  
 Boston, Mass.—Capt. Wm. Brophy, J. E. Rogers, Harry E. Stover, A. D. Wheeler, T. H. Bibbons, N. U. Suren, Eugene N. Davis, A. P. Waterman and E. F. McCobb.  
 Bridgeport, Conn.—W. A. Barnes and wife; J. G. Lay, F. O. Snow and H. D. Miller.  
 Cambridge, Mass.—T. C. O'Hearn.  
 Charlotte, N. C.—C. E. Bradshaw.  
 Cleveland, O.—Jerry Murphy.  
 Chester, Pa.—L. E. Emmons.  
 Chicago.—F. F. Stover.  
 Corning, N. Y.—Frank P. Foster.  
 Dallas, Tex.—G. E. Anderson and A. W. Coffman.  
 Detroit, Mich.—Louis Gascoigne and A. S. Hatch.  
 Elmira, N. Y.—W. Y. Ellett.  
 Erie, Pa.—William Crane.  
 Harrisburg, Pa.—C. E. Diehl.  
 Houston, Tex.—Clarence R. George.  
 Indianapolis, Ind.—John Berry.  
 Louisville, Ky.—C. F. Gall and P. G. Kern.  
 Marlboro, Mass.—Herbert W. Angier.  
 Middletown, Conn.—George S. Pitt.  
 Montgomery, Ala.—B. A. Blakey.  
 Morristown, N. J.—Frank E. Pierson and wife.  
 Newark, N. J.—Adam Bosch and E. E. Hudson.  
 New Britain, Conn.—George Cooley.  
 New Brunswick, N. J.—J. H. Warren.  
 New Castle, Pa.—William S. Devlin.  
 New Haven.—James Grant and wife; L. W. Kittridge.  
 New Rochelle, N. Y.—A. J. Bell and wife.  
 New York.—E. C. Chamberlin, H. M. Cross, A. P. Eckert, C. C. Johnson, Fred Pearce, Charles E. Rowe, J. B. Taltavall, wife and daughter, and George L. Wiley.  
 Niagara Falls, N. Y.—M. J. Donohue.  
 Norfolk, Va.—R. A. Smith.  
 Norwich, Conn.—Howard L. Stouton.  
 Passaic, N. J.—C. R. Newman and wife.  
 Philadelphia.—Julius Bernstein.  
 Richmond, Va.—W. H. Thompson, wife and daughter.  
 Rutherford, N. J.—Walter M. Petty.  
 Savannah, Ga.—W. D. Claiborne.  
 Schenectady, N. Y.—J. H. Barnes.  
 Stonington, Conn.—A. P. Cooper.  
 St. Louis, Mo.—T. F. Almon.  
 Taunton, Mass.—Albert Coleman.  
 Trenton, N. J.—P. M. Schafer.  
 Troy, N. Y.—W. H. Bradt and wife.  
 Utica, N. Y.—Terrance F. Marrin.  
 Watertown, N. Y.—H. C. Bundy.  
 Worcester, Mass.—Vincent Goldthwaite.

Recently a French aeronaut named Lacomte made an ascent from Rueil, but got into difficulties, and the balloon sank so low that it became entangled in some overhead wires. According to the London Globe, the wires were short-circuited

and set fire to the balloon, which collapsed, and the aeronaut was thrown to the ground—fortunately escaping without injury.

#### The Earthquake at Valparaiso.

The city of Valparaiso, Chili, which, according to advices by wire, has been badly damaged by earthquake, and fears expressed that the catastrophe may be as great as in San Francisco last April, is the most important seaport of the South American republic and the center of trade for a large part of the southwestern portion of that continent. It has a population of upwards of 144,000.

The city is one of progress and energy. It was the first in South America to establish telegraph lines, and its use of gas dates back to 1856. It built aqueducts for a water supply and used street cars in 1860. There, too, were begun negotiations for the construction of the Copiapo railway, which was the first in South America (1849). There the first floating docks for the repair of vessels of large tonnage were constructed in 1860. The first devices for securing a water supply dates from 1849. Recently the storage of 100,000,000 tons of rain water for this use has been effected at a point 15 miles from the city, and 1,000 feet above the level of the sea.

The city of Valparaiso is noted among the South American municipalities for the excellence of some of its public institutions, the Museum of Natural History, Naval Academy, Victoria Theatre and hospitals; large customs warehouses, wharves, substantial buildings for business purposes, commercial and stock exchanges, seven national banks and several foreign or savings banks.

A new interest in the future development of the city had been quite generally associated with anticipations of a route for intercontinental travel and commerce via the Panama canal and Trans-Andean railway from Valparaiso to Buenos Ayres. It is obvious that when the canal and this railway shall have been completed, Valparaiso will have an advantageous position upon the shortest route between the chief seaports of the United States and some parts of Argentina, Uruguay and southern Brazil.

The telegraph and telephone lines were destroyed, and the only means of communication with the outside world was by the cables of the Mexican, Central and Southern American Cable Company, which rendered excellent service. The office of the Central and South American Telegraph Company in the city of Valparaiso was not destroyed, although temporarily the land communication therewith was suspended, although the underground cable connecting the hut with the city office remained intact.

The cables of the Central and South American Telegraph Company are working as usual, as are the company's land line from Valparaiso to Santiago. The company's staff are working day and night, as the congestion of messages since the earthquake has been very great.

### Thomas A. Edison Tells the Story of his Career.

"I'll tell you how I happened to get into telegraphing first," said Thomas Edison to a magazine representative. "When the battle of Pittsburg Landing was fought the first report which reached Detroit announced that there were 60,000 killed and wounded."

"I was a train newsboy then, and I told the telegraph operator at the Detroit station that if he would wire the main facts of the battle along the line so that announcements could be put up on the station bulletin boards I would give Harper's Weekly to him for six months free of cost.

"I used to sell about forty newspapers on the trip. This time I made up my mind that I ought to take 1,000, but when I counted my money I found I had only enough to buy 400.

"Then it occurred to me that if I could get to Wilbur F. Story, the proprietor of the Detroit Free Press, I might be able to work out of my difficulty. I climbed up the stairs to his office and said:

"Mr. Story, I have only got money enough to buy 400 papers, and I want 600 more. I thought I might be trusted for them. I'm a newsboy.' I got my 1,000 papers all right.

"That was a great day for me. At the first station the crowd was so big that I thought it was an excursion crowd. But no; when the people caught sight of me they began to yell for papers. I just doubled the price on the spot and charged ten cents instead of five cents a copy.

"When I got to the last station, I jumped the price up to 25 cents a copy and sold all I had left. I made \$75 or \$100 in that one trip, and I tell you I felt mighty good.

"That called my attention to what a telegraph operator could do. I thought to myself that telegraphing was simply great, and I made up my mind to become an operator as soon as possible.

"The first serious thing I invented was a machine which would count the votes in Congress in a very few moments. It was a good machine, too, but when I took it to Washington they said to me:

"Young man, that's the last thing we want here. Filibustering and the delay in counting the vote are the only means we have of defeating bad legislation."

"My next practical invention was the quadruplex telegraph. I started in to work it on the Atlantic and Pacific telegraph line between Rochester and New York, but there was a chump at the other end of the wire and the demonstration ended in a fizzle. It was years before the quadruplex was adopted.

"That landed me in New York without a cent in my pocket. I went to an operator and managed to borrow a dollar. I lived on that for a week, but I had to 'park it' a little. Oh, I didn't mind it and I never did care much about eating, anyhow.

"Then I hustled for something to do. I could have got a job as operator at \$90 a month, but I wanted a chance to do something better. I happened one day into the office of a 'gold ticker' company which had about five hundred subscribers.

"I was standing beside the apparatus when it gave a terrific rip roar and suddenly stopped. In a few minutes hundreds of messenger boys blocked up the doorway and yelled for some one to fix the tickers in their office. The man in charge of the place was simply flabbergasted, so I stepped up to him and said:

"I think I know what's the matter."

"I simply had to remove a loose contact spring which had fallen between the wheels. The result was that I was employed to take charge of the service at \$300 a month. I almost fainted when I heard how much salary I was to get.

"Then I joined hands with a man named Callahan and we got up several improved types of stock tickers. These improvements were a success.

"When the day of settlement for my invention approached I began to wonder how much money I would get. I was pretty raw and knew nothing about business, but I hoped that I might get \$5,000.

"I dreamed of what I could do with big money like that, of the tools and other things I could buy to work out inventions; but I knew Wall Street to be a pretty bad place, and had a general suspicion that a man was apt to get beat out of his money there. So I tried to keep my hopes down; but the thought of \$5,000 kept rising in my mind.

"Well, one day I was sent for by the president of the Gold and Stock Telegraph Company to talk about a settlement for my improvements. He was Gen. Marshall Lefferts, colonel of the Seventh regiment.

"I tell you I was trembling all over with embarrassment and when I got in his presence my vision of \$5,000 began to vanish. When he asked me how much I wanted I was afraid to speak. I feared that if I mentioned \$5,000 I might get nothing.

"That was one of the most painful and exciting moments of my life. My, how I beat my brains to know what to say. Finally I said:

"Suppose you make me an offer."

"By that time I was scared. I was more than scared. I was paralyzed.

"How would \$40,000 do?" asked General Lefferts.

"It was all I could do to keep my face straight and my knees from giving way. I was afraid he would hear my heart beat.

"With a great effort I said that I guessed that would be all right. He said they would have the contract ready in a few days and I could come back and sign it. In the meantime I scarcely slept. I couldn't believe it.

"When I went back the contract was ready

and I signed it in a hurry. I don't know even now what was in it. A check for \$40,000 was handed me and I went to the bank as fast as my feet would carry me.

"It was the first time I was ever inside of a bank. I got in line and when my turn came I handed in my check. Of course I had not indorsed it.

"The teller looked at it, then pushed it back to me and roared something which I could not understand, being partly deaf. My heart sank and my legs trembled. I handed the check back to him but again he pushed it back with the same unintelligible explosion of words.

"That settled it. I went out of the bank feeling miserable. I was the victim of another Wall Street 'skin game.' I never felt worse in my life.

"I went around to the brother of the treasurer who had drawn the check and said: 'I'm skinned, all right.'

"When I told him my story he burst out laughing and when he went into the treasurer's office to explain matters there was a loud roar of laughter at my expense. They sent somebody to the bank with me, and the bank officials thought it so great a joke that they played a trick on me by paying the whole \$40,000 in 10, 20 and 50-dollar bills.

"It made an enormous pile of money. I stuffed the bills in my inside pockets and outside pockets, my trousers pockets and everywhere I could put them. Then I started for home in Newark, N. J. I wouldn't sit on a seat with anybody on the train nor let anybody approach me. When I got to my room I could not sleep for fear of being robbed.

"So the next day I took it back to Gen. Leferts and told him I didn't know where to keep it. He had it placed in a bank to my credit, and that was my first bank account. With that money I opened a new shop and worked out new apparatus.

"My automatic telegraph, which handled a thousand words a minute between New York and Washington, was bought out by Jay Gould and the Western Union Telegraph Company. It is in litigation yet.

"Then the quadruplex was installed. I sold that to Jay Gould and the Western Union company for \$30,000. The next invention was the mimeograph, a copying machine.

"When Bell got out his telephone the transmitter and receiver were one. President Orton of the Western Union Telegraph Company asked me to do something to make the telephone a commercial success.

"I tackled it and got up the present transmitter. The Western Union Telegraph Company eventually made millions of dollars out of it. I got \$100,000 for my share.

"At last President Orton sent for me and said: 'Young man, how much do you want in

full payment for all the inventions you have given the Western Union company?'

"I had \$40,000 in my mind, but my tongue wouldn't move. I hadn't the nerve to name such a sum.

"'Make me an offer.' I ventured.

"'How would \$100,000 seem to you?' he asked.

"I almost fell over. It made me dizzy, but I kept my face and answered, with as much coolness as I could muster, that the offer appeared to be a fair one. Then another thought occurred to me, and I said that I would accept \$100,000 if the company would keep it and pay me in seventeen yearly instalments.

"I knew that if I got it all at once it would soon go in experiments. It took me seventeen years to get that money and it was one of the wisest things I ever did. By putting a check on my extravagance I always had funds."

Mr. Edison's deafness is directly due to his early love of science. When he was a newsboy on the train he used to carry on experiments at leisure moments. One day a bottle of phosphorus became uncorked and set the car on fire. The indignant conductor boxed the ears of the youthful scientist and threw the boy and his paraphernalia off the train. It was this box on the ears which caused the deafness which has troubled him ever since.

### Interference in Wireless Telegraphy and the International Telegraph Congress.

In concluding the series of articles on "Interference in Wireless Telegraphy," Professor R. A. Fessenden explains a number of tests which he has made to determine to what extent interference may take place between different systems and how this may be prevented. He was able to receive at Brant Rock, thirty miles from Boston, Mass., messages sent from Machrihanish, Scotland, although another station at Boston was trying to prevent this. The latter station succeeded in getting within three per cent. in tune with the receiving station, and had at its disposal about fifteen kilowatts, but it could not render the signals unintelligible. The author does not think that the methods of directing wireless telegraphy which have been published, with the exception of Marconi's, are of any value. He has done some work in this direction by means of a horizontal iron transmitter screened on one side, but a more promising method consists in utilizing a transmitter submerged in distilled water. Water has eighty times the specific inductive capacity of air, and hence with the same apparatus the length of wave is nine times as great and the energy eighty times as great as when used in air. He suggests a copper cylinder placed in a wooden vessel which is filled with water and covered with oil to prevent evaporation. A metallic reflector made of suitable shape may be placed at one side. With a cylinder one foot high, which



would correspond to a cylinder of the same diameter eighty feet high in air and with a reflector 100 feet in diameter, a strong focusing of the waves should be obtained. The article concludes with a suggested method of international working. Professor Fessenden is opposed to government operation whenever it is not absolutely necessary, but he believes that some understanding should be reached and action taken to insure the safety of ocean traffic. This can best be done by the international adoption of two different wave lengths, one for mercantile use and the other for navy and army use. These might be for example 500 amperes and 550 amperes. Private systems should be allowed to operate at any wave lengths they may desire, except within five per cent, on either side of the two mentioned. A separate wave length should not be used for distress signals, for then it would not be likely to attract attention. A proper distress signal would be the repetition of a single letter, which would sooner or later attract attention. The limits set allow for about forty different tunes, which the author believes to be sufficient for practical purposes.—Abstracted by the New York Electric Review from the Electrical Review (London), July 27.

#### Pen vs. Typewriter.

F. M. McClintic, of New York, in a recent article in "Office Appliances," had this to say on the subject of pen vs. typewriter:

Although there were many errors—amusing, perplexing or otherwise—in the old days of the pen, the typewriter, with its high speed, coupled with lack of intelligence in the use of code and the greater business of the present day, has increased the average of errors ten-fold. Transposition of letters, lack of punctuation and various other causes contribute to the troubles that the law departments of the telegraph companies are eternally wrestling with. When a man orders a case of fresh fish and receives a car of fish instead, he goes after damages. It is safe to say that such an error is the result of poor writing or carelessness on the part of the sending operator, and the typewriter, if more generally used, would tend to lessen the number of such mistakes. Lack of punctuation, perhaps, causes the recipients of telegrams more vexation these days than even the heartbreaking delays that sometimes occur. In the crowded condition of overland wires every conceivable method of saving time and getting rid of the business is taken advantage of. Although the use of code in commercial work is strictly forbidden, the rule is little regarded and the shape in which "bonus" work is sometimes literally lumped and thrown at the other end of the wire would cause the expert penmen of the days of Edison, Phillips, De Graw, Boileau and others to gasp in amazement. The company is not required to transmit punctuations unless they are

paid for—something which is rarely done. So, in the haste to "get clear" when the operators omit all punctuation, as will be shown by the following example, the officials do not complain.

Here is an original sample which came under the writer's notice: "We are happy wish you were here cold much love." Before this telegram dropped into the vortex of lightning it was punctuated like this: "We are happy. Wish you were here. Cold. Much love."

An error that is very common in New York is the transformation of the name of Theodore Price into "The Order Price." When an operator's mind goes "woolgathering" he copies mechanically; hence it is his brain and not the typewriter which is responsible for such mistakes as these.

A New York brokerage house received some "gossip" from Chicago reading: "There is a certain element in the market working quietly to 'kag' the 'kig' shorts." This was another instance of bad writing, for which the typewriter was not to blame. The correct reading was: "There is a certain element in the market working quietly to 'bag' the 'big' shorts."

#### Bryan on Ownership of Public Utilities.

It is stated that Mr. W. J. Bryan, former Democratic candidate for the Presidency on a silver platform, will on his return to this country advocate a modified scheme of State ownership of utilities, says the Electrical World. One of the many striking impressions, it is said, that have come to Mr. Bryan on this tour has to do with the ownership of the great public utilities by the State, with special reference to the railroads. Mr. Bryan has been in Europe on other occasions and examined the conditions surrounding the Government management of the larger arteries of travel. In one very important particular he would apply the theory differently to the United States. His plan would admit of the ownership of certain trunk lines by the general government in order that the efficient through services should not in any way suffer impairment, but he would insist that the local lines in every State be owned by the separate States, thus preserving more effectually the idea of State individuality, which, in Mr. Bryan's opinion, would in time be wiped out if all lines passed into Federal control. The enormous patronage that would be the result of such a railroad management in America would, of course, tend to intrench the party in power and would in time accomplish what Mr. Bryan fears and would contend against—the abolition of State boundaries. It is no part of Mr. Bryan's intention at this time to take up the trivialities of public ownership. He is said to be considering the subject in its broadest aspect, developing at the same time an entirely new feature—that of individual State ownership. This feature is, however, by no means new, and every State that has owned railroads has either sold them or is wishful of doing so.

### Pupin's Application of Resonance to Multiplex Telegraphy.

When a certain number of simple harmonic electromotive forces are impressed upon a line conductor, then a branch line may be adjusted so that it will offer a very much smaller impedance to one of these electromotive forces than to the others. This will take place when the natural period of the branch is the same as that of the selected electromotive force. Upon this physical fact, known as "electrical resonance," Dr. M. I. Pupin, the well-known professor of mechanics in Columbia University, New York, has based an ingenious system of multiplex telegraphy, for which he was recently granted a United States patent.

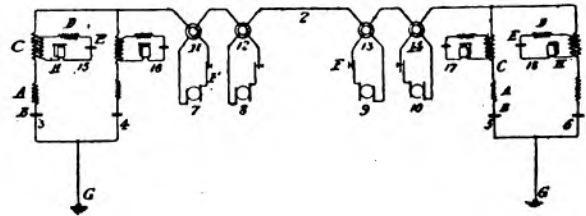
To produce electrical resonance between a circuit and an impressed electromotive force, the electromagnetic constants of the line—that is, its self-induction and electrostatic capacity—must be adjusted according to well-known rules. A resonating line is selective. The possibility of attaching to a main line a certain number of selective branches enables the foregoing principle to be applied to multiplex telegraphy. In practise, however, certain serious difficulties appear. These are, first, that the selective power of an electrically tuned branch circuit forming part of a system diminishes materially with the increase in the number of branches from the main conductor, and, second, that when there are several complex harmonic electromotive forces impressed upon the system the upper harmonics of one may come with the frequencies of the fundamentals of the others, especially if more than three or four frequencies be employed, with consequent confusion.

The invention consists, first, in the method of and apparatus for throwing upon a main line a number of alternating currents of different frequencies; independently of each other, and distributing the energy of these several currents each selectively to a separate electrical translating device; second, in an electrical system wherein one or more induced circuits may be tuned in electrical resonance respectively with the impressed electromotive forces of different periodicities and this independently of one another and of all the rest of the system to which they belong; third, in the method and apparatus for converting a complex harmonic electromotive force impressed upon an electrical system into a simple harmonic electromotive force; fourth, in the construction and arrangement of the multiplex telegraph.

Referring to the accompanying diagram, (7), (8), (9) and (10) are alternating-current generators giving four electromotive forces of four different frequencies. These generators are connected to the primary circuits of four transformers (11), (12), (13), (14), independently of each other and simultaneously or otherwise. The secondary circuits of these transformers form part of the main line (2). The cores of the transformers are of finely laminated iron and form closed or very nearly closed magnetic circuits. This

fact is one of the important features of the invention.

Connected to the main line (2), and to the ground (G) are four branches (3), (4), (5), (6). Each one of these branches, as (3), has a primary coil (C) and another coil or coils (A). The coil (C) is called the active coil, and the coil (A) the auxiliary coil. Also in each branch is a condenser or condensers (B). The number of auxiliary coils and condensers in each branch may be any number, all of them connected in series. Each branch is placed by means of the active coil in inductive relation to a secondary circuit. Thus, for instance, the branch (3) is in inductive relation to the circuit (15), which includes a coil (D) of large and adjustable self-induction, a condenser (E) of suitable capacity for telegraphic purposes, and any suitable apparatus (H) which serves to indicate a current in this circuit by means of an electromagnetic, electrochemical, or electrostatic effect. Four keys (F) serve the purpose of making and breaking or simply varying the strength of the generator current. The four generators



(7), (8), (9), (10), with the transformers (11), (12), (13), (14), and the keys (F) constitute the outfit for the four sending stations. The four branches (3), (4), (5), (6), with their four secondary circuits, constitute four distinct receiving stations.

The method of operating is as follows: Let the frequencies of the generators at the sending stations be, respectively, 600, 520, 440 and 360 periods per second. The branches (3), (4), (5), (6), being at the receiving stations are adjusted by means of the condensers (B) and the auxiliary coils (A), so as to be approximately in resonance with the frequencies aforesaid, respectively. These branches are adjustable independently of each other. The secondary circuits (15), (16), (17), (18) in each receiving station are put in perfect resonance with these frequencies, but in such a way that the resonance balance of any one of these branches is entirely independent of the physical constants of the branches themselves or the line or any of the other secondary circuits and depends solely upon the self-induction and the capacity of that secondary circuit alone. This is accomplished by making the auxiliary adjustable coils (D) of so large a self-induction that the self-induction of each secondary circuit is practically equal to the self-induction of its auxiliary coil. The capacities are then adjusted ac-

ording to the well-known rules in order to produce resonance with the frequency at which each receiving station is intended to work.

By keeping down the resistance of the secondary circuits, and by avoiding the use of iron in the auxiliary coils of these circuits they can be made easily to respond a thousand times more strongly to the frequency to which they are tuned than to any other frequency, and this independently of whatever variations in the electrical constants may be going on in the other parts of the system.

Suppose now that the four generators at the sending stations impress simple harmonic forces upon the line and that the primary circuits are closed, there will be electromotive forces of the above frequencies impressed on the line, and hence alternating currents of like frequencies, respectively, on the secondary circuits at the receiving stations. If the primary current from, say, generator (7) is interrupted, then the current in the corresponding branch—say (3)—will also be interrupted, whereas the currents in the other branches at the other receiving stations will not be affected. Hence if an operator works a key, as (F), the sounder (H) in the secondary circuit (15) will be operated, but not the sounders in any of the other secondary circuits.

It is evident that any number of transmitting and receiving stations can be working simultaneously on the same line, without disturbing each other. The limit to this number will be determined by the limiting frequencies at which the lines can work. On a line, say, 500 miles long, the highest frequency will probably be 600 periods per second, and the lowest 40. Any frequency employed should be at least 15 per cent. of its own value distant from the next higher and the next lower frequency, so that a line 500 miles long could be worked conveniently at from 12 to 16 different frequencies, and therefore have 12 to 16 transmitting and receiving stations. This is, however, on the supposition that each transmitting station sends a simple harmonic electromotive force or current. It is, however, practically impossible to produce alternating-current generators capable of giving such a force. As a rule, they give alternating electromotive forces in which the upper harmonics, especially the third and the fifth, are of nearly the same order of magnitude as the fundamental. Hence, although the fundamental frequency of any one of the sending stations does not come within the proximity of the frequency of any other station, the harmonic will, especially when the line is worked at more than three or four frequencies.

The inventor uses a transformer whose iron core forms an ordinary closed magnetic circuit which when worked at saturation of between 1,000 and 15,000 c. g. s. lines of force per square centimeter, will give in the secondary circuit a simple harmonic electromotive force whose frequency is equal to the fundamental frequency of the impressed electromotive force, no matter how complex the impressed electromotive force may be.

This is especially true if the fundamental frequency is not below 35 periods per second, and if magnetic leakage is encouraged by arranging the primary and the secondary circuit in such a way as that they do not overlap, somewhat in the fashion of constant-current transformers employed for alternating-current arc lighting.—*Western Electrician.*

#### The Police Telegraph Bureau.

The telegraph bureau at police headquarters, Mulberry street, New York, is located in the basement of the building, and is a busy place. Outside of those immediately interested and who know the happenings there, day by day, the outside world has a very small knowledge of its existence. Yet this bureau constitutes one of the main auxiliaries of the police establishment of this great city. The importance, therefore, of placing only men in charge who are thoroughly competent to perform the duties placed upon them is obvious. This requires the services of men of training, of quick judgment and ability to handle any kind of a case that presents itself. The staff is made up as follows: Michael R. Brennan, superintendent; Edward H. Murphy, assistant superintendent; John Altenbach, Maurice J. Coughlin, William A. Coleman, Patrick H. Devery, Dominick Henry, John J. Loneragan, John J. Mangin, Lawrence P. Hines and Thomas Williams, sergeants. With them are Patrolmen John Dunn, John J. Bowes, Francis C. Murphy, Michael McGrath, James McMahan, James McKenzie, Cornelius Maher, Frank Neuberth, George Peterson, William Ryan, Michael McCarthy and Sergeant Richard Battin.

It is in this telegraph department that virtually the entire police business is handled. The switch board is known as the "Six Sections," and there are one hundred and eighty plugs. Some idea of the work that they do can be gathered from the fact that in one month last winter no less than 4,965 calls were received, and that is comparatively small with the number received during the summer months.

There is an average of two hundred ambulance calls received daily, each one of which calls for immediate action. The instant such a call is received a "plug" is connected with the nearest hospital and an ambulance sent to the scene. At practically the same moment the police precinct which covers the territory where the crime, if it is a crime, has been committed is notified and detectives and uniformed men are quickly on the scene.

Besides knowing how to "handle" a story, every man in the bureau must be a walking directory. Not only has he to know the boundaries of every precinct, but he must know every street in the city in order that no mistakes can be made in calling up the wrong precinct or hospital.

You can't afford to be without TELEGRAPH AGE; \$1.50 a year.

### Good Telegraph Service.

BY D. McNICOL.

Manager Postal Telegraph-Cable Company, Butte, Mont.

Advocates of government ownership of the telegraph have recently made considerable use of the statement attributed to an eminent United States Senator, that the telegraph is the "rich man's mail."

It is common knowledge, probably familiar only to telegraph officials and employees, that this statement is true only in a social sense. They know that there is daily handled by telegraph vast volumes of correspondence, which, if it were not possible to transmit and be acted upon quickly, thousands of middle-class business men would not be able to carry on their various enterprises. The present comparative efficiency of the telegraph service has made it possible for thousands of ordinary business men to operate at long range and with the consequent expansion of the field of operation, to become rich.

Good telegraph service, from the standpoint of the telegraph man, has, through organization and intelligent operation, become a concrete undertaking. Notwithstanding desultory complaints on the part of the public regarding inefficiency, the service furnished is as good as is possible when one fully considers the incongruous conditions involved.

While this is true it is also a fact that those who should be the least satisfied with the existing service, are the telegraph people themselves. This view put into practise would not noticeably mitigate the great unrest, but would surely make for progress and betterment. There should be no such diversion as resting on the oars. He who does so in the telegraph business gives evidence of a belief that the service is all that it can be. Conditions to-day may be incongruous, but tomorrow we may have an opportunity to take advantage of changes, natural or otherwise, which will enable us to better the service, if not permanently, then temporarily, but always in the line of advance, and give us new footholds.

Among those features which constitute good telegraph service, ordinarily, are the following: Courteous treatment of patrons; prompt attention at receiving counters; correct understanding of the message to be transmitted; prompt transmission of matter filed by patrons; personal interest in each dispatch handled to insure accurate transmission; neat typewritten copies of messages received for delivery; prompt delivery, and proper receipts for telegrams, showing time of delivery.

It is common knowledge to telegraph managers that one of the greatest obstacles to the fostering of a greater volume of telegraphic correspondence is the great number of errors made by operators in cipher telegrams of business firms using code. The writer for quite a period made a close study of the causes of errors, and deduced positively that the human element of laziness is to blame for

the larger number of telegraphic errors. Possibly, also, professional pride of operators who wish to establish a record for not breaking, contributes to the vicissitudes of the solicitor for business, and who has to listen to the complaints of customers.

An operator receiving by typewriter generally locates himself in a comfortable position, chair tilted back, etc., so that he is generally far enough away from the key on the telegraph table to make it physically inconvenient to "break" when he is in doubt about a word. This frequently results in his taking chances on the correctness of a word, especially code or cipher, when he would not take such chances if he could break the sender without altering his position and with the minimum of physical effort. To make the latter condition possible, the writer recently rigged up a device for attachment to ordinary typewriters which consists, simply, of a break key connected by cord and wedge to the table key. The break key is clamped to the lower right-hand frame of the typewriter. This gives the receiving operator a key to break the sender without having to reach for the table key. The observed result is that the receiver "breaks" the sender every time he is in doubt, and an element is introduced which at least, certainly lessens the number of telegraphic errors. A great many operators take considerable pride in their reputation for not breaking, and rather than smirch their reputation as a good receiver, they will take a long chance very frequently.

Operators, especially the younger men, should understand that if they wish to establish records as good operators, the proper place to build up a reputation is with the management, not with the operator at the other end of the circuit.

A certain "sender" may be convinced that a certain "receiver" is as good as ever punched a "mill," but the correspondence in the claim files of the superintendent's office frequently makes it clear that the supposed expert is about as poor an operator as there is in the service. The great number of service messages called forth by errors in transmission is evidence sufficient that there is need for less speed and more care in the handling of cipher telegrams.

### Legal.

Judgment for \$19,404 in favor of the State of Arkansas was entered August 4 against the Western Union Telegraph Company for failure to file amended articles of incorporation in that state. The state's contention was that the company paid only \$596 as a filing fee on its articles and that subsequently it increased its capital stock and became liable for \$19,404 in fees to the state. The company's demurrer was overruled and judgment was then entered upon the defendant's refusal to plead further. An appeal was taken to the supreme court.

You can't afford to be without TELEGRAPH AGE.



### Telephones in Railway Work.

It was not many years ago that the availability of the speaking telephone as an adjunct to the Morse telegraph system in the despatching departments of great railroad systems was looked upon with considerable skepticism, remarks the Electrical Review. The trained operator and ever-careful dispatcher held that there was too much danger in a misunderstanding of the spoken words, and, that in the hurry and enthusiasm of a direct conversation, mistakes might be made which could only result in disaster. The practise of transcribing into long hand and recording permanently upon data sheets telegraphic communications seemed to indicate an almost infallible system—one which was surely very much more secure than that which depended upon the retention in one's mind of the spoken message. The telegraph, it was held, reduced matters to a nicety and whatever message there was to be transmitted, conciseness and directness were essential characteristics.

To-day, however, the telephone is a recognized factor of considerable importance on more than one large system of steam railroads. While it is not entering very largely into the despatching department, it is almost wholly used for intercommunication between railroad officials, freight agents, division superintendents, and between the public and all of these different departments. It is a matter of fact, also, that in many emergencies the telegraph system is almost wholly cut out and the communication established over telephone lines. In a recent issue of the Railway Age, the telephone equipment of the Burlington system is described. The Burlington system is operated under two grand divisions—the lines east of the Missouri, with headquarters at Chicago, and the lines west of the Missouri, with headquarters at Omaha. Each grand division is controlled by a general manager, reporting to the vice-president. The grand divisions are each further separated into semi-grand divisions under the control of division superintendents. There are four private branch exchanges in Chicago connected with exchanges at Aurora, Galesburg, Burlington and West Burlington. For the most part the lines are full copper metallic circuits, the copper wire weighing 210 pounds to the mile. This copper circuit is quadruplexed—that is to say, in addition to the telephone circuit it also furnishes a "quad" telegraph circuit. Besides the copper circuit there is, between Chicago and Aurora, an iron circuit which carries a standard composite equipment giving a single telegraph circuit for each wire of the pair, and a telephone circuit over the pair of wires, making three available circuits from a single pair of wires.

The officials of the traffic department are in regular communication with the local men of the department with regard to securing business, and information of this kind can be obtained by conversation over the telephone, where, by telegraph, considerable correspondence would be necessary

and much delay experienced. The question of supplies is an important one, and in the handling of merchandise orders this can be done to much greater advantage by telephone than by telegraph.

The operating department makes use of the circuits, especially in that the Chicago dispatcher can arrange freight service with division points. In this class of service the railroad can not arbitrarily run regular trains, but must arrange the service according to the business in sight. Trainmasters and dispatchers regularly twice a day discuss these questions and arrange their business accordingly. It is stated that by the use of the telephone on this division the road saved running ten train crews over a considerable distance in one month. This meant quite a saving in cash.

Many other uses of the telephone for railroad service could be mentioned. The addition of the telephone circuit along the right of way makes available the use of a portable telephone set carried upon the train. In many instances the conductor has been able, by hooking in, to get in communication with the dispatcher's office and run around an obstruction, when, if the telegraph alone were available, he would have had to wait for orders from the nearest point at which a telegraph office was located. Again, in case of accident, the telephone may be used with distinct advantage, in that detail can be properly attended to, which, with telegraphic communication, would involve a very much greater length of time and the ever-present possibility of unfavorable consequences.

### The Stock Quotation Company to Erect its Own Building.

The Stock Quotation Telegraph Company of New York, of which W. H. Hurst is president, lately acquired the property No. 26 Beaver street. The company already owns No. 28, adjoining, which, together with the recent purchase, makes a plot 53.4 x 56.2 x 55.2 x 50.1, running through to Marketfield street. It is understood that a new building will be erected for the exclusive use of the Stock Quotation Telegraph Company's executive offices, and of the various departments comprised within this company's plant. The work of construction will begin when the present leases expire, which will be about two years hence. The Stock Quotation Telegraph Company embraces the New York News Bureau, which collects and disseminates financial news on tickers. It also prints the Wall Street Summary, the leading financial paper. It owns the Hamilton Press, which will have in the new quarters one of the very best equipped printing plants, including bindery, in the country.

### A Sinecure.

Beery: If you was lookin' for the easiest job wot is, Weery, wot'd it be?

Weery: Lineman on de wireless.

### Soseman's Pole Splicing Device.

One of the great sources of expense incident to maintaining a telegraph or telephone line is the necessity for frequently replacing the lower sections of the poles, or the parts embedded in the ground, which become so weakened by the action of moisture thereon as to not furnish a proper support for the upper wire-carrying por-

tion. In a majority of cases when a pole has to be replaced the larger part thereof is perfectly sound and could be used for an indefinite time, if the lower section could be restored to its original condition.

cost of maintenance of a telephone or telegraph line may be materially reduced. In carrying out his method provision is made for an adjustable support, by means of which the pole can be firmly maintained in an upright position while the necessary excavation is made about the base and while the rotten or otherwise damaged lower part is removed and replaced by a sound stub.



VIEW NO. 1—SHOWING CABLE GRIP.



VIEW NO. 2—THE TRIPOD.

Mr. J. D. Soseman, of Monroe, Wis., has invented a method of repairing such poles which

View number 1 shows a cable grip constructed in such form as to securely engage a pole as to support not only its own weight but any load it may be carrying. Placed at an equal distance from each other upon this cable, are, preferably, three metal blocks, each of which engage the upper end of the top section of the leg which ex-



VIEW NO. 3—SHOWING PARTS TEMPORARILY SECURED WITH CLAMP.

VIEW NO. 4—SHOWING COMPLETED SPLICE.

VIEW NO. 5—SHOWING POLE BROKEN OFF.

promises to afford relief in the particular complained of. It consists in substituting for the lower damaged end of the pole a stub of proper length, which may be firmly secured to the body of the pole. Material suitable for such stubs can be readily had at a very small expense, and by following the plan devised by the inventor the

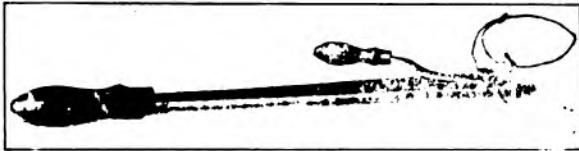
tends downward and outward from the axis of the pole, thus forming a tripod as shown in view number 2. The leg is formed in two main sections of metal tubing, the lower section to telescope the upper. The lower section of the leg is provided with a jack or lifting screw, which telescopes into the lower end thereof. The lift-

ing screw is connected by ball and socket joint with a base block or shoe which rests on the ground, as shown in view number 2.

It will readily be seen that with this device in position, by the turning of the lifting screws the weight of the pole and its load will be thrown on the tripod, and securely held in position, even if the decayed stub be severed and removed. A series of holes or perforations have been placed through the lower section of tubing for the insertion of a metal pin in cross section, which forms a rest for the lower end of the upper section of the leg. By the shifting of this pin the length of the leg is adapted to any unevenness of the ground.

Preferably in the application of this pole-splicing device it may be remarked that after the stub and necessary tools are on the ground it is best to excavate, thus revealing any lateral pull on the pole, and which can be provided for with a temporary guy.

The saw for severing the pole can now be established, starting it from a mitre gauge previously set to the stub and then transferred to the pole. After the saw has become embedded in the wood, remove the mitre gauge and then place the tripod as shown in view No. 2, causing it to take the weight of the pole. Then sever the stub and replace it with the new one, se-



VIEW NO. 6—THE LEVER

curing the two parts in proper position temporarily with clamps, as shown in view number 3. The pole can now be permanently fixed in the ground, when any of the well-known methods of splicing can be employed.

In case a wrapped splice is preferred, fasten the end of the wire securely at the lower end of the splice, passing the wire around the pole, thus forming the first coil; drop the wire between the jaws of the lever (view number 6), place the end of the lever against the pole, which will act as a fulcrum, and then with a steady pull the coil can be securely stapled under tension. The remaining coils are simply a duplication of the first. The clamps can be shifted or removed as the wrapping progresses.

The amount of tension is limited only by the strength of wire, and as this lever neither cuts or kinks the wire, the maximum strength is obtained. View number 4 shows the pole after the splice is completed. It also shows the same pole after having been subjected to tension parallel with the faces of the splice, thus giving it the severest test. These stubs can be procured from cull timber and sawed to a standard gauge, say seventeen degrees from the axis of the pole,

and, of course, can be kept in stock, thus lessening the number of poles carried. The amount of labor necessary to make this splice will be that of three men for from one and a half to four hours, depending on environment and size of pole.

### Poetic Telegraphy.

A dot and a dash is letter A,  
 A dash and three dots is B, they say;  
 Two dots, a space, and then a dot,  
 Is letter C, if not forgot.  
 A dash and two dots is letter D,  
 A simple dot and such is E,  
 A dot, a dash and a dot for F,  
 Two dashes and a dot and G is clef.  
 For letter H the dots are four,  
 Two single dots and I is o'er;  
 Dash, dot, dash, dot for letter J,  
 Dash, dot, dash makes letter K.  
 One long dash is for letter L,  
 Two little dashes and M is well;  
 Now make a dash, a dot, and then,  
 The wire has spoken the letter N.  
 A dot, a space and a dot for O,  
 Five dots will do for P, I know;  
 Two dots, a dash and a dot for Q,  
 For R, a dot, a space and two dots will do.  
 Three dots is S, one can easily see,  
 And a simple dash is for letter T;  
 Two dots and a dash make letter U,  
 Three dots and a dash, and V is through.  
 Now dot and dash, and dash again,  
 You bring poor W into the game;  
 I know these dots and dashes do vex,  
 But it takes a dot, a dash and two dots for X.  
 Now, dear alphabet, 'tis soon goodbye,  
 Two dots, a space and two dots for Y;  
 And here's my best regards to thee,  
 Three dots, a space and a dot for Z.

—The Railroad Telegrapher.

### English Post Office Telegraph Report.

The annual report of the postmaster general, which has just been issued, shows that, during the year ended March 31 last, 89,478,000 telegrams were transmitted, an increase of .57 per cent.

The total telegraph and telephone revenue for the year was £4,151,380, an increase of £231,357, and the expenditure was £4,906,087, an increase of £66,628. The net deficit on the joint service was therefore £754,707, or £164,729 less than in the previous year; but allowing for the interest on the capital expended on the purchase of the telegraphs, the telegraph deficit becomes £1,033,190 (\$5,166,000).

Mention is made of the tentative use of high-speed automatic type-writing telegraphs, which has been fairly successful.

During the year the postoffice dealt with 11,652 Marconi messages, of which 558 were outward and 11,094 inward.

**LETTERS FROM OUR CORRESPONDENTS.**

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

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

**WASHINGTON, D. C., WESTERN UNION.**

Mr. James Breen, an old timer, is in the Emergency Hospital with a broken leg.

J. Wilber Bender, who has been ill for almost four years, and who for the past six months has been in the Garfield Hospital, has improved and has been removed to his home.

Raymond Dickey, of the night force, has moved his law office to the Kellogg Building. He is a capable young lawyer and has won considerable success.

"Jack" Riley is acting traffic chief during the absence of Mr. J. F. Hahn.

W. B. Harveycutter is on repeaters, and Reuben Haywood is traffic chief on South.

Garrett Mothershead, son of our day receiving clerk, has secured a place in the office of the Southern Railway.

Mr. Frank P. Oliver has resigned as manager of the Southern Railway telegraph office. He goes to Philadelphia for the telephone company.

Mr. D. W. Davis is acting manager in Mr. Oliver's place.

**CHICAGO, WESTERN UNION.**

During the absence of Fred. Gardner in California, his work is being performed by Frank Crittenden, division chief.

Fred. E. Green, of this office, died recently in the Cook County hospital from an operation for hip disease.

Fred. Latourneau has returned to his post again after a severe siege with inflammatory rheumatism, which laid him up for several weeks.

William L. Moore had a narrow escape from blood poisoning caused by a scalp wound. It will probably be several months before his return.

Edward E. Newman of the Cincinnati division, nights, has been appointed to a position in the quadruplex room, under Arthur Galey.

Mr. C. H. Finley and wife and Dr. Cunningham and wife spent a pleasant outing among the lakes of Wisconsin.

Thomas Brandon is back again from Mexico and announces his determination to remain here in future.

Mr. Edward Wells, wire chief, and Mrs. Will Paddock, widow of the late Will Paddock, of this office, were married recently.

Frank L. Titus, formerly of this office, and now of the Santa Fe system, Fort Madison, Iowa, was a visitor here a few days ago.

Harry Stoner, an old timer of this office, suffered a stroke of paralysis several months ago, and his condition is now reported to be very critical.

Messrs. Charles Case, chief of the St. Louis division, nights, and Harry Lyons of the same division, have successfully passed the state board examinations for dentistry.

Otto Enking, chief of the Illinois division, is back again from a vacation.

Chief Operator L. K. Whitcomb is off on his summer outing.

Raymond T. Donovan, formerly of this office, is very ill at his home.

**NEW YORK, POSTAL.**

The New York Telegraphers' Outing Club held its second annual outing at Boehm's picnic grounds, New Dorp, Staten Island, August 12. There was a varied and attractive programme of entertainment, a good dinner was served, and a general good time caused the hours to pass away all too quickly.

Julien Soule, an operator in this office for many years, died August 12 in the hospital at Wilmington, N. C.

Mr. D. C. Donohue, Jr., an operator and stenographer in the executive office, has resigned to engage in other business.

Mr. J. H. Twyford, formerly of this office, is again with us, having been transferred back to his old quarters and appointed quadruplex chief. Upon his departure from Atlanta, Ga., where he was chief operator, the office force presented him with a handsome ring suitably engraved, which was highly appreciated.

**NEW YORK, WESTERN UNION.**

Mr. Frank Turner has returned to duty after a long period of sickness.

Miss Julia Gilman has resigned and will be married on September 3 to Mr. John Hannigan, member of the New York fire department.

Mr. J. S. Nance, of the Boston wire, has resigned on account of ill health, and returned to his home in Atlanta, Ga.

Mr. Thomas Brennan has returned from his vacation.

Mr. T. A. McCammon, chief operator, is away on his vacation.

At the Creedmoor Rifle Range, on Thursday, August 23, Joseph M. Winder, Ralph Johnson,



Twenty-second Regiment engineers, and Roscoe Johnson, Second Signal Corps, operators of this office, qualified as marksmen.

Mr. J. H. Edwards of this office has been assigned to the Atlantic City, N. J., office for the season.

**OTHER NEW YORK ITEMS.**

Mr. Albert J. Macdonald, a telegrapher of Adelaide, South Australia, who has been in this country for some time past, is spending several days at Poughkeepsie, N. Y. He will sail soon for home, going thence by the way of England.

Mr. George W. Blanchard, until a few months ago, superintendent of the Postal Telegraph-Cable Company, New York, who resigned to enter the real estate business, is meeting with excellent success in his new undertaking.

Assessment No. 453 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of Charles E. Gray, at Brooklyn, N. Y.; Philip G. Hess, at Baltimore, Md.; Cornelius Dwyer, at New York, and Howard S. Larcombe at Beltsville, Md.

The quarterly statement of the New York Telegraphers' Aid Society, for the quarter ending June 6, 1906, is as follows:

Balance on hand March 6, 1906.....	\$19,412.69
Receipts to date.....	1,466.00
<b>Total .....</b>	<b>\$20,878.69</b>

Disbursements .....	\$ 1,716.06
Balance on hand June 6, 1906.....	19,162.54

<b>Total .....</b>	<b>\$20,878.60</b>
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**Relief Fund.**

Balance on hand March 6, 1906.....	\$4,567.01
Receipts .....	42.50

<b>Total .....</b>	<b>\$4,609.51</b>
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Disbursements .....	\$ 767.85
Balance on hand June 6, 1906.....	3,841.66

<b>Total .....</b>	<b>\$4,609.51</b>
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Note.—The relief disbursements include \$500 donated to the San Francisco Telegraphers' Aid Society to relieve the distress of members due to the earthquake.

**Balances.**

Aid Society..	\$19,162.54	On deposit...	\$22,938.20
Relief fund...	3,841.66	Cash on hand	66.00

<b>Total .....</b>	<b>\$23,004.20</b>	<b>Total .....</b>	<b>\$23,004.20</b>
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J. H. Driscoll, F. D. Murphy and W. T. Rogers, auditors.

**Recent New York Visitors.**

Mr. Frank P. Foster, Corning, N. Y.

Mr. A. G. Douglas, a well-known Milwaukee, Wis., telegrapher.

Mr. A. T. Maxwell, now in the telephone service at Memphis, Tenn., and a brother of L. J. Maxwell, superintendent at Richmond, Va.

Mr. J. B. Yeakle, superintendent of fire telegraphs, Baltimore, Md., and vice-president of the Old Time Telegraphers' and Historical Association.

**Book Notice.**

The Standard Underground Cable Company, of Pittsburg, has issued its handbook, No. 17, the compilation being done by Joseph W. Marsh, vice-president and general manager of the company. This volume of 230 pages, bound in cloth and profusely illustrated, while primarily constituting the price lists, telegraph code and other useful data relative to bare and insulated wires, and cables, manufactured by the concern named, it nevertheless possesses a value wholly apart from simply giving the price of material, etc.; for the work is a handbook in the sense that it affords a fund of general information covering a wide scope of subjects of interest in the telegraphic world and among electricians as a class. To the customers of the Standard Underground Cable Company, the work is intended for gratuitous distribution, but to all others a charge of fifty and seventy-five cents and one dollar will be made, according to binding.

**Wood Pole Tests at Hull, England.**

Recently a series of important tests were carried out at Hull, Eng., to ascertain the breaking strain and deflection of a given load of wooden telegraph poles and also any permanent set after the bending. The arrangements were made by Mr. Christopher Wade (director), and the tests were undertaken with the approval of the Board of Trade and by the desire of several large users both of ordinary telegraph poles and of those adapted for overhead electric power lines. The tests were made under the supervision of Prof. Goodman, of the Leeds University, and among those present were representatives of the railroad, telegraph and electrical interests. The tests were carried out on double and single poles, and in one case a single forty-foot pole was bent to the extent of fourteen or fifteen feet out of the straight like a huge bow, before exhibiting signs of strain or fracture. The complete results of the tests will be embodied in a report, copies of which will shortly be ready. Several interesting photographs were taken during the proceedings.

Orders for books on telegraphy, wireless telegraphy, telephony, all electrical subjects, and for cable codes, will be filled by TELEGRAPH AGE on the day of receipt

### 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.....	Feb. 1, 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
Autoplex, 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, 1905
Barclay's Repeating Relay, Main Line Relay and Box Relay, Jan. 1, 1903	
Barclay Typewriting Telegraph System.....	Jan. 16, 1904
British Patent Office Rules.....	Apr. 16, 1905
British System of Timing Messages.....	Dec. 1, 1902
Buckingham Long Distance Page Printing Telegraph.....	Sept. 1, 1902
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Central Telegraph Office, London.....	Oct. 16, 1904; May 1, 1905
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Definitions of Electrical Terms.....	Feb. 16, Apr. 1-16, June 1, July 1-16, 1904
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Postal Telegraph-Cable Company Rules Governing Construction and Repair of Telegraph Lines.....	Apr. 1-16, May 1-16, 1904
Printing Telegraph Systems, Modern High Speed, J. C. Barclay.....	Nov. 1, 1904
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Proper Adjustment of Telegraph Apparatus.....	Aug. 16, Sept. 1, 1904
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Telegraphic Bookkeeping.....	Jan. 16, Feb. 1, Mch. 16, Apr. 1-16, May 16, July 16, Aug. 1, Sept. 16, Oct. 1, 1903
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Wind Pressure on Telegraph Structures, F. W. Jones.....	Dec. 16, 1903
Wire Tables—How to Remember Them, C. F. Scott.....	Apr. 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
Hoskier, 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

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### The Way the Tax Dodge Works Against the Telegraph Companies.

Mayor to the City Assessor—"We must raise more money to carry on the city government and provide automobiles for city officials. The question is, How can we do it?"

City Assessor—"Let's see. We have taxed the telegraph companies on every instrument in use: on every cell of battery they have in the city, and on every mile of wire and poles standing within the corporate limits, we have regulated and reduced the tariff for them. We have taxed them on the gross earnings, the bicycles their messenger boys use, and we have just levied an assessment on their capital stock. It now seems as though there was nothing left to tax. But—wait a moment. I have it! Compel the companies to bring their wires into the city over the Pike instead of by the Midway. This would lengthen their lines four and a half miles and give us \$50,000 worth of additional property to tax."

The necessary ordinance was passed, and now the telegraph companies are considering how it was that their pole lines along the Midway suddenly became a menace to abutting property.

### Adverse Telegraphic Legislation.

The Texas Democratic state convention at its recent session adopted a platform which contains a plank requiring that the next legislature enact a law compelling all telegraph and telephone companies to make wire and business connection with each other at all common points in the state. United States Senator J. W. Bailey, a member of the platform committee, was among those who opposed the plank, on the ground that there was no general demand on the part of the people for such legislation and that it would work an unnecessary hardship and heavy expense upon the telegraph and telephone companies. Col. Thomas Campbell in accepting the nomination of governor said he would see that every platform demand was enacted into law. J. E. Farnsworth, of Dallas, vice-president and general manager of the Southwestern Telegraph and Telephone Company, says such a law would compel telephone companies to make connection at common points and cause a serious impairment of the service of the good companies.

A law of this kind would also revolutionize the telegraph business in Texas, as the Western Union and Postal companies would thereby practically become one system.

### Reunion of the Old Time and Military Telegraphers.

As the time approaches for the reunion of the Old Time Telegraphers' and Historical Association, to be held at Washington, D. C., on Tuesday, Wednesday and Thursday, October 9, 10 and 11, interest in the coming function appears to be in the ascendant. It may be said, however, that this annual social event, of which this will be the twenty-sixth reunion, so different from the ordinary convention, yet serving to draw together so large a number of representative telegraphers, accompanied by their wives, possesses an attraction that seems but to thrive and grow stronger with each recurring year.

As previously announced, the Arlington Hotel will be the headquarters of the meeting, where special rates have been secured. In order to take advantage of this concession intending visitors who desire hotel accommodations should lose no time in communicating with R. G. Callum, chairman of the hotel committee, whose address is in care of the Western Union Telegraph Company, Washington, D. C.

### 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.

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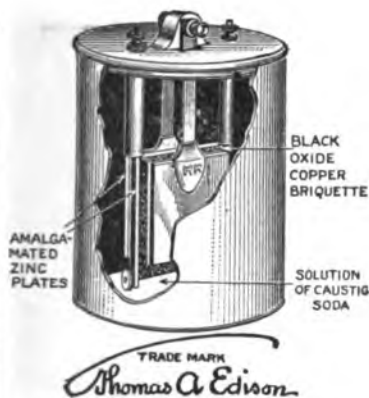
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- (4) Using commercial crude soda or impure water, which causes local action on the zincs.

A large dealer who does not handle the Edison cell also said recently that he was much bothered lately by people coming in and asking for the Edison cell, insisting on having it and refusing all others.

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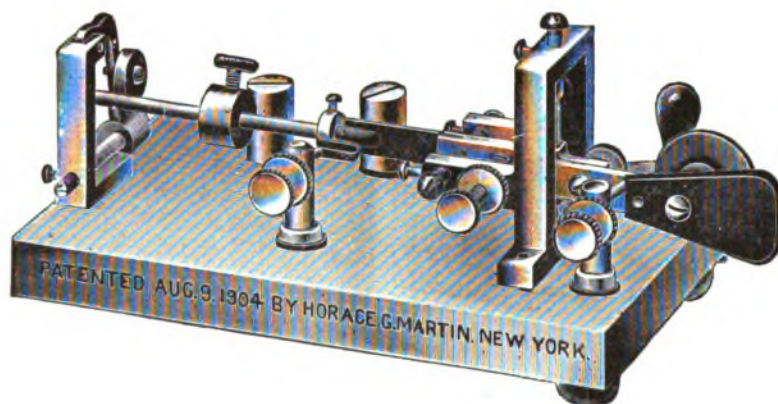


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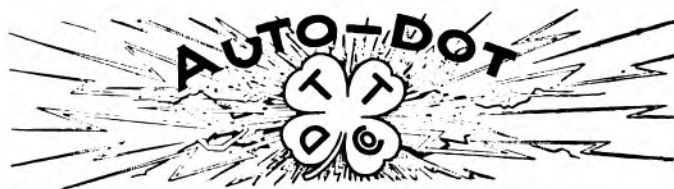
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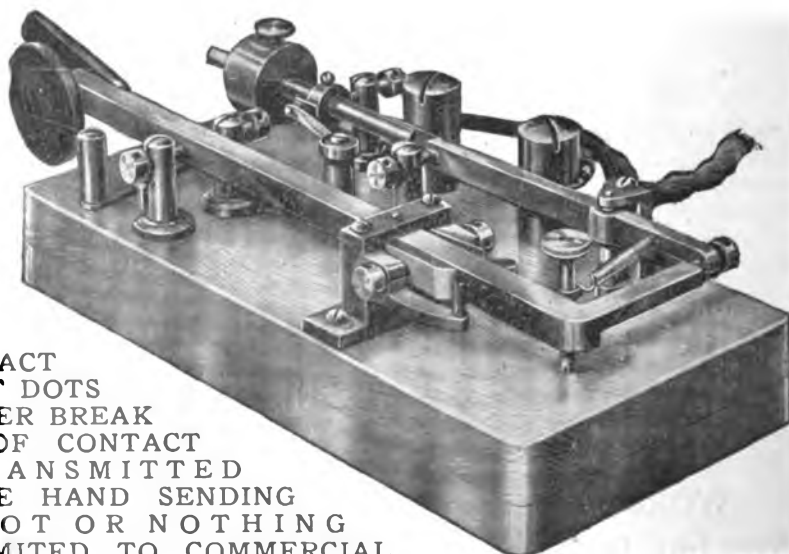




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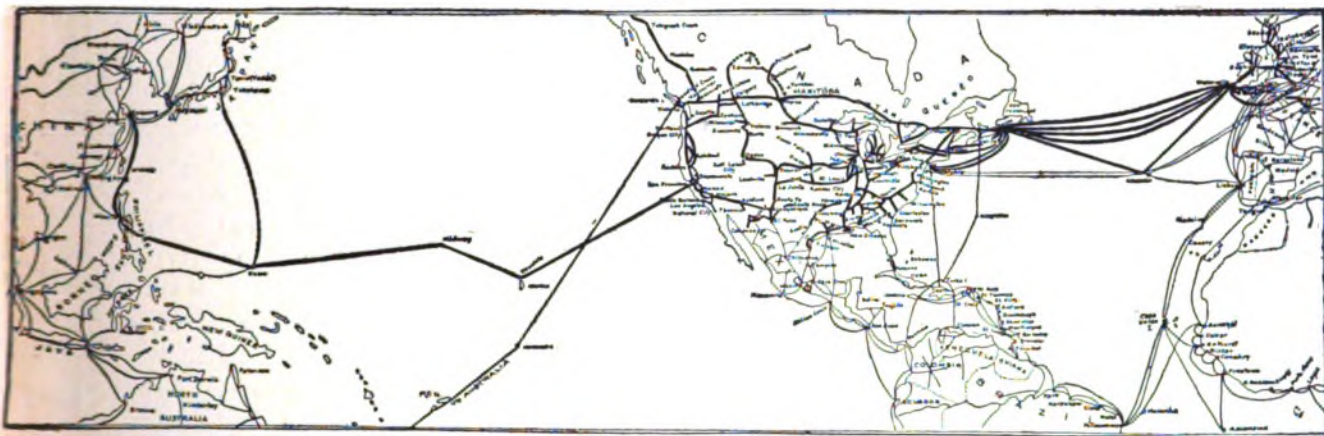
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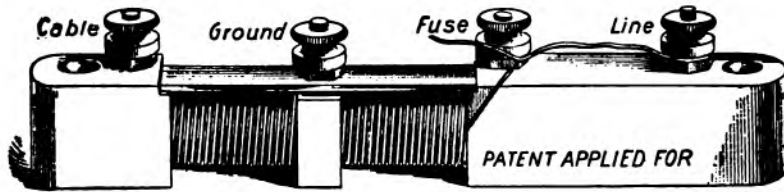
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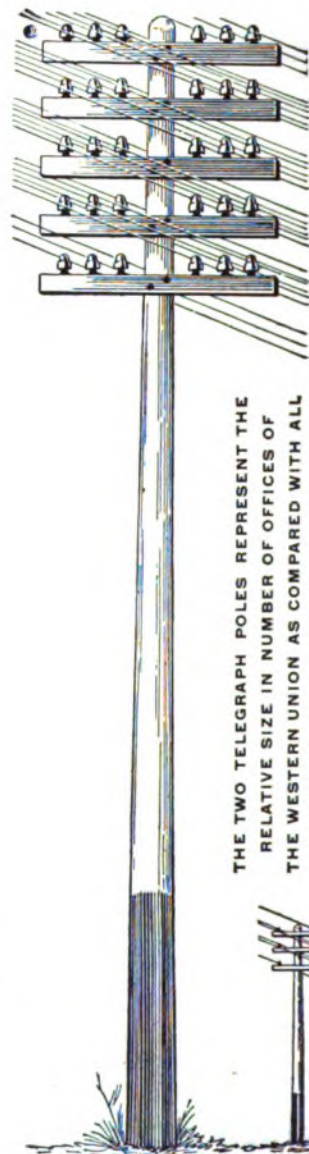
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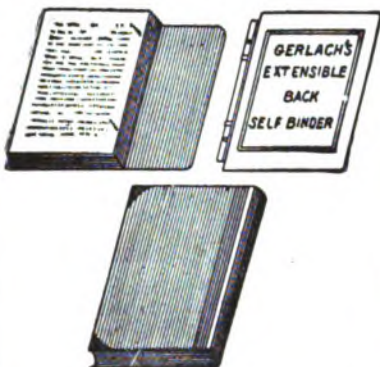
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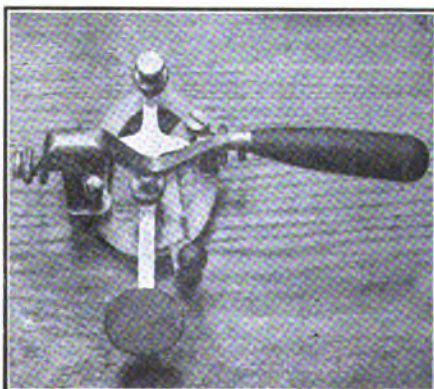
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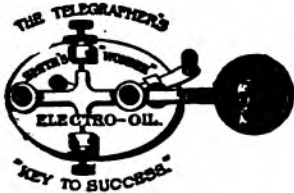
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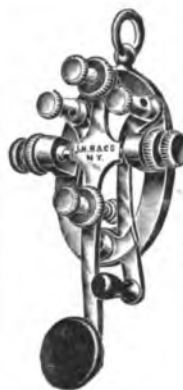
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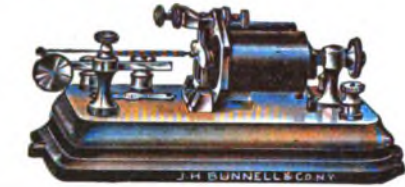
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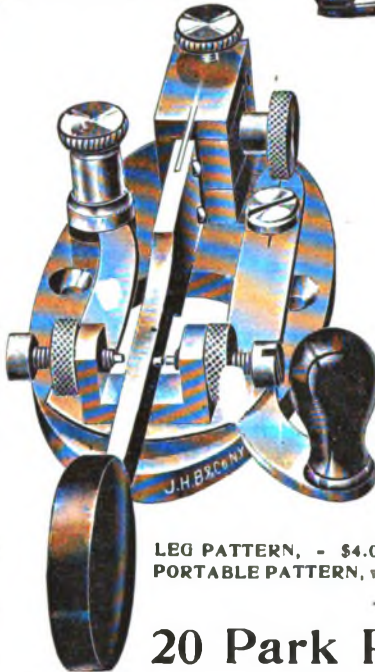
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BY WILLIS H. JONES.

A subscriber at Eagle Grove, Iowa, in the train despatcher's office of the Chicago and Northwestern Railroad, asks the following question:

Can you explain through the columns of your paper, for which I am a subscriber, if the standard arrangement of placing the neutral relay on our quadruplexes, first in proximity to the outgoing current, is the most conducive to best static conditions? That instrument being the weaker of the two, why not place the polar relay first in proximity to this current and thus perhaps lessen the static influence ere it reached the neutral instrument. Has this arrangement ever been given a practical test?

In reply we will say that in our opinion the relative positions of the two relays cannot materially or even practically alter the "static" effect one way or the other, and also that there is no reason why the standard arrangement of those instruments may not be reversed without interfering with the operation of a quadruplex circuit in the least. Inquiry fails to find any one who has seen a quadruplex with the standard relative positions reversed, or who would deny that such an arrangement would alter the output.

However, our correspondent has unwittingly suggested the very positions of the two relays that they actually occupy under the present arrangement. He is evidently under the impression that the "static" enters the neutral relay first, and suggests that the

polarized instrument should be placed first in order to act in the capacity of a shield or check and thereby weaken the effect.

His error lies in forgetting that the "static effect" is produced by the incoming, and not the outgoing current; that is to say, the return through the home relays of the line charge when the outgoing current is temporarily cut off by the action of the pole-changer. Hence under the present arrangement the "static" really does enter the polarized relay coils first, as that is the instrument next to the line conductor.

It is hardly probable, however, that either relay acts as a check to any effect produced in its companion. In fact, a check or choke is not even desirable. It is the prolongation of the line discharge that gives the magnets time to partially build up. It would obviously be better if the suggested check could be eliminated entirely, so that the magnet would not have time to act at this unavoidable moment. If any of our readers have tried the experiment, or have any new ideas concerning the problem, we will be glad to hear from them and publish the same.

Another question somewhat similar to the foregoing that was recently received, is as follows:

If each alternate relay in rotation along a single line circuit was connected in such a manner that the direction of its coil winding was opposite to that in the two relays it lies between, would not the static discharge of each on breaking the circuit tend to oppose or neutralize each other in the main line conductor and thereby lessen the total volume?

This would certainly be an ideal and easily arranged method provided it would bring about the result suggested. Unfortunately, it is an impossible proposition from every standpoint. In the first place while the windings of the coils might be alternately reversed the only effect obtained would be a like alteration in the polarity of the respective ends of the polepieces, or cores of each alternate instrument, a matter which could not effect the line static conditions in any manner whatever. Furthermore, although the windings might be geographically reversed, they would still be practically all in the same direction in their capacity as part of the line conductor. Hence, no matter how they are arranged an outgoing current passing through them would develop a counter electromotive force in each, which means that when released by the breaking of the circuit their effect would likewise all be in the same direction; that is to say, in the direction opposite to that of the electric current which created them. ,

Here is a question which has been asked a number of times:

Will a duplex or quadruplex circuit work as well



when the battery at one end of the wire is much greater than that at the other as it will when each terminal set furnishes an equal volume of current?

Theoretically, a surplus of battery power at one end of the circuit should make no appreciable difference in the operation of the circuit provided the smaller current is of normal value. Furthermore, as long as a good "balance" is maintained there will be no practical harm in such temporary arrangement. The home current, be it great or small, is not supposed to have any magnetic effect on the home apparatus, except when its equal distribution between the main and artificial line coils is disturbed by the addition or subtraction of current from the distant battery. So long as this incoming current is sufficient to actuate the apparatus, the volume is not material provided it is constant. The principal objection to such an arrangement, however, aside from the fact that there is an unnecessary waste of battery power at one end, is that the greater volume of outgoing current furnished the more readily will the home apparatus feel alterations in the ohmic resistance of the external line conductor. In other words, the "balance" will not hold as long as it would were the home current not excessive. This is because a change in the line resistance produces a greater ratio of alteration in the current volume of the stronger battery than it does in the weaker and thereby creates a more formidable difference in its division between the main and the artificial line coils.

(To be continued.)

[Important articles by Mr. Jones, appearing in back numbers are as follows and may be had at the regular price of ten cents a copy, except those appearing prior to a year from the current date for which a charge of twenty-five cents a piece will be made: A Useful and simple Testing Device, January 1, 1904; The Bad Sender, His Past and Future, January 16; The Transmitting Typewriter Wire Connections, February 16; A New Transformer for the Alternating Current Quadruplex (J. C. Barclay, patent), March 1; Definitions of Electrical Terms—Unabridged, March 26 to April 16, Inc., June 1 to July 16, Inc.; The Future Quadruplex (S. D. Field's invention), May 1-16; The Ghegan Multiplex, August 1; Proper Adjustment of Telegraph Apparatus, August 16-Sept. 1; Practical Information for Operators, October 1 to Dec. 1, Inc.; Switchboard Practice at Intermediate Stations, December 16; Definition of the Terms Cycle, Period, Frequency, etc., Diagrams Interpreted, January 1, 1905; Lessons from the December Storm, January 16; The Bonus Wire, February 1; A Few Useful Methods, February 16; Co-operation, A Hint for Wire and Quad Chiefs, March 1; Measuring Resistance by Voltmeter Alone—Something About Ground Wires, March 16; Elementary Information Concerning Household Electrical Appliances, April 1 to May 1, Inc.; The Barclay Printing Telegraph System, May 16; Polarized and Self-Adjusting Relays for Single Line Circuits, June 1; Limitations of Quadruplex Circuits, June 16; Electric Power from the Clouds, July 16; Concerning Condensers and Retardation Resistance Coils, August 1; District Call Box Service, August 16; The Art of Studying, Sept. 1; Other Methods of Splitting a Loop, Sept. 16; The Sextuplex, Oct. 1; A Few Questions Answered, Oct. 16; Positive and Negative Currents, Nov. 1; The Education and Evolution of a Chief Operator, Nov. 16; A Study of an Electric Circuit—Definition of the Principal Terms of Factors Which Regulate its Practical Output, Dec. 1; The Telephone—First Principles, Dec. 16, and Jan. 1, 1906; Questions Answered, Jan. 16; The Dynamo—Series, Shunt and Compound Wound, Feb. 1-16, March 1; The Storage Battery, March 16-April 1-16-May 1-16; A New Double Loop Repeater—Comparative Efficiencies of a Polar and a Neutral Relay, June 1; Influence of Weather on Static—An Electrical Phenomenon, June 16; Induction, Leakage, Crossfire, July 1; The Loopswitch and Loopswitch Testing, July 16, Aug. 1-16, Sept. 1.]

"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.

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.

### Business Notice.

The Delany Telegraphic Transmitter Company, 20 Broad street, New York, manufacturers of the Auto-Dot transmitter, has issued two unique little pamphlets, one entitled "Dots and Dashes," and devoted to "timely advice;" the other, "Seventy-Seven Saved," which tells how the use of the Auto-Dot machine relieves the operator of multitudinous and wholly unnecessary arm vibrations in his sending. These two brochures contain a lot of interesting information relative to the Auto-Dot, which is also shown in illustration; the strong, practical points of the instrument are clearly described and in a way that the operator will readily understand and appreciate, for the compilation in both instances has been done by a telegrapher who knows and comprehends his subject with a practically intelligent mind—George W. Conkling, general manager of the issuing company. These books were prepared for general circulation among members of the craft, and a written request for them will cause copies to be sent promptly to any address in any part of the country.

### Recent Telegraph Patents.

A patent, No. 829,263, for an apparatus for the telegraphic transmission of written characters, has been secured by Adolf Franke of Gross Lichterfelde, Germany. Synchronously revolving wheels at the transmitting and at the receiving station have written characters which successively appear through an apertured screen. The characters are selected by being illuminated from a properly timed spark in a definite phase relation to the rotating wheel.

A patent, No. 828,775, for a telegraph transmitter, has been obtained by Harlie O. Putt, of Millbury, Ohio. A type-writing machine has a bank of keys provided with key levers and a telegraph transmitter has a number of key stems each located directly under one of the key levers. A transmitting device is carried by each key stem and there are means for rotating each key stem when moved longitudinally in one direction, and means for regulating the movement of the key stem.

Patent No. 828,890, for a system of telegraphy, has been granted to Charles A. Johnson, of Meadville, Pa., assignor of one-half to Postal Telegraph-Cable Company, New York. Mr. Johnson is the manager of the large repeater station of the Postal Telegraph-Cable Company in Meadville, Pa. His many years experience in attending the large number of sets of quadruplex, duplex and single repeaters, which connect the New York and Chicago trunk wires, places him at the head in such technical matters.

Claim.—1. The combination in a circuit-breaker of a movable contact connected with a main circuit, two fixed contacts connected respectively with sources of electricity of opposite polarity,

and three normally open sections of conductor in inductive relation, connected to said contacts, respectively.

2. The combination in a switch or circuit-changer of separable contact-points with means for neutralizing or preventing sparking which consists of sections of insulated conductor arranged in inductive relation, such sections connected respectively to said contacts.

3. The combination of two, fixed, circuit-terminals, a vibratory circuit-terminal alternately engaging said fixed terminals and three sections of conductor insulated and arranged in inductive relation with respect to each other, said sections being connected to said terminals, respectively.

4. The combination with a three-point circuit-changer of means for neutralizing or preventing sparking which consists of three sections of insulated conductor arranged in inductive relation, open at one terminal and connected to said contacts, respectively, at the other terminal.

5. The combination with two separable contact-points forming the terminals of a divided circuit, of two sections of insulated wire connected to said contacts, respectively, said insulated sections being arranged in coils in inductive relation to each other.

6. The combination with two separable contact-points of a divided circuit, of two sections of insulated wire connected to said contacts, respectively, said sections being arranged in inductive relation with respect to each other.

No. 826,485, for an electrical typewriter selecting and operating means, held by G. W. Donning, of East Orange, N. J.

The following patent has expired.

Patent expired: Patent No. 410,305, for a telegraphone, held by M. Wheless, of Nashville, Tenn.

#### Personal Mention.

Mr. S. J. Small, president of the Commercial Telegraphers' Union of America, Chicago, Ill., was a New York visitor this week.

Mr. Harman D. Jones, for twenty-five years employed in the district superintendent's office, Western Union Telegraph Company, Cleveland, O., in various capacities, and for the past four years as chief clerk, has resigned and gone into other business. Mr. Jones was an old timer, having entered the service in 1876 at Erie, Pa., as messenger for the Western Union Telegraph Company, under the late J. P. McKinstry, and, with the exception of a few years spent in the railroad service, has served this single company continuously, and with credit, under Superintendents Wright and Corbett.

Mr. S. L. Burts, until recently manager of the Western Union Telegraph Company at Atlanta, Ga., whose promotion to be general inspector of the southern division of the company,

with headquarters still remaining at the Georgia capital, was noticed briefly in our issue of September 1, is still a young man, being but thirty-seven years of age. His connection with the telegraph dates back eighteen years, during which time he has been employed both in the railroad and commercial service in the various capacities of operator, train despatcher, chief operator and manager of some of the most important offices in the southern division of the company.

Mr. William H. Brodie has been appointed manager of sales of the Edison Manufacturing Company with headquarters at 31 Union Square, New York, succeeding William S. Logue, who died in April last. Mr. Brodie has been connected with the company in its manufacturing department, during the past six years, and is therefore thoroughly familiar with the famous Edison battery, and other products of the concern, a knowledge of much practical value, especially as the conduct of the sales will now come under his direct supervision. Mr. Brodie possesses an engaging personality and will, no doubt, speedily acquire the same wide range of acquaintance in the trade that has always been a marked feature in this department of the Edison company's management.

#### WESTERN UNION TELEGRAPH COMPANY.

##### EXECUTIVE OFFICES.

Mr. George J. Gould, who, with members of his family, has been absent in Europe, where he enjoyed a motoring tour of several thousand miles through France, Germany, Switzerland, England and Scotland, returned to New York September 11.

Mr. Gerald Brooks, eldest son of Belvidere Brooks, general superintendent of the Eastern Division, and in whose department he is employed, was married September 5 to Miss Helen Chalmers Nowell, at the home of her aunt, Miss Mary Twombly, New York.

Mr. W. J. Austin, cable accountant of the company, well known in telegraph and cable circles has left for Dinuba, Cal., for a month's vacation, on a visit to his family. Mr. Austin's daughter and son-in-law have a ranch at this place, where they permanently reside, and where Mr. Austin's wife has been visiting for some months past.

The new office at Brunswick, Ga., which has been fitted up with an entirely modern equipment, has been taken possession of by the company.

The following appointments have been made: Mr. J. E. Van Berschot, assistant superintendent of supplies and assistant general purchasing agent, with headquarters at Chicago, Ill.; Mr. Ralph E. Bristol, storekeeper of the supply department at New York; Mr. F. A. Gentry, storekeeper of the supply department at Chattanooga, Tenn.

**POSTAL TELEGRAPH-CABLE COMPANY.**  
EXECUTIVE OFFICES.

Mr. Clarence H. Mackay reached New York from Europe, on September 11, arriving on the Kaiser Wilhelm II.

Col. A. B. Chandler, chairman of the Board of Directors, who has spent the summer months on his farm at Randolph, Vermont, came to the city for a few days, but the beauties of the New England fall caused him to soon return again to his country home.

Mr. W. H. Matthews, chief clerk of the operating department, has been appointed chief clerk in the general manager's office, to succeed George F. Fagan, deceased.

Mr. E. G. Cochrane, general superintendent of the Eastern Division, and Thomas E. Fleming, assistant secretary and special agent of the company, are again at their desks, after a vacation absence. The latter is now acting as assistant general manager during the absence of Mr. Charles P. Bruch, who is away on his vacation.

Among recent visitors to the executive offices was Mr. E. J. Nally, general superintendent at Chicago.

Mr. Francis W. Jones, electrical engineer, and Mr. Minor M. Davis, assistant electrical engineer and traffic manager of the company, were recent Boston visitors, where they went in the interests of the service.

Mr. John S. Ellis has been appointed assistant superintendent of construction, vice C. A. Lane promoted to the superintendency to fill the vacancy caused by the resignation of Mr. W. H. McCollum. Mr. R. Gould has been appointed general foreman to fill the vacancy caused by the advancement of Mr. Ellis.

The championship prizes won by Postal telegraph operators at the recent Boston tournament are on exhibition in the show windows of the Mark Cross Company, 253 Broadway. These include a large silver cup presented by Clarence H. Mackay, won by D. J. Ellington; two smaller silver cups, presented by Mr. Mackay, won by Joseph P. Gallagher and Edward F. Dougherty; the Carnegie International Trophy for the championship of the world, a large silver cup, presented by Andrew Carnegie, won by D. J. Ellington, and a silver punch bowl, presented by the Boston News Bureau, also won by Mr. Ellington.

**Resignations and Appointments.**

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

Mr. J. A. Edgerton, manager at Raleigh, N. C., has resigned to engage in the mercantile business.

Mr. L. E. Rudd, manager of one of the Boston branch offices, has been appointed manager at Vicksburg, Miss., vice Mr. E. T. Moore, made manager at Lexington, Ky. Mr. Rudd is the son of the late W. A. Rudd, manager at Boston.

Miss Carrie Rock has been appointed manager at Beaver, Pa., vice Miss A. Sheplar, resigned.

Mr. George F. Stadtmiller has been appointed manager at Franklin, Pa., vice A. A. Jeunet, transferred.

Mr. T. H. Kelly, night chief at New Orleans, has been promoted to be chief operator of the office, vice Mr. E. E. Cord, resigned to accept the position as head of the telegraph department of the American Telephone and Telegraph Company. Mr. S. S. Gallagher has been appointed night chief, vice T. H. Kelly, promoted; Mr. Walter Clark, assistant day wire chief, has been advanced to the position of all-night chief, vice S. S. Gallagher, promoted.

**Wireless Telegraphy.**

Professor A. E. Kennelly, of Harvard University, is at the present time engaged in writing a popular work on "Wireless Telegraphy." It is described clearly and its history is also given. The volume will be profusely illustrated with diagrams and plans.

Mr. Marconi states that the Clifton Wireless Telegraph Station, on which he has been engaged in the south of Ireland, would be completed about Christmas, and would be the most powerful station on the European side of the Atlantic. At an early date an equally powerful station, he states, will be completed at Cape Breton, and from each of these stations it would be possible to send wireless messages across the Atlantic. Mr. Marconi, was recently in Canada, inspecting some important stations, a network of which has now been completed on the banks of the St. Lawrence River.

A gigantic station for wireless telegraphy has been erected by the German Government at Norddeich, near Emden, on the North Sea coast. The station, which stands forth as an imposing landmark owing to its being higher than any other elevated structure which is visible in that district, attracts the special attention of visitors boarding steamers at Norddeich. At present the station has not been brought into official use, pending the completion of the experiments which are in progress. It is claimed to have a radius of action up to 930 miles, and to include almost the whole of Europe, Greenwich, Naples, and St. Petersburg being mentioned as within its scope of activity.

**Recent New York Visitors.**

Mr. Harman D. Jones, a well-known telegrapher, of Cleveland, O., accompanied by his wife.

Mr. George L. Lang, former superintendent of telegraph of the Cincinnati, New Orleans and Texas Pacific Railroad, Chattanooga, Tenn.

Start your telegraph career right by subscribing for TELEGRAPH AGE.

### The British Pacific Cable.

The annual parliamentary return has just been issued, giving the accounts relating to the working of the Pacific cable during the year ended March 31, 1906. In presenting this return, Sir Spencer Walpole, K. C. B., chairman of the Pacific Cable Board, makes the following observations:

1. Throughout the year 1905-06 the cable was maintained and continued in efficient working order. I am glad to be able to report that no interruption of any kind occurred on any of its sections. The board's ship, buildings, electrical apparatus and plant at all stations are also in good order.

2. The gross message revenue received during the year amounted to £94,456 9s. 6d., against £84,301 9s. 1d. in the previous year. From the gross revenue, however, £2,642 0s. 7d. has to be deducted, on account of payments made to the Atlantic and Canadian Pacific Telegraph companies for transmitting between Vancouver and Europe, or vice versa, the date and time of filing of all messages between Australia and the United Kingdom, the Continent, etc., and for delivering messages in duplicate in London and some other large centers in the United Kingdom, these payments being necessary to give to the customers of the Pacific Cable the same facilities that are afforded by the Eastern Company's route. With this deduction the net message revenue amounted to £91,814 8s. 11d., against £82,188 1s. 5d., and including a small sum received as interest on balances, the entire revenue being £91,952 13s. 3d., against £87,446 10s. 8d. in the preceding year.

3. The message revenue during 1905-06 was increased from the decision of the Government of the Commonwealth of Australia to pay over to the Board the whole of the receipts in Australia up to December 31, 1905. In previous years the Government had only transferred the receipts, before the close of the financial year, up to November 30. The message revenue therefore, for 1905-6 contains the receipts in Australia for thirteen months.

4. The actual expenditure of the Board on the service of the cable during the twelve months ending March 31, 1906 (including the sum of £34,000 set aside for the renewal account), amounted to £86,963 17s., against £85,751 11s. 2d. in the previous year, and subtracting this sum from the amount of revenue, there remains a surplus of £4,988 16s. 3d. The Board, however, had to provide a sum of £77,544 18s. for interest and sinking fund. This sinking fund will extinguish in fifty years from its institution the entire capital expenditure. Adding this payment to the expenditure, the deficiency on the year's operations amounts to £72,566 1s. 9d., against £75,849 18s. 6d. in the previous year. This deficiency has to be made good by the contributing Governments.

The financial results of the year 1905-6 are set forth in the following statement:

RECEIPTS.		
Traffic receipts..	£94,456	9 6
Less "Date and Time," etc., payments .....	2,642	0 7
Interest on deposits .....	£91,814	8 11
Deficiency recoverable in the following proportions:	138	4 4
England .....	£20,154	9 4
Canada .....	20,154	9 5
Australia .....	24,185	7 3
New Zealand..	8,061	15 9
	72,556	1 9
	£164,508	15 0

EXPENDITURE.		
Third annuity payment .....	£77,544	18 0
Head office (salaries and expenses)	4,916	11 4
Head office (advertising, canvassing, engineers' fees, royalties and cost of remitting money home) .....	1,400	2 3
Stations (salaries and expenses)	29,697	18 3
Ship (salaries and expenses)....	15,338	17 3
Provident fund .....	1,359	5 5
Renewal account .....	34,000	0 0
Expenses in connection with the opening of new offices in Australia .....	251	2 6
	£164,508	15 0

5. The renewal fund, including interest, amounted on March 31 last to £125,158 3s. 1d.; £12,500 of this sum was held in spare cable. The amount of £109,907 10s. 7d. was invested in Home and Colonial securities, while a balance of £2,750 12s. 6d. was in hand, and has since been invested. All interest earned on the investments is added annually to the fund, and is not treated as part of the revenue of the year.

6. The Board's forecast of its probable revenue and expenditure during the year of 1906-7, as submitted December 30 last, is as follows:

Traffic revenue.	£88,600	Annuity .....	£77,545
Estim'ed deficit	87,006	Renewal fund..	33,000
		Working exp*.	65,061
	£175,606		£175,606

\*Including £8,000 for expenses in connection with opening offices and competitive tactics in Australia.

7. The land-line services in Canada, Australia and New Zealand in connection with the cable have been generally well maintained by the Governments concerned and by the Canadian Pacific Railway. The Atlantic companies have afforded uninterrupted cable communication throughout the year and a rapid and efficient service.

8. The Board is glad to be able to acknowledge the consistently good and loyal services rendered by their staff throughout the year. The health of the staff has been generally satisfactory and the Board is glad to report no serious illness has occurred.

9. Under Capt. Sharp the efficiency of the Board's repairing vessel and the discipline of the ship's company have been well maintained. In deference to the wishes of the Australian and New Zealand Governments, the Chinese stokers have been replaced by natives of Norfolk Island, who have, so far, given satisfaction.

10. In accordance with the recommendations contained in the report of the conference of the various Governments concerned, which was issued in July, 1905, and in consequence of the negotiations with the Eastern Extension Company having fallen through, the Board despatched their general manager, Mr. Reynolds, to Australia to initiate active competition in that colony. The company having refused to accept the Commonwealth agreement as defined by the Conference, the Commonwealth Government at once withdrew the privileges provisionally extended to the company in Melbourne, and accorded to the Board facilities in Sydney similar to those enjoyed by the company under the New South Wales agreement. Advices from Mr. Reynolds indicate the early opening of the Board's offices in the latter city.

The capital expenditure on the Pacific Cable undertaking up to March 31, 1906, was £1,997,707 18s. 6d., of which £3,774, 4s. 2d. has been expended during the financial year.

#### The Cable.

Cables interrupted September 14:  
Venezuela Jan. 12, 1906  
Messages may be mailed from  
Curacao or Trinidad.  
Pinheiro "via Cayenne" Aug. 13, 1902  
Santa Cruz de la Palma (Canaries) July 12, 1906

Mr. George G. Ward, Mrs. Ward and Mrs. Hough, their daughter, together with Mr. R. Maynard Dodd, electrician of the cable steamer Restorer, detailed to observe the laying of the Guam-Japan cable and to make the final tests, sailed from Yokohama, Japan, on the steamer Mongolia, on September 10, en route for home.

The Commercial Pacific Cable Company's repairing steamship Restorer, stationed at Honolulu, has been engaged in saving the Pacific Mail steamship Manchuria from destruction. The Manchuria went ashore on the eastern side of Oahu Island while trying to make the port of Honolulu in a rainstorm on the morning of August 20.

The Commercial Cable Company, of Cuba, capital \$100,000, was incorporated at Albany, N. Y., September 12, to connect New York with Havana by cable and land telegraph, the cable to run from Florida to Key West and thence to Havana. The term of the company's existence is 1,000 years. The directors are Clarence H. Mackay, William W. Cook, Samuel S. Dickenson, George Clapperton and Albert Beck, of New York; Dumont Clarke, of Dumont, N. J., and Albert B. Chandler, of Brooklyn.

Captain H. A. Moriarty, R.N., C.B., who died in England, August 18, at the age of ninety-one years, took a prominent part in the early attempts to lay the Atlantic cable in 1857-58, and also in 1865-66, his services in this connection being rewarded with the C.B. order. During the voyage of the Great Eastern in 1866 with the new cable, Captain Moriarty, as navigator, indicated the spot at which the end of the old broken cable should be found, having taken careful bearings of the position on the previous occasion, and his statement was verified exactly, the cable being hooked directly he announced that the ship was in the correct place. The cable was brought to the surface, but parted, yet was finally secured a fortnight later.

#### A Veteran St. Louis Operator.

Mr. Edward L. Parmelee, a prominent St. Louis telegraph operator, has passed forty-five years in the service of the Western Union Telegraph Company. He now holds a more responsible position than at any time hitherto in his career, proving that a man's value does not decrease with age. When he began to work for the Western Union in Indianapolis, in 1861, there were only five operators in the office; now the company employs there over one hundred. Mr. Parmelee worked in the Indianapolis office during the Civil War. He also had the honor of working at the side of Thomas A. Edison and the late Charles C. Whitney, who afterwards became secretary of the New York Life Insurance Company. In 1865, Mr. Parmelee was transferred to St. Louis. When he went there, there were only seven operators employed by the Western Union, which, at present, employs over 300.

When Mr. Parmelee went to work in St. Louis, Col. R. C. Clowry, who is now president of the company, was superintendent. He relieved him many times during busy days, when operators worked for days and nights at a stretch without leaving the office. Mr. Parmelee was born in Lockport, N. Y., 61 years ago.

Orders, if sent to Telegraph Age, Book Department, for any book required on telegraphy, wireless telegraphy, telephony, electrical subjects, or for any cable code books, will be filled on the day of receipt.



### Reunion of the Old Time and Military Telegraphers.

Preparations have been about completed covering the programme for the entertainment of the Old Time Telegraphers' and Historical Association and of the United States Military Telegraph Corps, their twenty-sixth joint annual reunion, which meets in Washington, D. C., on Tuesday, Wednesday and Thursday, October 9, 10 and 11. This programme, which will be found to be very attractive in the diversity of the recreation planned, and which has been already outlined in these pages, will, together with much other correlative matter, be published in full in the next issue, October 1, of TELEGRAPH AGE. The whole will present a sketch, historical and otherwise, of the associations named, which will be embellished by numerous engravings, that will be of interest not only to members alone, but to the great body of telegraphers as well, for it will be a narrative that the fraternity at large will appreciate and enjoy.

It will be remembered that the Arlington Hotel, Lafayette Square, a location not far from the White House, has been selected for the reunion headquarters. We are again requested to state that those who desire to obtain hotel accommodations in advance should address promptly Mr. R. G. Callum, who is chairman of the hotel committee, care Western Union Telegraph Company, Washington, distinctly specifying the kind of room or rooms required, and their probable length of stay.

Mr. William H. Young, of the Western Union Telegraph Company, Washington, D. C., is president of the Old Time Telegraphers' and Historical Association, and Col. William B. Wilson, of Holmsburg, Philadelphia, is president of the Society of the United States Military Telegraph Corps.

The programme of entertainment covering the three days of the reunion, as furnished by President Young, is as follows:

Business meeting of the Old Time Telegraphers' and Historical Association at ten o'clock, at the Arlington Hotel, on the morning of Tuesday, October 9. This will be followed by a business meeting, at the same place, at eleven o'clock, of the Society of the United States Military Telegraph Corps. At three o'clock in the afternoon, a visit to Arlington, Va., and Fort Myer will be made. There will be a cavalry drill at the fort. In the evening a theater party is proposed.

On Wednesday morning, October 10, eleven o'clock is the hour named for assembling at the White House. At twelve o'clock President Roosevelt will receive the telegraphers. At one o'clock a trip to Mount Vernon will be made. In the evening a visit is planned to the Congressional Library.

On Thursday, October 11, the purpose is to begin the day at ten o'clock by a sight-seeing trip about the city in automobiles, while the afternoon will be devoted to inspecting the Corcoran Art Gallery, the Washington Monument, the National Museum, and possibly the Capitol. In the even-

ing the concluding feature of the reunion will occur, namely, that of the banquet at the Arlington Hotel. This will be a subscription dinner and a charge of \$2 will be made for each person attending the affair.

Mr. John Brant, secretary of the Old Time Telegraphers' and Historical Association, is negotiating with the railroad authorities in an effort to secure for members desiring to attend the Washington reunion, a rate of fare of one and one-third, on the certificate plan. Under such an arrangement those attending the convention will be obliged to pay full fare going, at the same time receiving a certificate that will entitle the holder to return at a one-third rate.

### Copper Famine Imminent.

The situation in the copper market in which the telegraph companies are so largely interested, is becoming acute. All of the usual sources of supply are unable to furnish the metal for the reason that the producing companies are sold out completely, and contracts now being made run well into January of next year, and beyond. Sales within the month past have been enormous breaking all previous records. Consumption is well above production, with a constantly increasing demand, the telegraph and telephone companies, the electrification of railway systems, besides that used in building operations and in the construction of electrical machinery and appliances, all being heavy users. Another cause of deficiency is due to the fact that skilled labor is scarce, because of the wider demand for services, and it is doubtful if the output of copper in the immediate future will show any increase over that of the past. Meanwhile a heavy foreign demand continues, while the imports of the metal are curtailed, especially in the Chilean output interfered with by the recent earthquake in that country. The price of copper will probably advance to 20 cents a pound before the first of the year.

### He was a "Sound" Reader.

A certain bucketshop at Atlantic City, N. J., had a caller a few days ago who was described as a "gray haired old chap," and who put up \$600 on an order for the purchase of a stock named by him. A member of the firm went to a telegraph instrument and pretended that he was sending in the order for the customer, who later asked him if he had bought the stock.

"Why, yes; I just now sent your order by telegraph to Philadelphia," was the reply.

"Well, I like your nerve, but you are a d— liar. I've been a telegraph operator twenty years and I know that you have done nothing of the sort," replied the man with the gray hair. Then the old man gave the broker just ten minutes to return his money, and it was speedily forthcoming. The bucketshop the next day went out of business.

### A Test of Transmitting Machines.

An exceedingly interesting test of telegraphic sending devices occurred on the afternoon of September 4, in the offices of Francis W. Jones, the electrical engineer of the Postal Telegraph-Cable Company, New York. It was conducted under the supervision of Minor M. Davis, assistant electrical engineer and traffic manager of the company; Jesse Hargrave, assistant electrical engineer, and F. E. d'Humy, electrician of the Eastern Division. The object of the trial was to demonstrate how the signals of mechanical and electro-mechanical Morse signal transmitters compared with the signals transmitted by hand on the Morse key, and to ascertain whether the several transmitting instruments were capable of sending perfect Morse signals when handled by competent telegraphers. This object was prompted by the fact that for a year or more past complaints had reached the officials of the Postal Telegraph-Cable Company that the mechanical transmitting devices were being used by some operators incompetent to properly manipulate them, to the detriment of the service, inasmuch as many errors had been traced directly to this cause.

The machines on trial were the Mecograph, the Auto-Dot, mechanical and electrical; the Vibroplex, the Autoplex and the Yetman transmitter, instruments now coming into such extensive use, while the circuit over which the test was made was local in character. The result of the test, which was entirely a preliminary one, shows that when the mechanical and electro-mechanical transmitters are accurately adjusted and manipulated by skilled operators that such transmitters produce electric impulses or signals comparing favorably with those produced by a first-class operator on a Morse key.

The test served to indicate that an electro-mechanical transmitter, when well made, properly adjusted and its battery kept in good order, produced the most reliable signals and manifested less tendency to split dots.

There is no doubt that the change from the Morse key to a reliable mechanical transmitter is a desirable thing for certain operators, as it enables them, when working "bonus," to do more work in a given time, and at the same time requires less motions of the hand.

Many of the transmitters in use upon telegraph lines are of earlier makes and lacking in the improvements observed in the more up-to-date machines, and to the use of these old instruments is traceable many of the faults complained of.

Among those who took part in the test besides the officials of the company were: C. P. West, of the Postal Telegraph-Cable Company, New York, who used the Mecograph No. 4, which device was also represented by Mr. D. A. Mahoney, the New York agent; Mr. George W. Conkling, general manager of the company manufacturing the Auto-Dot machine, electrical and mechanical, manipulated that instrument as well as furnishing specimens of

hand Morse sending; Horace G. Martin, inventor of both the Vibroplex and the Autoplex, used both these machines in conjunction with C. R. Schoonmaker and P. A. Gersbach; Fred W. Lass, of the main office of the Postal company, was selected to do the hand sending for comparison with the machine work; while the interests of the Yetman transmitter were confided to the care of J. P. Gallagher. Mr. J. B. Taltavall, editor of TELEGRAPH AGE, was also present during the test.

Mr. Francis W. Jones, electrical engineer of the Postal company, stated that this preliminary test will shortly be followed by another test, at which time it is hoped that all companies interested in the manufacture of transmitting devices, will be duly represented, especially so, now that the manufacturers better understand the object of the Postal company in holding these tests.

### The Approaching International Wireless Telegraph Conference.

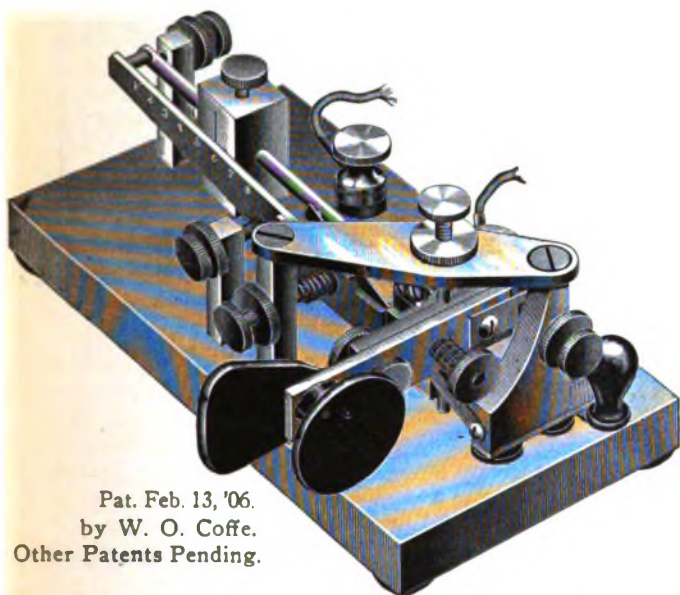
The International Conference on wireless telegraphy is scheduled to take place in Berlin next month, with representatives from the various national governments. The matters which have heretofore engaged the attention and occupied the conclusions of these conferences are of great concern to international comity, national government and individual enterprise. The tendency of the past conferences has been, we think, to augment unnecessarily the scope of government interference with wireless telegraphy. "Free as the air" should also be construed into "free as the aerial ether." The high seas belong to all and so should the sky above them. It is right that a government should have control of all extra-territorial wireless telegraphy in time of war. War upsets all calculations and makes a right of many wrongs. But it is not right that a national government should hamper enterprise, by needlessly restricting wireless telegraph applications in time of peace. Wireless telegraphy is still in its infancy. A great deal of experimental work has yet to be done to develop its latent capacities. It is not to be expected that army and navy officials will have time, funds, equipment, inclination or training materially or rapidly to advance the work of research and costly experimentation, if wireless telegraphy, as an art, is confiscated by the governments of the world, under the title of telegraph regulation. On the other hand, it must be admitted that national governments not only have the right to regulate wireless telegraphy within the limits of reason, but that they also are under the necessity of doing so, in view of making adequate provision for prompt action in case of war. It should naturally be the object of any or all governments to hamper the progress of the science and art of wireless telegraphy, and their industrial applications, as little as possible in conducting the necessary regulation.—*Electrical World.*

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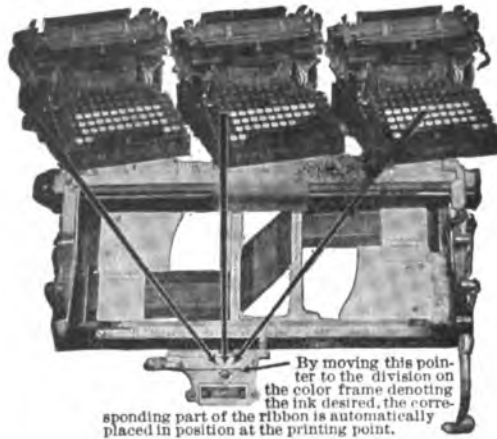
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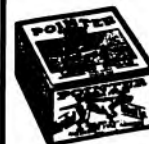
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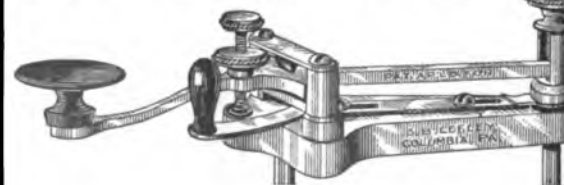


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NEW YORK, SEPTEMBER 16, 1906.

The Book Department of Telegraph Age, always a prominent and carefully conducted feature of this journal, has in obedience to continually growing demands made upon it, materially increased its facilities of late. The desire is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished, promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientele. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same. These will be of especial aid to buyers inasmuch as they contain brief descriptive references of each volume listed, frequently with full chapter titles.

## Reform in Punctuation.

If reform in spelling is one of the requisites of the time, it should not be overlooked that the question of punctuation also needs consideration. Every newspaper and publishing house has its own standard, and rules governing such are never alike. Punctuation is something that authors rarely bother themselves about, leaving such detail more frequently to the editor or the judgment of the proofreader. The slovenly punctuated matter that finds its way into newspaper offices, too often emanating from sources where the display of more intelligence would naturally be expected, is simply shocking. The reckless use of the dash, remarks a contemporary, is common and often marks for obscurity.

## Spelling Reform.

The initiative decree for a simplified form of spelling, at least so far as may be embraced within a selected list of 300 or more words, promulgated by a self-appointed committee, or board, as it is called, and endorsed by President Roosevelt, has gone forth to the country. Following the natural discussion incident to any proposition of so revolutionary a character, the matter is ceasing in great measure to attract the attention and to secure the approval that its promoters evidently expected, for the appeal seems to fall on a public sentiment but indifferently committed to reform in this particular. A horse may be led to water but compelling him to drink is a wholly different matter. So it is that acceptance of a change of this nature cannot be forced off hand upon a people. Spelling and pronunciation are both matters of custom, founded not upon imaginative conceit, but upon the etymology of the language itself, and consequently are better modified by gradual than by abrupt process. Otherwise, if it be desirable that 300 words be selected for change, why not go through the entire vocabulary, complete the work of reconstruction without further delay and set altogether a new pace for spelling? It might be possible to so correct the mother tongue as to "reform" it out of existence, "roots" and all, and thus make way for the new universal language, "Esperanto," which in view of recent events appears to be exhibiting some traces of vitality.

Of the 300 words named the spelling of a large proportion of the same is not affected by this latter-day mandate. For instance, the dropping of a "g" in "waggon," and the letter "u" from such words as "favour" and "honour," "e" in "abridgement," etc., was long ago adopted, and why obsolete forms of spelling should be placed in the category of change at this time is not exactly clear.

The rules for the modified spelling have been summarized as follows, some features of which fit into accepted modern methods:

1. When offered a choice between æ and e, choose e. Examples: Anesthetic, esthetic, medieval.
2. If the choice lies between e and no e in words like abridgment, lodgment, acknowledgment, always omit the e.
3. Use t in place of ed, for the past or past participle of verbs ending in s, sh, or p. Examples: Dipt, dript, prest, distrest, husht, washt.
4. Stick to ense in preference to ence when you have a choice. Examples: Defense, offense, pretense.
5. Don't double the t in coquet, epaulet, etiquette, omelet.
6. When you can replace gh with f, do it. Example: Draft.
7. Better still, get rid of gh altogether. For plough write plow. For through write thru.
8. Write the Greek suffix ise or ize with the z by preference. Examples: Catechize, criticize.
9. Where any authority allows it, omit the e in words spelled with ite. Example: Preterit.
10. Use a single l in words like distil, instil, fulfil.
11. And omit one l from words now written like fullness. Example: Dulness.
12. In words sometimes spelled with one and sometimes with a double m, choose the short form. Example: Gram, program.



13. In words spelled with *æ* or *e*, choose *e*. Example: Esophagus.
14. Always omit the *u* from words sometimes spelled *our*. Examples: Labor, rumor.
15. Where you can get any authority, use *f* in place of *ph*. Examples: Sulfur, fantasm.
16. In words spelled with a double use a single *r*; as, bur, pur.
17. Spell theatre, centre, etc., in the English way—center, theater, niter, miter.
18. If a word is spelled with *s* or *z* in root, use the *z*; as, apprise, surprize.
19. From words spelled with *sc* or *s* omit the *c*. Examples: Simitar, sithe.
20. Omit the silent terminal *ue* when allowed. Examples: Catalog, decalog, demagog, pedagog.

The modest sum of \$125,000, and a "little more," as a press despatch informs us, being demanded for failure to deliver a telegram promptly, and which has been made the base of a suit at law, indicates the mild way the aggrieved Butte, Mont., citizen seeks redress for alleged wrong at the hands of the Western Union Telegraph Company. When it is remembered that the "failure" of the telegram in question to reach its destination on time, disbarment proceedings against an attorney, to whom, it is claimed, the message would at least have granted an extension of time, were permitted to be taken, the deplorable sadness of the case becomes apparent. The attorney, himself, who brings the suit, claims to have been in the receipt of \$5,000 a year income. He sues for the sum total of such an income covering a period of twenty-five years.

#### The English Postmaster-General's Annual Report.

The number of telegrams, which had been falling off during the past two years, now shows an increase of 509,000, the total number being 89,478,000. The estimated value of railway free telegrams is £59,000, an increase of £4,200, and that of Government free telegrams £18,500. The number of press telegrams shows a decrease of 81,000, which is accounted for by the cessation of the war, and the decrease would have been still greater but for the general election. The method of counting the number of words of press telegrams is to undergo a change, as the estimate hitherto made was not accurate. There are now 10,372 telegraph offices, and 2,395 at railway stations and other public places, an increase of 240. The intercommunication switch in the chief office has been considerably extended, and telegrams can now be signaled directly between 200 Metropolitan offices without retransmission. The use of the Murray page-printing telegraph has been fairly successful, and will be extended. The underground line to Glasgow has been completed, and communication between these towns, as well as Liverpool, Manchester and Leeds and the various towns on the route is thus secured. An underground line to Chatham has also been laid, and the western line has been completed as far as Slough. The latter line is intended to be carried to Cornwall, to secure communication with

the Mediterranean and Atlantic cables. There were 8,796,000 foreign telegrams, an increase of 457,000. Improved apparatus is to be used on the Paris and Antwerp lines. No new Government cables have been laid, but the Commercial Cable Company has laid another cable between Waterville and Canso. The objects of the Wireless Telegraphy Act of 1904 are repeated, and 130 applications have been made for licenses for installations. Five hundred and fifty-eight outward Marconi telegrams and 11,094 inward telegrams have been dealt with to and from ships at sea.

The telephone is being largely used by subscribers to send telegrams for inward transmission, the total number of telegrams being 3,123,700, an increase of 23 per cent. The telegraph and telephone revenue of the year was £4,151,380, an increase of £231,357, and the expenditure was £4,906,087, an increase of £66,628. The net deficit was thus £754,707, or £164,729 less than last year. If allowance be made for interest on the capital, £10,867,644, created for the purchase of the telegraphs, the telegraph deficit on the year is £1,033,190. The net revenue from the postal and telegraph services was £4,514,207. A large number of appendices are given, showing details of the various services.

#### Copper Wire Thieves.

San Francisco, in its wrecked condition, appears to offer a tempting field for the depredation of wire thieves. Not only the telegraph companies, but the united railroads and the telephone company have been heavy losers from the depredations of a well-organized band of junk thieves, who discriminate in favor of the more valuable junk, such as copper wire and brass findings. One night recently copper wire to the value of \$500 was stolen from the Postal Telegraph-Cable Company's former office in that city. Not alone in this country do wire thieves thrive and ply their vocation, for it is recorded that in England their kindred are found to be equally busy. In fact, both in England and on the Continent we have many times recorded the stealing of telegraph wire, and in the current issue of an English electrical paper we find an item stating that the Great Eastern Railway has suffered by reason of such depredations. In Europe severe penalties are meted out to offenders of this class, while in this country such looters are usually let off either by the payment of a small fine or but an inadequate term of imprisonment.

Consul-General Richard Guenther reports from Frankfort, Germany, that among the European states Russia has the longest telegraph lines, a total of 175,000 kilometers (109,375 miles). Next is France, with 150,000 kilometers (93,750 miles); Germany, with 134,000 kilometers (83,750 miles); Great Britain, with 79,000 kilometers (49,375 miles). More than twice as many telegrams are sent in Great Britain as in Germany, and nearly double the number sent in France.

### The Early Progress of the Electric Telegraph.

[In the *Journal of the Society of Arts*, published in London, in the copy bearing date of April 23, 1858, almost fifty years ago, Mr. C. W. Siemens, C. E., who afterwards became the head of the great house of Siemens Brothers, of London and Berlin, contributes a highly interesting article bearing the above title, from which we take the following extracts, and which, in the elucidation of his subject, shows the master mind of the man, and the grasp he had on the telegraph at a time when it was comparatively a new art. The article will be read with much interest.—Editor.]

The growing importance of the electric telegraph, both in a scientific and social point of view, and the circumstance of my connection for a good many years with its practical development, are the apologies I have to make for venturing to occupy the attention of the society this evening.

The object which I have more particularly in view is to trace the gradual course of progress of this invention since the time of its first appearance upon the stage, without pretending, indeed, to establish any new historical facts or to decide upon the relative merits of contending claimants to invention or discovery (although I shall not willingly offend against the right of anyone), but with a view to establish more clearly our present position in the scale of progression, and to point out with some degree of certainty the direction in which we should travel in order to realize still greater results, particularly the accomplishment of transoceanic communication.

When, little more than a century ago, Franklin, the father of electrical science, ascertained that atmospheric electricity, which manifested itself in the imposing form of thunder and lightning, was identical with frictional electricity, he employed an apparatus comprising an insulated metallic conductor, the electric machine, the earth return circuit, and a receiving instrument, consisting of a pair of cork balls, suspended by silk threads, which, upon being electrified, struck against a pair of signal bells. This apparatus comprised, indeed, all the elements required for the construction of a modern electric telegraph. Nor was the idea of an electric telegraph new, even in the days of Franklin, for we are informed that as early as the year 1728, a pensioner of the Charter House, named Stephen Grey, made electrical signals through a suspended wire, 765 feet long. Yet a century of unceasing efforts, by men of all civilized nations, including some of the greatest natural philosophers the world ever produced, was still required to reduce those elements into available forms for practical purposes.

If we pass over the experiments of Winkler, of Leipzig, in 1746, Watson, of London, and Le Monier, of Paris, the year following, as preliminary inquiries into the velocity of the electric current in metallic conductors, we find that the

honor of having produced the first electric telegraph is due to Lesage, of Geneva, who actually constructed, in 1774, an experimental line of communication, consisting of twenty-four suspended line wires, representing the twenty-four letters of the alphabet, respectively. Each wire terminated in a pith ball electrometer, the balls of which separated, upon the wire in question being charged at the other extremity by means of a Leyden jar, denoting the letter intended to be communicated. Lomond, of France, perceiving the difficulty and expense attending so many line wires, contrived, in 1787 (see "Young's Travels in France," 1787), an experimental line of telegraph in his house, consisting of only one line wire connected with a pith ball electrometer at both ends, and he proposed a telegraphic code by repetitions of his only primitive signals. Reisser, Dr. Salvo, of Madrid, and many others proposed various modifications of the same apparatus, but it is hardly necessary to add that all of them remained unrewarded by success.

In consequence of so many fruitless attempts, electric telegraphs were already being classed among the chimerical projects of the time, when at the dawn of the present century a new field for invention was opened by the important discoveries of the Italian philosophers, Galvani and Volta.

The voltaic current, unlike the spontaneous discharge of static electricity, could be conducted with comparative facility through long metallic conductors, and was capable of very powerful effects in decomposing water or other substances, which qualities rendered it clearly preferable for telegraphic purposes.

Struck by these views, Soemmering, of Munich, constructed, in 1808, the first voltaic telegraph, consisting of thirty-five line wires, any two of which could be combined to form the electric circuit and produce a signal at the other extremity by decomposition of water under any two of thirty-five inverted glass cups, arranged side by side in an oblong bath of acidulated water. The thirty-five wires terminated in gold points, under the inverted glass cups (or volta-meters), and the rising of the gases of decomposition betrayed to the attentive observer the passage of the current.

The difficulty of dealing with so many wires suggested to the mind of Schweigger the same expedient which Lomond had recourse to with regard to static electricity, that of producing the number of line wires to a single metallic circuit, and the receiving instrument to a single decomposing cell, having recourse to repetition, and to differences in the duration of succeeding currents, in arranging his telegraphic code.

It seems not improbable that if electrical science had made no further advances, the projects of Soemmering and Schweigger would have gradually expanded into practical working chemical electric telegraphs, such as have been proposed at a much later period by E. Davy, 1838,

Morse, 1838, Bain, 1843, and Bakewell in 1848, which latter is particularly interesting inasmuch as not mere signals or conventional marks are received by it, but a fac-simile of the message, previously written with a solution of shellac upon a metallic surface.

The discovery of Oersted, in 1821, which, under the hands of Schweigger, Ampère, Arago and Sturgeon, soon expanded into electro-magnetism, turned the tide of invention into quite another direction. Ampère was the first to propose an electro-magnetic needle telegraph, consisting of twenty-four needles, representing each a letter of the alphabet, and twenty-five line wires, the extra wire being intended for the metallic return circuit common to all. Ritchie executed, in 1832, a model of Ampère's telegraph, with an essential improvement, to the effect that each needle, by its motion, moved a screen disclosing a letter of the alphabet.

Another version of the same general arrangement was patented by Alexander, of Edinburgh, as late as 1837. Fechner, of Leipzig, and Schilling von Canstadt, of Russia, proposed in 1832, apparently independently of each other, a single-needle telegraph, with deflection of the needle to the right and left; and Fechner was the first to prove, by calculation, the power of the galvanic current to traverse a great length of line wire.

Gauss and Weber, of Goettingen, took up the subject of electric telegraphs at about the same time, but had not proceeded far when their attention was diverted by the great crowning discovery in electrical science. I mean the discovery of induction and of magneto-electric currents by Faraday, in 1831.

Gauss and Weber rightly judged the superiority of magneto-electric over voltaic currents for telegraphic purposes, and in applying them they effectually established the first working electric telegraph in 1833, with the arrangements of which I became practically acquainted some years later, when a student at Goettingen.

It consisted of a line wire and return current wire, the former of which was carried upon high posts over the town of Goettingen, extending from the observatory to the tower of the public library, and thence to the new magnetic observatory of Weber, a distance of a little more than an English mile. The magneto-electric current was produced by means of a coil containing 3,500 turns, which was situated upon a compound bar magnet, weighing seventy-five pounds, the coil being at liberty to slide freely to and fro upon the bar. In sliding the coil rapidly from the center toward the south pole of the magnet and back again, a succession of two opposite currents was produced, which, traversing the line-wire circuit, including coils of the receiving instrument, caused a short jerk of the needle, say to the right and back again, whereas the deflection of the needle would be to the left when the exciting coil was moved toward the north pole

and back. The amount of motion imparted to the coil determined also the amount of deflection of the needle, and could, by means of a telescope and a scale, be read off in degrees on a reflector attached to the end of the needle. The needle itself weighed 100 pounds, and was suspended from the ceiling of the room by untwisted silk. Notwithstanding the extraordinary weight of the needle (which was the same as that used by Gauss to determine the laws of terrestrial magnetism), its motions were beautifully energetic and distinct when viewed through the telescope. Gauss and Weber did not pretend, however, to the construction of a commercially useful electric telegraph, but delegated that task to Steinheil, of Munich, who enjoyed already at that time a reputation as a skillful mechanic. Steinheil applied himself vigorously to the task, and produced, in 1837, his needle-printing and acoustic instruments, which he first tried at Munich through about five miles of suspended line wire, and shortly afterwards upon the Taunus Railway, near Frankfort. In trying whether the rails might not be used for metallic conductors, he rediscovered the conducting power of the earth itself, which, it appears, had been lost sight of since it had first been discovered by Franklin with regard to static electricity, and proved also with regard to voltaic electricity, in 1803, by Erman, Basse and Aldini.

The first recording instrument, and the telegraphic earth circuit, are discoveries which entitle Steinheil to a high position among the originators of the electric telegraph, although the means he proposed for its execution were too refined for the time, and did not lead on that account to immediate practical results.

At the time when Steinheil was absorbed in his labor, Professor Wheatstone was also engaged upon a series of experiments on the velocity of electricity, with a view to the construction of electric telegraphs, and in June, 1837, he joined Mr. Cooke in a patent for a needle telegraph of five line wires (besides one wire for the return current), and as many needles, which, by an ingenious system of permutations, could be so deflected that any letter of the alphabet was pointed out upon a diamond-shaped board by the convergence of two needles toward it. The line wires were proposed to be coated with insulating material, such as fibrous substances saturated with pitch, and to be drawn into leaden pipes, in order to exclude the moisture of the ground into which they were intended to be laid. An experimental line of telegraph on this principle was established in the same year, at the Euston Railway station, and the results obtained left, it appears from documentary evidence, no doubt upon the mind of the then resident engineer of the London and Birmingham Company, the present Sir Charles Fox, of its ultimate success. That success, however, was not obtained without a struggle against practical difficulties, in the course of which the system underwent important modifications, of

which the double needle instrument, such as is still used extensively in this country, and (in 1843) a return to overground line wires, were the results.

To Cooke and Wheatstone is due the credit of having established the first commercially useful lines of electric telegraph, namely, the lines between Paddington and Drayton, commenced in 1838, and between London and Blackwall, commenced in December, 1839, which were soon followed by others.

If viewed from our present position, the needle telegraph cannot be considered an advance, in point of principle, on Gauss and Weber, or Steinheil; it involved, in fact, a return from magneto-electric to voltaic currents—from a single-line wire to several—and from recording of messages, to their mere indication; yet, for the time being, when insulation was imperfect and the important law of Ohm was hardly understood, except by a few natural philosophers, it had the probability of success in its favor, because the duty required from the electric current consisted in deflecting a magnetic needle to a merely appreciable extent, and it was of no great importance to the result whether a more or less considerable proportion of the current was lost through imperfect insulation. The upright weighted needle—the key with dry metallic contacts—and other details, were also of a novel and meritorious character. Why the same system should, however, be still persisted in at the present day, in this country, when improved systems have been adopted in nearly all other countries, including the British possessions, is a question which, I hope, will receive an answer from those who practically uphold it. It is evident, however, that Wheatstone did not intend to stop there, from his numerous other inventions, which followed each other in rapid succession, and amongst which his dial and printing instruments—his early applications of magneto-electro currents—the relay—and the first judicious application of electro-magnets, so as to obtain more powerful effects at distant stations, are the most remarkable.

The country of Franklin has not been behind-hand in gathering the first fruits of electrical science. It is said that Morse contemplated the construction of an electric telegraph since the year 1832, although he did not take an overt step till the year 1837, when he lodged a caveat in the American patent office, which patent was not enrolled till the year 1840. There is no evidence to show that Morse's early ideas had assumed any definite shape until the year 1838, when he deposited an instrument of his construction at the Paris Academy of Sciences. Morse's invention consists chiefly in the substitution of electro magnets for needles in the construction of a recording instrument, which, in other respects, is similar to Steinheil's. The step was, however, an important one to render the instrument powerful and certain in its action, and, com-

bined with Wheatstone's relay, Morse's recording instrument will, it may be safely affirmed, be used universally for all except local telegraphic communication.

In the year 1845, when the practical utility of electric telegraphs had been demonstrated in England, several continental governments determined upon their establishment. The Belgian, Austrian, and, a few years later, the Sardinian government, simply adopted the double needle telegraph. In France, De Foy and Brequet, fils, contrived a double step by step or dial telegraph on Wheatstone's principle, which enabled them to imitate the same code of signals which had been used for the semaphore telegraph.

In Prussia a royal commission was appointed to consider and advise upon the system to be adopted, of which commission my brother, Werner Siemens, who had been engaged before with kindred subjects, became the most active member. The commission was in favor of an underground system, and charged Werner Siemens to institute experiments.

#### Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Atlantic City, N. J., June 19, 1907.

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

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

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

International Association of Municipal Electricians meets at Norfolk, Va., at a date to be named.

Magnetic Club, business meeting, meets the second Thursday in January, at New York.

Old Time Telegraphers' and Historical Association meets at Washington, D. C., October 9, 10, 11, 1906.

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

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

Train Despatchers' Association meets at Boston, third Tuesday in June, 1907.

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

Considerable damage is continually being done to the Postmaster-General's telegraph system in England, by small boys breaking insulators by catapult shooting. Some of these offenders, says the London Electrical Review, have damaged large numbers of insulators, and one (though he was not a small boy, being aged eighteen) was convicted. At the court it was stated that the maximum penalty is two years' hard labor, a fact which, if better known, might deter some of the culprits. In this instance a fine of \$10 including costs was imposed, or in default one month's imprisonment.

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### The Magini Improvements for Practical Telegraphy.

Signor Magini, an Italian electrical engineer, inventor of several useful innovations in the field of electro-technics, claims a far-reaching improvement in practical telegraphy, says an English contemporary. The claims of Signor Magini are set forth as follows:

By very simple means, it is asserted, that defective insulation can be overcome and the capacity of the wires or "leads" can be vastly increased. Perhaps, if substantiated, the most important claim is that which has reference to injured cables, since it is stated that these can be again brought into service. If this invention fulfills all that is anticipated by the inventor, a great impulse will undoubtedly be given to the science of telegraphy. Signor Magini has recently been devoting much study to the operation of the coherer inserted above a telegraphic wire subjected to electric vibrations originating from a low power induction coil. His observations have led him to the discovery of an extremely simple arrangement which he thinks solves various problems still existing in everyday telegraphy. In addition to this, the device works equally well whatever the distance between the telegraphic stations and whatsoever the material condition may be of the wires in use on existing lines. There would thus be no need to make alterations in existing services, but it may be pointed out that with the new system telegraphic communication may also be carried out under existing generic conditions by means of very thin wires, instead of the thick and expensive conductors now generally employed—a point of exceptional importance, especially in connection with the erection of new installations. All competent persons will at once recognize the importance of the innovation from these brief remarks as to the actual conditions of telegraphic wires. As a matter of fact, interruptions in telegraphic services depend almost always upon defective insulation of the conductors (especially during bad weather), upon short circuits; fortunately, all these causes have no effect at all upon the transmission of the new currents selected and practically employed by Signor Magini. These currents are of an oscillating character and neither disturb nor are disturbed by ordinary currents—a fact the significance of which cannot escape the attention of those who understand anything about telegraphy; furthermore, they have the singular property of rapidly passing over electric conductors even when such leads are imperfectly insulated (whether due to bad weather or other causes) or if they have not been insulated at all, and also if short-circuited to earth, or if the continuity be interrupted. To put the matter briefly, it is claimed, the new Magini system insures perfect telegraphic communication under even the worst possible conditions in the electric status of the leads.

Magini's transmitter comprises a small Ruhmkorff coil, into the primary circuit of which there are directed, by means of a special key, the currents emanating from a few cells of dry batteries, while one of the terminals of the secondary circuit is

placed in communication with the lead. The current induced, by a special arrangement of the circuit, which is as simple as it is original (both at the transmitter and receiver ends), is transformed into a vibratory pulsating current. At the receiving station it reaches a coherer of special construction and causes the operation of any suitable telegraphic apparatus, using either Morse signals or printing signs, on the Hughes principle. This coherer (which apparently differs entirely from all coherers hitherto known) establishes or breaks its coherency with rapidity and certainty; once placed in operation it continues to work with perfect precision, all the drawbacks (such as excessive sensitiveness, always causing great variability) common to other types so far known having been successfully done away with. This new coherer will, therefore, be of value for use in connection with wireless telegraphy. Although only a few volts are used at the transmitting station, and while there are only two dry cells at the receiving centre, messages can be safely forwarded over distances amounting to hundreds of miles; hence with the new Magini system the use of cumbersome and expensive batteries of cells or accumulators at telegraphic stations becomes a thing of the past.

The new system practically admits of duplex telegraphy, without recourse to the actual complicated means employed—means which necessitate scientific and special technical knowledge on the part of the employee, and which, furthermore, are exposed to all those multiple causes which induce modifications in the electric condition of the wires, thus necessitating continual variation and readjustment of the electric accord existing between the different offices or stations. When mounted in derivation on the two extremes of an electric wire Magini's transmitter and receiver do not necessitate any alteration in existing plant, and two different messages can also be sent over the same wire at one and the same time. A further and very valuable application of this system lies in its practicability for use in submarine work; not only does it double the power of the cable, but it also enables two messages to be sent together over one and the same cable. The high charges made for sending telegrams over long submarine cables is due to their low capacity, when considered in proportion to time, and to the large amount of capital invested therein. The possibility of doubling their present capacity and of transmitting two messages at once will therefore be equivalent to reducing the present charges for cables by about one-half. As the currents employed by Magini have the peculiar property of being able to leap over gaps or breaks in the leads and continue their journey undisturbed, this gentleman has been able to maintain uninterrupted communication over wires and cables the inner core or conductor of which has been broken—i. e., under conditions with which existing methods would have been entirely unable to cope. Consequently, should a submarine cable become worn out or unserviceable for any other reason (e. g., accidental breakage of the core during laying, infiltration of sea water and consequent rusting due

to electrolysis, or hoc genus omne), telegraphic communication can, notwithstanding, be kept up with Magini's system until the long and costly operations of fishing up and repairing the cable are completed.

#### Government Ownership of Railroads.

There has been a lull of late in Postal telegraph clamor, the latest fad coming to the surface being the demand of Government ownership, State and National, of railroads. Regarding this subject the following, taken from the *Railroad Gazette*, will be read with interest:

In the May number of the "*Revue Politique et Parlementaire*," the place of honor is given to an article dealing with the results obtained on the State railroads of Belgium as compared with those on the companies' lines in France, more especially the Nord.

The writer is apparently unbiased, and the article is written with a view of enabling the French public, before whom the question of the purchase of the Western Railroad of France has recently been mooted, to form some conclusion on the relative advantages of company and state control. He first of all points out the fact that, generally speaking, in democratic countries such as France, Great Britain and the United States, the railroads are worked by companies, whereas in monarchical countries—Germany, Austria and Russia—they are worked by the state, and he points out that the fact that the most business-like nations all have their railroads managed by companies is a strong argument in favor of that course.

It is six years since Monsieur Renkin, of the Central Section of the Chamber of Representatives in Brussels, made his historic attack upon the Belgian railroads, and the writer of the present article shows that instead of improving, things have gotten even worse since that date. In order to be perfectly fair he chooses the Northern Railroad of France as the nearest to Belgium and the one under the most similar conditions. He shows that the cost of administration in every department has gone up since the state acquired control, that whereas the French railroad is operated for fifty-two per cent. of its receipts, the working of the Belgian railroad absorbs sixty per cent., and this in a country where the population is three times as dense, where iron is considerably cheaper and where the receipts per mile are much higher. He gives endless figures to show that this does not arise from better service, that the trains are much slower and much more unpunctual than over the frontier. He shows that the wages paid in Belgium and the conditions of the employees are not a whit better than in France; and that, in fact, the only people who benefit have been a number of higher officials whose posts did not previously exist, as well as the members of the Chamber of Deputies.

That he is not alone in his contention he shows by quoting from members of all political parties,

including the socialists, one of whom showed that whereas the average speed of the best express trains on the Nord Railway was from 44 to 59 miles per hour, it dropped to 31 as soon as the trains crossed the frontier, in spite of the fact that the levels were much better.

The second installment of this article is continued in the June number of the "*Revue*." In this the writer shows that the one and only excuse for nationalization has been that the workers themselves are better off under the state than under a private company, but his figures show that whatever may be the case in other countries, in Belgium quite the contrary has taken place. The insufficiency of wages paid, which are in many cases as low as 42 cents to 57 cents a day, show this. As the result of a great deal of agitation, the ministry has now fixed the minimum salary at 2 francs 40, or, say, \$3.25 a week, and this in a country where living is none too cheap. Guards get 83 francs, say, \$16 a month, while brakemen start at 53 cents a day. The hours of work are apparently as bad in Belgium, if not worse, than elsewhere; fifteen, sixteen and eighteen hours a day are worked by guards, and the writer shows that frequently the regular allowance of eight hours' rest between the two services is interrupted. In short, neither the taxpayer nor the worker, nor the traveling public appears to derive any advantage from the fact that the Belgian railroads are owned and worked by the state.

#### The Ubiquitous Telegraph Pole.

In these go-ahead days a street pole, or standard, is often made to serve a variety of purposes. A recent photograph in the "*Daily Graphic*," London, Eng., depicts such a pole at Goodmayes, Essex, which is used as ventilating shaft, telegraph pole, signpost, electric light standard, fire alarm, and, in addition, is used by the Urban District Council as a notice-board.

#### A Unique Labor Day Representation.

The telegraphers of Birmingham, Ala., had a float in the civic procession of Labor Day, in which a quadruplex received practical illustration. On the float were two fully equipped quad tables, one representing Chicago and the other Birmingham. Four expert telegraphers manned each table and a chief operator looked after each office. At the Chicago table were J. E. Rowe, chief, and T. J. Garrison, J. J. Montgomery, C. J. Raley and C. A. Power, operators. At the Birmingham end B. F. Shrimpton, chief, and R. C. Jones, A. W. Thompson, W. J. Brannon and L. F. Matthews. An especially prepared Labor Day telegram was repeatedly transmitted over the wire and delivered to spectators along the line of march. Streamers on either side of the float were labeled: "Commercial Telegraphers, Local 26." "Quaded wire, four messages passing simultaneously."

### Some New Tales of the Telegraph.

Reminiscent of the days when, in our innocence, we looked at the telegraph wires in anticipation of seeing the messages going along, is an incident that occurred the other evening in a Newcastle, Eng., postoffice, says St. Martin's Le Grande. A burly fellow in corduroys had handed a message over the counter which the clerk was unable to read. The man became indignant when he was asked to assist in deciphering the writing, and more indignant still when a refusal on his part brought the request to re-write the message. "What business is it of yours," he blurted out, "they'll read it all right at the other end." The patient official, hiding his amusement, gently endeavored to explain that, notwithstanding a natural disinclination to pry into private affairs, it was necessary that he should at least have some knowledge of the words to be wired. He offered to do the writing, but it was an unconvinced and angry man who marched out of the office with the paper gripped tight in his hand, and a not-to-be-taken-in expression on his face. "And this in 1906," murmured one onlooker. Another: Within the last month the father of a deceased depositor was asked for a specimen of his son's handwriting, and he enclosed "the only specimen in my possession." The specimen turned out to be a telegram from his son. This also was in 1906.

We have heard some good jokes recently, says the Telegraph Chronicle, of London, and strange to say, the high postoffice officials do not come out quite as well as the Newcastle laborer. He at least did not claim to know much of telegraphy. The high postoffice officials not only pose as experts, but, unfortunately for the welfare of the public service, they are the administrators of the telegraph department.

Take for instance the surveyor of the S. W. district of England; after referring to the great care with which telegraph instruments are adjusted, he stated with a gusto which at any rate conveyed conviction to his own soul, "It's all a matter of the earth." What the cryptic phrase means no man knoweth—except Mr. Rushton. Also Mr. Gattie, surveyor of the S. E. district, explained that telegraphy was "as easy as writing," but in cross-examination he admitted to two gentlemen that he knew nothing about it. Yet he was supposed to be giving valuable evidence. These incidents took place in 1906.

J. M. Barrie, in one of his stories, tells the tale of one of the members of a debating society in Thrums, giving his obiter dicta upon Burns.

"In my opeenion," said he, "Burns is immoral. I havna read him, but it's ma opeenion." Similarly Mr. Gattie is paid a huge salary to administer the telegraph service. In his opinion telegraphy is easy work: he does not know, but it is his "opeenion."

Another fine story and also a true one: Some distinguished visitors were being shown over the Central telegraph office, London, by an official from the secretary's office. He was anxious to shine, and his misuse of terminology was wonderful to listen to. At length he came to where the Dublin circuits were.

"Here you see," said he, "we are working to Ireland." The clerk was doing nothing at the moment so the big Postal gun said, "Have you Earth." "I beg pardon," responded the operator. "I don't understand."

The secretary's man smiled, a pitying smile. Of course, a mere telegraphist, without the necessary brains to be a clerk, could not rise to his immense height.

The order came: 'Ask those at Dublin if they have earth.'

Our man gasped, clutched the key and jerked out. "Here's a great official from the Secretary's department showing friends round wants to know if you have earth." The Irishman objected to being laughed at, and quickly replied: "Are you mad? What the deuce do you mean?"

The big gun heard the sounder click, but fortunately, did not understand a letter of the Morse code.

"He says yes, he's got earth," the Londoner blandly informed the sightseers.

"Ah," said the big gun, "that's right, now you can work." and turning to his admiring friends he explained "If they hadn't got earth they could never have worked the machine."

It is quite possible the hero of this incident assisted in compiling the evidence of the departmental witnesses before the Hobhouse inquiry.

### Metric Signs.

The French minister of public instruction has decided that all teachers throughout France are in future to employ the following distinctive abbreviations for the various weights and measures: For denoting length—myriametre, Mm.; kilometre, Km; hectometre, Hm; decametre, dam; metre, m; decimetre, dm; centimetre, Cm, and millimetre, mm. For areas—hectare, ha; are, a, and centiare, ca or m2. For measures of bulk (timber), decastere, das; stere, s or m3, and decistere, ds. For measures of mass and weight—tonne, t; quintal metrique, q; kilogramme, kg; hectogramme, hg; decagramme, dag; gramme, g; decigramme, dg; centigramme, cg, and milligramme, mg. For measures of capacity—kilolitre, kl; hectolitre, hl; decalitre, dal; litre l; decilitre, dl; centilitre, cl, and millilitre, ml. The use of the capital letters for the three largest denominations of length are intended to prevent confusion, and all the other abbreviations follow on uniform lines. The employment of full stops between the letters is officially abolished, and k. g. for kilogramme and m. m. for millimetre disappear.

### Farmer Lawton Tells How Old-Time Operators Fought Indians.

"Things ain't like they used to was, and no one notices it more than we telegraphers," remarked "Old Farmer" Lawton of the Western Union Telegraph Company, at Denver, Col., according to the "Republican" of that city. When asked what he had reference to, the "Old Farmer" drew the same old linen duster he has worn in the Denver office for the past thirty-five years up around his anatomy, as much as to say, "We are not suffering with the heat here in Denver, even if our Eastern friends are complaining." Then, taking a few puffs from the same brand of stogies he has been smoking for the past quarter of a century, continued:

"Some thirty odd years ago I was working in the superintendent's office in Topeka for the Santa Fe when that road was being extended through western Kansas and into Colorado. Charley Dyer, who afterwards became Western superintendent for the road, was the operator at the front, the wires being strung in advance along with the graders in order to protect them from the Indians, who were ugly at that time. Late one afternoon about the time the graders reached the Colorado line, and Colorado soil was flying in all directions from shovels in the hands of three hundred graders, a large body of Indians swooped down upon them.

"The graders, headed by young Dyer, then a mere boy, having just returned from the war, where he had served through the civil strife as a drummer boy, dropped their shovels and picked up their carbines that were furnished them by the railroad company. A hard skirmish followed, but the Indians were too strong, and, being well mounted, were fast picking off the plucky graders as they circled around them, and with darkness rapidly approaching, it meant annihilation of the three hundred graders. At this juncture young Dyer, who had lost his telegraph instruments in the running fight, made himself still a better target for the redskins by climbing a pole and cutting the wire. Then by touching the two ends together he very coolly spelled out the words, "Indians, Indians, Indians. Help." Then he dropped to the ground and continued to pump lead into the red devils just as cool as he was in assisting to carry the wounded from the battlefield of Pittsburg Landing and other noted battles he took part in.

"His signal of distress was caught by the quick ear of Mr. W. F. Drake, the Western Union's present manager at Pueblo, Col., but then an operator for the Santa Fe at Newton, Kan. Mr. Drake immediately notified the commanding officer at Fort Dodge, Kan., where several companies of regulars were stationed, who boarded a special train and reached the graders' camp just as the Indians were closing in on them for the final blow, and saving the lives of those that had not already been killed in the engagement.

"Five or six years ago when Castlewood dam was expected to go out any minute the operator at Parker's station sat right at his key for fifty-two consecutive hours without a wink of sleep, in order to flash a warning to Denver people in case the dam gave way, knowing the wires would go with the flood five or ten minutes later, and the good people of this city living near Cherry creek had faith in that operator, knowing well that his warning would reach them in time for them to remove their families out of the path of the anticipated flood, and all remained in their homes during those anxious hours.

"The Hon. M. J. Bartley, a prominent attorney of this state, was manager of the telegraph office at Fairplay in 1879. He received a tip from one of the operators down in South park that Chief Piah and his renegade Utes were heading for the county seat of Park county, where many people still lived that had not yet been scalped. Bartley gave the warning. The people had confidence in him and all gathered at the court house, where the men folk could have protected their families against five times the Utes' force. Piah's advance runners took in the situation, and the band changed their course over into Middle park, where they contented themselves by making their annual raid upon the few scattering and unprotected ranchers.

"Put, as I said before, times are different now. As an illustration, everybody knows that bears and other wild animals are still very plentiful up along where the new Moffat road runs. The other morning after we were cleared up and '30' sent on the different circuits, I must have been dozing and also dreaming, for I distinctly heard my old friend H. W. Plum, agent for that road at Corona, the highest railroad station in the world, away up there most 12,000 feet on the continental divide, calling for assistance. It so impressed me that I stepped over to his wire and gave him several calls, but received no response. As dreams are sometimes true, I concluded I would see if there was really any protection to the employes of the company stationed at some of the lonely depots. I again cut in on the wire and wrote out very plainly, 'Bears, Bears, Bears. Help,' spelling all words with a capital and repeated several times, but the only response I received was from some operator along the line whom I had evidently awakened, who said, 'Come, old man, get out and let a fellow sleep in peace.'

"Now, sir, it would not surprise me at all if some morning you pick up the papers and read under flaring headlines of how Rocky Mountain grizzlies are increasing their weight at the expense of Moffat railroad agents and operators, and all because operators are not as quick to go to each other's assistance as they were thirty or forty years ago."

Then the "Old Farmer" let up again and said it was time for him to get busy.



### Discovery of the Mariner's Compass.

We are indebted to a magazine published about seventy years ago for the following paragraph: "Much interest must forever attach to the discovery of this instrument, and yet there are few subjects concerning which less is known. For a period the honor of the invention was ascribed to Gioia, a pilot or ship captain born at Pasitano, a small village situated near Malphi, or Amalfi, about the end of the thirteenth century. His claims, however, have been disputed. According to some, he did not invent, but improved it, and according to others he did neither. Much learning and labor have been bestowed upon the subject of the discovery. It has been maintained by one class that even the Phoenicians were the inventors; by another that the Greeks and Romans had a knowledge of it. Such notions, however, have been completely refuted. One passage, nevertheless, of a very remarkable character occurs in the work of Cardinal de Vitty, bishop of Ptolemais, in Syria. He went to Palestine during the fourth crusade, about the year 1204; he returned afterward to Europe, and subsequently went back to the Holy Land, where he wrote his work entitled 'Historia Orientalis,' as nearly as can be determined, between the years 1215 and 1220. In chapter xci. of that work he has this singular passage: 'The iron needle, after contact with the loadstone, constantly turns to the north star, which, as the axis of the firmament, remains immovable, while the others revolve; and hence it is essentially necessary to those navigating on the ocean.' These words are as explicit as they are extraordinary; they state a fact and announce a use. The thing, therefore, which essentially constitutes the compass must have been known long before the birth of Gioia. In addition to this fact, there is another equally fatal to his claims as the original discoverer. It is now settled beyond a doubt that the Chinese were acquainted with the compass long before the Europeans. It is certain that there are allusions to the magnetic needle in the traditional period of Chinese history, about 2,600 years before Christ; and a still more credible account of it is found in the reign of Chingwang, of the Chow dynasty, before Christ 1114. All this, however, may be granted, without in the least impairing the just claims of Gioia to the gratitude of mankind. The truth appears to be this: the position of Gioia in relation to the compass was precisely that of Watt in relation to the steam engine—the element existed, he augmented its utility. The compass used by the mariners in the Mediterranean during the twelfth and thirteenth centuries was a very uncertain and unsatisfactory apparatus. It consisted only of a magnetic needle floating in a vase or basin by means of two straws on a bit of cork supporting it on the surface of the water. The compass used by the Arabians in the thirteenth century was an instrument of exactly the same description. Now, the inconvenience and inefficiency of such an apparatus are obvious; the agitation of the ocean, and the tossing of the vessel, might render it useless in a

moment. But Gioia placed the magnetized needle on a pivot, which permits it to turn to all sides with facility. Afterward it was attached to a card, divided into thirty-two points, called Rose de Vents, and then the box containing it was suspended in such a manner that, however the vessel might be tossed, it would always remain horizontal. The result of an investigation participated by men of various nations, and possessing the highest degree of competency, may thus be stated. The discovery of the directive virtue of the magnet was made anterior to the time of Gioia. Before that period navigators, both in the Mediterranean and Indian seas, employed the magnetic needle, but Gioia, by his valuable improvement in the principle of suspension, is fully entitled to the honor of being considered the real inventor, in Europe, of the compass as it now exists.—Electrical Engineer, London.

### A Question of Nerve or Nerves.

All things are more or less hard to do, and work only will do them. Get a right idea of work. Don't trust to cleverness. It is worthy, but it will not do your work. Accomplishment demands singleness of purpose and concentration. All exterior forces tend to diversion from these essentials. Here you come in again to show your triumph of personality over environment. No matter what you do, from the humblest incidental thing of the moment to the consummation of your greatest ambition, the same principles of human activity apply. All will be clear sailing until you meet resistance, and sometimes you will run against it hard. Then you will find whether you have nerve or nerves. No one can help you much. Your measure is being taken, and you win or lose upon the cumulative ability which you can muster as the total assemblage of native talent and all that has become a part of you through all the influences that ever entered your life. See to it that they all shape one way. You will meet some disappointment through your own faults and some because the world is not exactly just, but whoever gets approximate justice in the world is doing very well. The perfectionist has a hard time. He meets continual disappointment, especially if he is chiefly worried about the imperfections of others.—From address delivered to the class of '06 of Staten Island Academy by Walter Craig Kerr, president of Westinghouse, Church, Kerr & Co.

The opposition on the part of local authorities to the use of overhead wires by the Post Office authorities in England, continues to give trouble. Recently, at Woolwich and Stoke Newington, cases were decided in favor of the Postmaster-General, and at Kingston-on-Thames a settlement was made whereby the Postmaster-General agreed to put the wires underground when they exceeded thirty-two in number on one line of poles.

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### Decision of Importance to Telegraphers.

Frank Young, of the Louisville and Nashville Railroad, was discharged August 31, at Montgomery, Ala., by Commissioner John A. Elmore, at his hearing on the charge that he had violated the law of the United States in refusing to hire members of the Order of Railway Telegraphers until they had repudiated the order. Commissioner Elmore held that the law was in conflict with the Constitution of the United States. It is possible that the test of the law will be carried to a higher court.

The charge made against Mr. Young was that on hiring B. A. Nesmith as a telegraph operator, Mr. Young required of him that he sign a written agreement not to become a member of the Order of Railway Telegraphers. This was declared by the plaintiff in this case, the United States, to be in violation of the act approved June 1, 1898, which seeks to forbid the making of any condition as necessary to the employment of anyone by common carriers acting under the direction of the Interstate Commerce Commission.

It was in effect argued by the attorney of the United States, that Mr. Young had been guilty of blacklisting, that he was dictating the conditions under which a man could be employed in the service of the Louisville and Nashville Railroad, and dictating in violation of an act of Congress.

Commissioner Elmore declined to accept this view of the case. He held that the act under which the charge was brought, was unconstitutional. It was his opinion that in the passage of the law, Congress invaded the rights accorded the individual under the Constitution. Mr. Young was, therefore, discharged.

The opinion of the Commissioner in part follows:

"The defendant herein is charged with having violated Section 10 of an act concerning common carriers engaged in interstate commerce, and their employees, in this:

"That the said Frank Young, agent as aforesaid of said Louisville and Nashville Railroad Company, on the 26th day of May, 1906, in the County of Montgomery, in the Middle District of Alabama, did require one B. A. Nesmith, a telegraph operator, who was seeking employment as a railroad telegrapher, whose duty is the handling of train orders by wire, and who is a person employed and actually engaged in train operation, or train service, over said Louisville and Nashville Railroad Company, as condition of the employment of the said B. A. Nesmith, by the said Louisville and Nashville Railroad Company, to enter into a written agreement not to become a member of the Order of Railway Telegraphers, a labor corporation, contrary to the form of the statute in such case made and provided in violation of Section 10 of the arbitration act of June 10, 1898, and against the peace and dignity of the United States.

"Defendant has demurred to the affidavit upon which this prosecution is based, and has assigned numerous grounds therefor. However, that to which the attention of this court is specifically invited is the one which raises the constitutionality of said act. The Commissioner is of the opinion that a decision upon this demurrer controls the whole, and, therefore, will take up that question.

"The fifth amendment to the Constitution of the United States provides: 'No person shall be deprived of life, liberty or property, without due process of law.' Section 8, subdivision 3, of the Constitution, provides that "The Congress shall have the power to regulate commerce with foreign nations and among the several states, and with the Indian tribes.' This certainly gives the Congress power to regulate commerce among the several states; but does it give Congress the power to prescribe the character of contracts between common carriers and employees? The fifth amendment to the Constitution, we have seen, guarantees that 'No person shall be deprived of life, liberty or property, without due process of law.' Does the right to contract by a common carrier with an employee come within the scope of this amendment? These terms, 'Life, liberty and property' are representative terms, and govern every right to which a member of the body politic is entitled under the law, within their comprehensive scope are embraced: the right of self-defense, freedom of speech, religious and political freedom, exemption from arbitrary arrest, the right to buy and sell as others may—all our liberties, personal, civil and political—in short, all that makes life worth living; and of none of these liberties can any one be deprived except by due process of law.—2 Story Con. Lim. 5 Ed. Sec. 1950.

"It seems, therefore, that the power to contract between common carriers and employees comes within the meaning of this amendment. The law of the land and due process of law is defined by Mr. Webster in the famous Dartmouth College case to be 'By the law of the land is most clearly intended the general law, a law which hears before it condemns, which proceeds upon inquiry and renders judgment only after trial. The meaning is that every citizen shall hold his life, liberty, property and immunities under the protection of the general rules which govern society. Everything which may pass under the form of an enactment is not therefore to be considered the law of the land'—(Cooley's Con. Lim. 6 Ed. 431.)—After all, Congress is but the agent of the people authorized to pass laws in conformity with the Constitution, and whenever any law is passed which does not conform therewith, or is repugnant thereto, that law is void.

"I recognize the rule as before stated, that in testing the validity of an act of Congress, that courts shall be careful in their construction against its validity, and not declare an act void

unless there clearly appears an invasion of some constitutional guarantees. I have, therefore, been slow to make up my mind upon this question, but after an examination of the authorities, I find that nowhere is the right to make contracts prohibited or abridged unless it be against public policy or against the general welfare, etc.

"It is further contended that Congress invaded the rights under the Fifth Amendment of the Constitution when it prohibits an employer from entering into a contract with an employee not to join a labor organization, association, etc. It seems that an individual has a right to employ whomsoever he desires, or refuse to employ one whom he does not desire, and should not be compelled to give any reason for so doing.

"The law looks upon the acts of corporations as they do those of an individual; and, in that connection a person seeking employment may have interests antagonistic to his employer, it certainly would seem a hardship that Congress could pass a law compelling an employer to give employment to one so situated. If that were so Congress could also compel an employee to labor, against his will, for an employer against whom he had a grievance. It is contended, however, that since Congress has the power 'to regulate commerce between the states' that it has the power to make rules governing the details of such regulation. I do not think the Constitution intended to give Congress this power, for if it did it could say what certain kinds of telegraphic instrument should be used by a common carrier. I could say that common carriers should employ negro labor exclusively, or Chinese labor exclusively, or labor which believed only in certain religious doctrines, the rights guaranteed by the Constitution in passing this law, I am therefore constrained to declare the same invalid.

"The authorities as cited by the United States Attorney do not bear directly upon the case at bar.

"The demurrer to Section 10 of said act is hereby sustained, and the defendant discharged."

#### General Mention.

Mr. R. M. Ross, of Detroit, Mich., an old-time telegrapher, in a recent letter says thus pleasantly: "TELEGRAPH AGE is always a welcome visitor to gladden the hearts of old timers."

Mr. A. M. Livingston, a well-known southern telegrapher, who resigned the position of chief operator of the Western Union office at Birmingham, Ala., some months ago to enter the real estate field, is reported to be making a success of his new venture.

Mr. G. B. Elmore, manager of the Western Union Telegraph Company, Paducah, Ky., has this to say about TELEGRAPH AGE: "I have derived great benefit from reading the columns of TELEGRAPH AGE, and think that the names of

all connected with the telegraph fraternity, for their own good, should be on your subscription list."

Mr. W. A. Sheppard, manager Postal Telegraph-Cable Company, Montgomery, Ala., in ordering a renewal of his paper, says: "I find it easy to get the habit of watching for each issue to come around. The paper would be greatly missed if it failed to show up, as it always contains something that is of interest in all branches of the profession."

The latest whim of city councils is to pass ordinances compelling telegraph companies to paint their poles. The idea is a good one if the municipalities would only agree upon a uniform color. But when one council decrees that telegraph poles must be painted white, another that green should be the tint, and still another that a red hue be adopted, the situation becomes a trifle mixed, not to say ludicrous.

Mr. T. A. Edison has not only put a new cement on the market but takes a strong interest in cement construction. He says that new houses in the near future will largely be built of concrete. "The first step will be to employ an architect to design, say, a dozen dwelling houses of different patterns. I purpose to have metallic moulds made to correspond. The mould for each house will be made in detachable parts. There will be separate plates and small moulds that can be screwed together easily to form one mould for an entire house. That a fine finish may be obtained, the inside surface of the parts will be nickel plated. After the mould for the whole house is set up it will be a simple matter to pump the concrete into every nook and cranny. After four days the parts of the mould will be unscrewed and taken off and the solid concrete house will remain."

The German Postal and Telegraph Department has recently published statistics collected during a period of fifty-two years on the life of wooden poles impregnated with different preservative substances. The number of poles under observation amount to nearly three millions, and the following are the average results obtained:

POLES IMPREGNATED WITH—	LENGTH OF LIFE.
Sulphate of copper.....	11.7 years.
Corrosive sublimate .....	13.7 years.
Creosote .....	20.6 years.
Un-impregnated .....	7.7 years.

The manner of preparing the poles has been improved from time to time, and this is clearly shown in a further table giving the average length of life of the poles under different methods of treatment with each preservative at different periods. For example, in 1883, with sulphate of copper the average life was 9.4 years, while in 1903 the method of treatment had been improved so that an average life of 13.3 years could be obtained—London Electrical Review.

### The Murray Automatic Page-Printing Telegraph —Its History and its Progress.

The Murray automatic system is now working between London and Edinburgh, Berlin and Hamburg, St. Petersburg and Moscow, and sets are being made for London-Dublin, Bombay-Calcutta (1,200 miles) and Vienna-Prague. The inventor, Donald Murray, is a New Zealander by birth, and evolved his system in Sydney, Australia, while engaged in newspaper work.

The story of the development of the Murray printing telegraph is rather curious. Most printing telegraphs have been exploited by companies, which have almost invariably lost money, often heavily. The Murray system, on the other hand, like a good mine, has paid for its own development. Mr. Murray constructed a working model of this and brought it from Sydney to New York in 1899 to have it patented, and to have it taken up by one of the typesetting machine companies, the idea at the back of the invention at that time being the construction of an automatic typesetter, something like the Monotype, but with telegraphic possibilities. When the model was unpacked in New York it was found to have been wrecked by careless handling in transit, and inquiry showed that there was no field worth troubling about for automatic typesetting on the lines proposed. An unknown journalist in a strange city with a smashed-up model of an invention that nobody wanted was hardly the sort of combination to win success on lower Broadway. But the model was patched up, and after the necessary patents had been taken out, it was exhibited at the Astor House. The novelty of the thing attracted attention, and although there was no field for it as an automatic typesetter, its telegraphic possibilities attracted the notice of officials of the Postal Telegraph-Cable Company, and the inventor was engaged by the company to develop it as a printing telegraph. After two years' work with the Postal company it had grown almost out of recognition and had evolved into the "Murray Automatic Page-Printing Telegraph System," and was able to transmit and print messages in page form at the rate of one hundred words a minute. "The Baby," as friends jokingly called the system, was then brought by the inventor to London, where it was taken up by the British postoffice. The infant, however, was still very delicate and required most careful nursing. After a year in London a circuit equipped with the system between London and Edinburgh was started on regular telegraph traffic. It was then exhibited in Berlin, and the German government had a set constructed to work between Emden and Berlin. What the German telegraph engineers described as "Kinderkrankheiten" or ailments of childhood were, however, so numerous that both in England and Germany the system led a very precarious existence for a couple of years, and a long series of radical improvements had to

be made before it could really be described as a success. In fact, it is only with the last twelve months that all weaknesses have been at length declared eliminated. An obstacle that has delayed progress has been the difficulty of adapting the system to meet the varied requirements of different telegraph administrations. Rival systems have also made telegraph administrations slow in coming to a decision. These obstacles, however, it is said, are now disappearing, and the Murray automatic system has proved itself to be without a rival in Europe for its own special work, namely, for long telegraph lines, underground cables, and press messages.

The Murray system in the form that it has reached in its final development consists of a group of machines at each end of a telegraph line. Several operators working on perforating machines with keyboards like typewriters prepare the messages for transmission in the form of holes punched in a narrow paper tape. The paper tapes with the messages recorded on them in this way, are then run through an automatic transmitter, a small machine which sends over the telegraph line signals corresponding with the holes in the paper tape. These signals are transmitted over the line at a speed sufficiently high to permit the transmission of the messages punched by several operators over one telegraph line. At the receiving station an electrical perforating mechanism under the control of the transmitted signals makes an exact reproduction of the transmitting tape. This received tape then runs into the automatic typewriter or "printer," which prints the messages in ordinary typewriting in page form under the control of the perforated receiving tape somewhat after the fashion of a mechanical piano. The speed of the printer is now very high, not less than one hundred and fifty words (nine hundred letters) a minute, but practical considerations of durability and maintenance of the typewriter limit the speed at present to about one hundred or one hundred and twenty words a minute. The limit of speed in transmission of the signals over the line is in the receiving perforator which reproduces the tape at the distant station. With the improved machinery now in use it has recently been found possible to punch the received tape faultlessly at the rate of one hundred and eighty-four words (one thousand, one hundred and four letters) per minute. At this speed no less than ninety-two holes per second have to be punched in the paper tape successively by a single punch. A similar group of machines in the reverse order are required for transmitting messages in the opposite direction on the same wire at the same time. It was a model of the printer, at that time in a very crude form, that Mr. Murray brought with him from Sydney to New York in 1899. In New York the electrical portion of the system for perforating the tape, transmitting the signals and perforating the received tape, was evolved. At



that time the printer appeared to be a sort of cross between a sewing machine and a barrel organ. An operator had to work the printer by turning a handle, and the machine was variously known as "Murray's coffee mill," and "the Australian sausage machine," but more frequently as "the Baby." In London the printer was very greatly improved. An electric motor to drive it was provided, and all the actions were made automatic, the machine stopping at the end of each line, running the typewriter carriage back, turning up to a new line, and starting again, and finally stopping at the end of each message, all under the control of the perforations in the paper tape. A very necessary improvement was a method of invisible correction of errors in the transmitting tape. With the system in its now perfected form, if an operator on one of the keyboard perforators at the sending station strikes a wrong key or perforates a wrong word, all he or she has to do is to press a back-spacing lever and a "rub-out" key once for each wrong letter. This action punches the erroneous portion of the tape full of holes so as to obliterate the wrong letter or letters. This obliteration is reproduced in the receiving tape at the distant station, but the printer is so arranged that it stops work for the moment during which the obliterated portion of the tape is passing through it. The result is that no trace of the error, not even a blank space, appears in the printed message.

The system has been in steady commercial use for about three years between London and Edinburgh, and a circuit is now being equipped with Murray apparatus between London and Dublin. For about eighteen months it has been working between Hamburg and Berlin. An installation of the apparatus for Calcutta Bombay (1,200 miles) is now approaching completion, and arrangements are being made for a staff of Murray experts to go out to India to install the system. A set is nearly finished for working between Vienna and Prague, and arrangements are also being made for manufacturing Murray apparatus to equip several other circuits.

It may be mentioned that Mr. Murray has been engaged by the British postoffice for a term of years to invent and develop some new printing telegraphs to suit special conditions.—Scientific American.

#### Cement Bases for Wooden Telegraph Poles.

Up to date, wooden telegraph poles remain in most countries the cheapest in first cost and in many respects as desirable as any. The question of durability, however, has been a sore point to those in charge of equipment and maintenance. All sorts of preservative solutions and all kinds of treatment therewith—pressure, vacuum, a combination of the two, etc., have been tried, but the wooden mast still remains more perishable than the iron, and its renewal means an expensive piece of work, outside of

the cost of the pole itself. Happily, however, a new idea has been evolved from the depths of someone's moral consciousness or the heights of his inventive faculties, and according to which not only new wooden poles may be made more durable, but those which are already rotten at the base may be utilized to advantage and given a longer second life than the first. What is particularly gratifying to telegraph and telephone companies is the fact that this process is not patented, and from the point of view of first cost not too burdensome.

The process consists in mounting the pole in a socket of cement beton, with which, however, it does not come in direct contact. When we say "in a socket" we err in the matter of technical accuracy; for in the later forms of mounting there is a space between the foot of the wooden pole and the top of the cement base. The pole is attached to the base by four iron splice-plates or fish-plates. The cement base stands eight to ten inches above the ground level, and is a prism of the same diameter as the pole which it has to carry. On account of the severe leverage tending to break it off, it is strengthened with iron in the well-known manner of Monier or Coignet. The attachment of a wooden pole to such a foot takes only about twenty minutes; and the same is true in the matter of replacing one pole by another. To put a cement base on an old pole with a rotten foot the latter is sawed off about eight to ten inches above the ground and without removing the wires lifted a couple of feet away and leaned to one side; the old rotten foot is then removed, the hole somewhat enlarged, the ready-prepared cement stump or base is set in the hole and well rammed in and the old pole then attached to the cement base by the fish-plates, leaving, say, two inches between the two. The life of a pole thus mounted is reckoned at sixteen years. As regards the resistance of the cement base to breakages—that has been settled beyond question by the simple means of attaching a rope to the top of several poles and pulling horizontally thereon until something gave way. That "something" was in every case the wooden pole, and the break took place in every instance just where it was expected, namely, right above the cement base, or rather the fish-plate.

The bases are molded in a plain prismatic box, well rammed in, and left two or three days in the mold to set; they are then firm enough to handle without danger of injury. The bases are left to dry another week after removing them from the mold.—Scientific American.

It is in contemplation to organize a field telegraph section in connection with the Ottawa, Ont., garrison. The total establishment will consist of fifty-four men of all ranks, and twenty-seven horses. It is expected to have the cooperation of the Canadian Pacific and Great North Western telegraph companies interested in the scheme, as the staffs will be invited to join the corps.

### The Associated Press.

(From the Service Bulletin.)

Mr. E. F. Lefevre has been correspondent of The Associated Press at Panama for a number of years. He distinguished himself in newspaper work in America before going to the Isthmus. He is Minister of Telegraphs under the Republic of Panama. His brother, Edwin Lefevre, is well known as a magazine writer, having achieved fame as the author of a series of Wall Street stories.

Mr. Claude Powell, day chief operator of The Associated Press, at Chicago, has been compelled temporarily to relinquish his position on account of serious trouble with his eyes. He is now on the family farm at Burlington, Kansas. Reports from there bring information of improvement, but it will be some time before Mr. Powell can resume work. Mr. Powell is one of the oldest and most efficient operators in the service, and a great deal of sympathy is expressed over his condition.

The staff of the Philadelphia office of The Associated Press presented on August 5 a silver loving cup to Samuel H. Jones, night manager, who recently retired in order to devote his time to the Athletic Baseball Club, of which organization he is a stockholder. The ceremony took place at a dinner served at the Pen and Pencil Club. W. A. Connor, superintendent of The Associated Press service in Philadelphia, made the presentation speech. Among those present were E. C. Abrams, J. H. Reitingier, J. S. McGlynn, S. R. Long, L. D. Chafee, J. F. Donnelly, J. J. Belzer, P. A. Weadon, J. A. McLeod, J. H. McGrorty, J. C. Dunn and E. L. Heilman. Mr. Jones entered the press association service in February, 1877, during the Tilden-Hayes controversy, at the instance of the late William G. Jones, his brother, who was at that time manager of the Philadelphia office of the New York Associated Press. His first work was to transcribe with a stylus much of the matter relating to the Tilden-Hayes contest which was carried for the New York Associated Press by the telegraph companies. Typewriters then were not in general use and The Associated Press' one leased wire between Washington and New York could not carry the great volume of news of that famous affair. Later Mr. Jones became the night reporter, and was night editor when he resigned in the early part of 1892 to go with The United Press. He remained with The United Press as a night editor in New York and then as day editor in Philadelphia until 1897, when that organization gave up the fight against The Associated Press. Mr. Jones then became connected with the latter association as day reporter, and eventually took charge of the office at night.

The Baudot system of telegraphy was tried between Madras and Bombay, India, on July 7, and most successful results were obtained.

### Death of Edward Rosewater.

Edward Rosewater, editor and proprietor of "The Omaha Bee," Omaha, Neb., and prominently identified with the political, financial and business affairs of that city and state died suddenly of heart failure August 30.

Mr. Rosewater was emphatically what may be termed a self-made man. Graduating from the telegraph service he reached a high position in journalism, in which profession he attained a national reputation. Born in Germany, January 28, 1841, and coming to this country in 1854, he began his telegraph career at Cincinnati in 1858. His quick intelligence and abilities as a telegrapher, speedily secured his advancement. In the spring of 1861 he was employed at Nashville, Tenn., a position he continued to hold until that city was surrendered to Gen. Buell, of the Union army. Young Rosewater promptly tendered his services as an operator to Col. Thomas A. Scott, then assistant Secretary of War, and shortly thereafter became a duly enlisted member of the United States Military Telegraph Corps, at Wheeling, W. Va., afterward accompanying Gen. John C. Fremont throughout his West Virginia campaign. He saw service in the Washington navy yard, subsequently serving on the staff of Gen. John Pope. At the second battle of Bull Run, covering three days, he transmitted all of the General's despatches from the field of battle. On September 1, 1862, he was assigned to duty in the War Department. Resigning from the military telegraph service in the fall of 1863, he went to Omaha, where for seven years he was manager, first of the Pacific Telegraph Company, and then of the Western Union Telegraph Company. It was on June 19, 1871, that he founded "The Omaha Bee." His interest in public affairs at once developed. He was an active candidate for United States Senator in 1901, and again in 1906, but was defeated both times. He always retained his interest in telegraphy and was a member of various telegraphic bodies. He was vice-president of the United States Military Telegraph Corps during one term, and had been a member of the congressional committee of that society ever since its organization. He was president of the Old Time Telegraphers' Association in 1892.

#### OBITUARY NOTE.

Ray French, aged twenty-eight years, manager of the Western Union Telegraph Company at Fostoria, O., for the last ten years, died August 27 after an illness of a year and a half.

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

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

**LETTERS FROM OUR CORRESPONDENTS.**

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

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

**RICHMOND, VA., WESTERN UNION.**

A general overhauling of the wires in this district is in progress, especially on the line between Richmond and Washington, which is being entirely rebuilt. A small army of linemen is on this latter piece of work and their efforts coupled with frequent thunder and lightning storms relieve the wire-chiefs of any monotony. The two most important routes south, the Seaboard and Southern, are also undergoing extensive repairs. The new lines are splendid examples of up-to-date telegraph construction.

H. H. Cramer, for two years our night wire chief, has resigned to become postmaster at Ashland, Va. He will be succeeded by T. B. Maher, of this office.

Miss Lilly Hutton, of the Commercial News Department; Miss Annie Kuyk and Miss Florence Owens are spending a week at Harrisonburg, Va., Miss Nettie Perry, manager, at Kinston, N. C., is filling Miss Owens' place.

Mr. J. E. Hall has just returned from a two-months' trip to England.

We notice a marked increase in the number of automatic transmitters being used by operators here and in other offices. They seem to give perfect satisfaction.

Among new arrivals are: E. C. Hardison, W. P. Buckley, W. B. Keister, W. B. Shackleton, E. M. Doyle, J. K. Edwards, G. K. Browning, C. L. Miller, J. F. Blount, P. R. Anderson, S. V. Moody, J. A. Farlev, H. O. Bannister, M. Bickers, J. M. Johnston, H. A. Pugh and Miss Rose Goshen.

The inauguration of bell systems between the principal repeater stations in this division has proven most helpful in testing. They are worked for the most part on the common sides of quads.

The manager of one of our North Carolina offices when told recently that a wire had been open in his office, replied that "It couldn't possibly have been here because I had all the plugs out of my board." It afterward developed that when we went home he took with him all the plugs in his switchboard.

**PHILADELPHIA, WESTERN UNION.**

Mr. J. C. Strickland, of the Record, Western Union office, and V. G. Hudgins, manager for the company's office in the produce district, have the

sympathy of many friends in the death of their respective fathers.

The death recently of the wife of Superintendent C. M. Lewis, of the Philadelphia, Reading and Pottsville Telegraph Company, is an especially sad event, as it marks the third bereavement that has befallen Mr. Lewis within the past two or three years, the first being the death of his daughter and the second that of his son.

Miss Mary McLaughlin, an operator well and favorably known to the older employees here, died several weeks ago from an incurable disease from which she suffered for the last six or seven years.

W. E. Wineland, a well-known employee of this office, is seriously ill.

W. S. Hess, of the Pennsylvania Railroad Company, Harrisburg, was a recent visitor.

Manager Richards, of Carlisle, Pa. and his sisters, Mrs. Bedford and Miss Richards, the latter his able assistant, spent a portion of their vacation at Atlantic City, N. J.

Recent arrivals are: Jos. Hallman, of the American District Telegraph Company, this city; Frank McCaulley, formerly manager at Chambersburg, Pa.; J. C. Landon, New York; H. M. Bennett, H. Hill, W. H. Biddle and J. E. Dunne from the Postal Telegraph-Cable Company, this city, and H. A. Leavitt, who was with us several years ago.

The resignations are Messrs. McIntyre, Kloepfer, Ramson and Lerner.

John Rowles, a promising young operator, brother of Ralph Rowles, is now successfully looking after this company's interests at Fortieth street and Gerard avenue, vice Mabel Clark, transferred to the main office.

Mr. Joseph Mullin has had a vacation of one month, during which time W. J. Seymour substituted for him.

**NEW YORK, WESTERN UNION.**

Mr. M. W. Jones, formerly with the Long Island Railroad, and late of this office, has resigned to accept a position as train despatcher with the Panama Railroad, and has sailed for the Isthmus.

Traffic Chief A. M. Lewis of this office, qualified at Creedmoor range last week as marksman and sharpshooter of the Twenty-second Regiment engineers. At present Mr. Lewis is absent on his vacation.

Miss Lynch, city wire chief, and Mr. J. L. Laidlaw, Erie traffic chief, have both returned from their vacations.

Miss Nora Conklin is spending her vacation in the Catskill mountains.

Miss Julia Gillman, formerly of this department, daughter of Andrew J. Gillman, was married to Mr. John Hannigan, of the New York Fire Department, on Monday evening, September 3. After the ceremony a reception was held

at the home of the bride's parents. A large number of friends from this office were present, and lots of rice and good wishes followed the young couple as they started on their honeymoon for Lake George, N. Y. Mr. Gillman, the father of the bride, has been a prominent figure in the operating room during the past thirty years.

Mrs. Nance, wife of James H. Nance, and daughter of Division Chief Conrad A. Meyer, died Thursday, September 8, at Easton, Pa., where she had gone to visit relatives but five days previous, apparently in the best of health. Appendicitis developed late Wednesday night, and an immediate operation was deemed necessary. Mrs. Nance was removed to the hospital and died while undergoing the operation. Prior to her marriage Mrs. Nance was employed here and was a great favorite. The expressions of profound sympathy for the bereaved husband and parents were most marked, and the floral tributes from the office, friends and organizations of which her husband and father were members, were handsome and numerous. The funeral services were held on Sunday, the 10th inst.

#### NEW YORK, POSTAL.

Robert C. Low, quadruplex chief of Pittsburg, Pa., was a recent visitor. He was greatly interested in the up-to-date equipment of this office.

This company now has pneumatic tubes in operation to the cable office, 20 Broad street; to the Cotton and the Produce exchanges. Mr. W. H. Kelly is in charge of the tubes at the main office. A large volume of business passes through these tubes.

Manager F. F. Norton has returned from his vacation.

Mr. Geo. H. Wiser is also back from his vacation.

Messrs. P. E. Kries and S. H. Eaton have resigned.

Among recent arrivals are W. W. Wilson, Paul C. Lacey, W. T. Shaw, H. Johnson, W. D. Howard, Joseph Lane, C. H. Waggener, F. X. Duenwald, P. Schwartz, T. A. Tarvin and F. E. Robinson.

Mr. Walter S. L. Cleverdon, son of John F. Cleverdon, of the electrical engineers' office was married September 1 to Miss Jessie Eylmer Thomson, of New York.

"Pocket Edition of Diagrams," etc., the latest revised edition, 334 pages and 160 illustrations, published by TELEGRAPH AGE, contains just the information every telegrapher requires, irrespective of his position.

Orders for books on telegraphy, wireless telegraphy, telephony, all electrical subjects, and for cable codes, will be filled by TELEGRAPH AGE on the day of receipt.

#### Bond Issue by the Western Union Telegraph Company; Quarterly Statement.

The Western Union Telegraph Company issued to its stockholders September 12 a call for a special meeting on October 10, to authorize an issue of \$25,000,000 thirty-year 4 per cent. convertible bonds. Proceeds from this proposed issue will be used in general extension of the company's existing lines, the construction of additions and the purchase of new property. If the stockholders approve the plan outlined at the directors' meeting, bonds amounting to \$10,000,000, convertible into stock at par, will be issued at once. They will be offered to the stockholders first, for subscription "pro rata, on such terms as may be determined by the board of directors or the executive committee." Subscribers will have the privilege of assigning their rights to the bonds.

The circular to the stockholders, setting forth the details of the proposed bond issue, declared that from 1881 to June 30, 1905, there had been expended by the company for extensions of lines and new property a total of \$39,074,066. Of this, \$23,755,066 came from net earnings above interest and other fixed charges, \$13,319,000 from the proceeds of an issue of \$20,000,000 real estate bonds over the amount required to pay off the old bonds, and \$2,000,000 from stock sold in 1897. Continuing, the circular says of the growth of the company which renders necessary this new bond issue to obtain funds for extension of lines:

"During the last few years the rate of growth of the business of the company and the consequent demand for increased facilities have been greater than during the previous year, and the expenditures for construction and new property have been consequently correspondingly increased. All of the \$20,000,000 4½ per cent. real estate bonds authorized by the stockholders in 1900 have been issued; of these \$6,681,000 were required to redeem maturing 6 and 7 per cent. bonds; \$2,076,500 were issued to pay for new property acquired and new lines constructed prior to June 30, 1899, and \$11,242,500 were issued for construction and new property since June 30, 1899."

The Western Union Telegraph Company reports for the quarter ending September 30, the figures for this year being partly estimated, while those for the same quarter of 1905 are actual:

	1906 (est.)	1905.	Changes.
Net revenues .....	\$2,000,000	\$2,007,593	Dec. \$7,593
Interest on bonds.....	332,688	331,300	Inc. 1,388
Balance .....	\$1,667,312	\$1,676,293	Dec. \$8,981
Dividend (1¼%) .....	1,217,022	1,217,021	Inc. 1
Surplus .....	\$450,290	\$459,272	Dec. \$8,982
Previous surplus .....	16,848,728	15,974,209	Inc. 874,519
Total surplus .....	\$17,299,018	\$16,433,481	Inc. \$865,537

In the statement just submitted the actual earnings are furnished for the quarter ended



June 30 last, the close of the company's fiscal year. It is therefore possible to append the actual figures for the last two fiscal years:

	1906.	1905	Changes.
Net revenues .....	\$7,070,532	\$7,188,065	Dec. \$117,483
Interest on bonds ....	1,327,975	1,227,200	Inc. 100,775
Balance .....	\$5,742,607	\$5,960,865	Dec. \$218,258
Dividend (5%) .....	4,868,088	4,868,083	Inc. 5
Surplus .....	\$874,519	\$1,092,782	Dec. \$218,263
Previous surplus ....	15,974,209	14,881,427	Inc. 1,092,782
Total surplus .....	\$16,848,728	\$15,974,209	Inc. \$874,519

### The Railroad.

Mr. Charles E. Lee, the newly appointed general manager of the Boston and Maine Railroad, is forty-six years of age. Mr. Lee began his career as a telegraph operator.

Mr. W. S. Melton has been appointed superintendent of telegraph of the Cincinnati, New Orleans and Texas Pacific Railroad, with headquarters at Chattanooga, Tenn., succeeding George L. Lang, resigned.

Frank W. Mahin, consul at Nottingham, England, reports that the Great Western Railway has successfully experimented with and just installed on a branch line a method of audible signaling as a substitute for the familiar semaphore system which it is believed will be entirely displaced in course of time. The new system is electrically worked. The engine as it travels comes into contact with an apparatus fixed to the track, which is worked from the signal box, and sets in motion a form of mechanism on the engine. Instead of the engineer having to look out for his signals, they declare themselves to his ear unmistakably. "Line clear" is expressed by the blowing of a whistle, which continues until the engineer with his own hand turns it off. The new system is of particular importance in a country so fog-afflicted as England.

Consul E. L. Harris, of Chemnitz, Germany, in a recent report states: "The last issue of the Berlin Woche contains an illustrated article which shows that experiments in wireless telegraphy are being carried on quite extensively on the Berlin-Zossen line, with results which are in favor of an early adoption of wireless systems on many of the State railways. I would advise those interested in securing detailed information concerning the progress of these experiments to address a letter of inquiry to Zimmerstrasse 37-41, Berlin.

The Mexican war department has requested the department of communications and public works to establish telegraph connections between the City of Mexico and San Juan Teotihuacan, the famous old City of the Gods, where the government is now spending large sums in restoring the ancient pyramids and in making excavations in the buried city. It has been found that there is at present a great deal of difficulty in communicating orders to the regiments stationed there, especially if these orders are of an urgent character. Captain Gustavo Acosta, of the engineering department, will install the telegraph system.

The New Orleans Postal Baseball Club, a group photograph of which has just reached us, embraces a set of sturdy, manly looking fellows whose record on the field of action has given them an enviable reputation in athletic circles. The patron saint of the club is Superintendent W. A. Porteous, whose picture also appears in conjunction with the eleven, not exactly as a member of the club, but rather to show the close bond of sympathy between the chief and his expert players. The team is made up of Messrs. Petrich, manager; Dobard, Lala, Bertucci, T. Koops, W. Koops, Kerwin, Miller, Botsay, Will and Stephens.

### 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.

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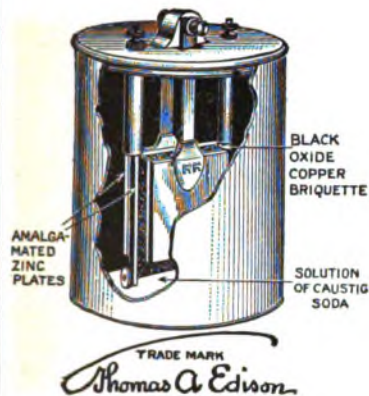
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Our factory manager remarked the other day that he rarely received a complaint on an Edison cell and that when he did it was usually due to:

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- (4) Using commercial crude soda or impure water, which causes local action on the zincs.

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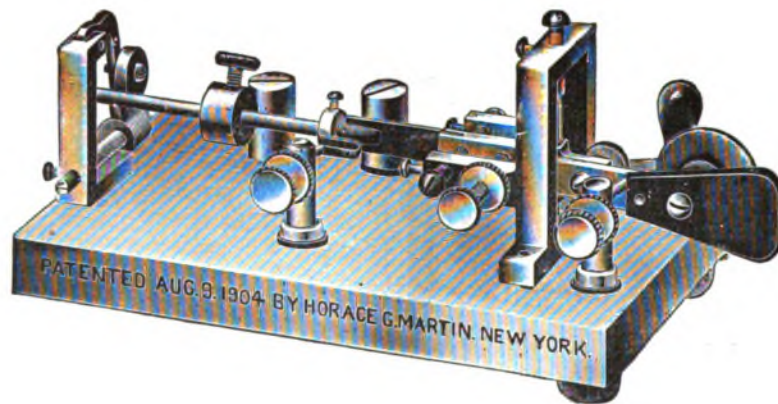
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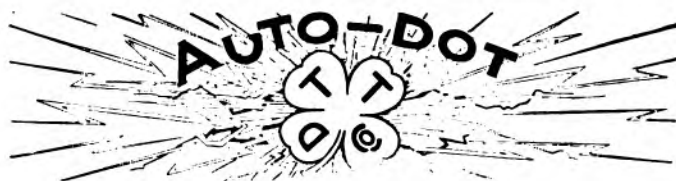
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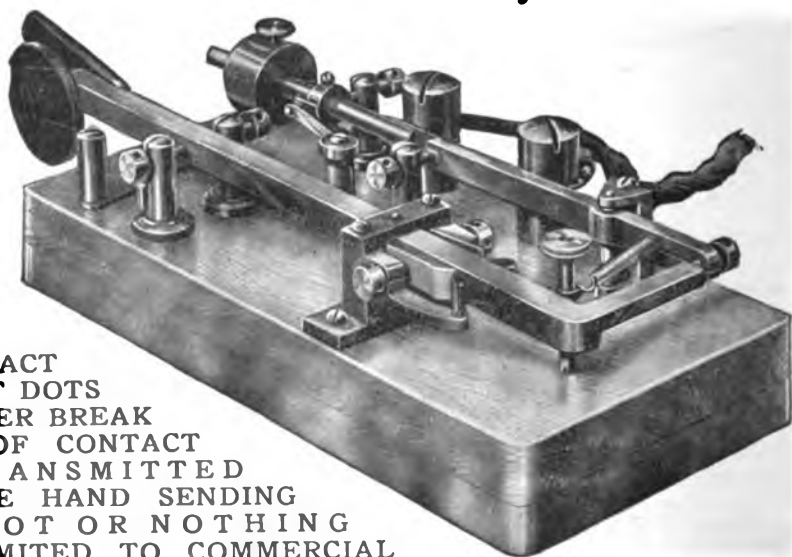
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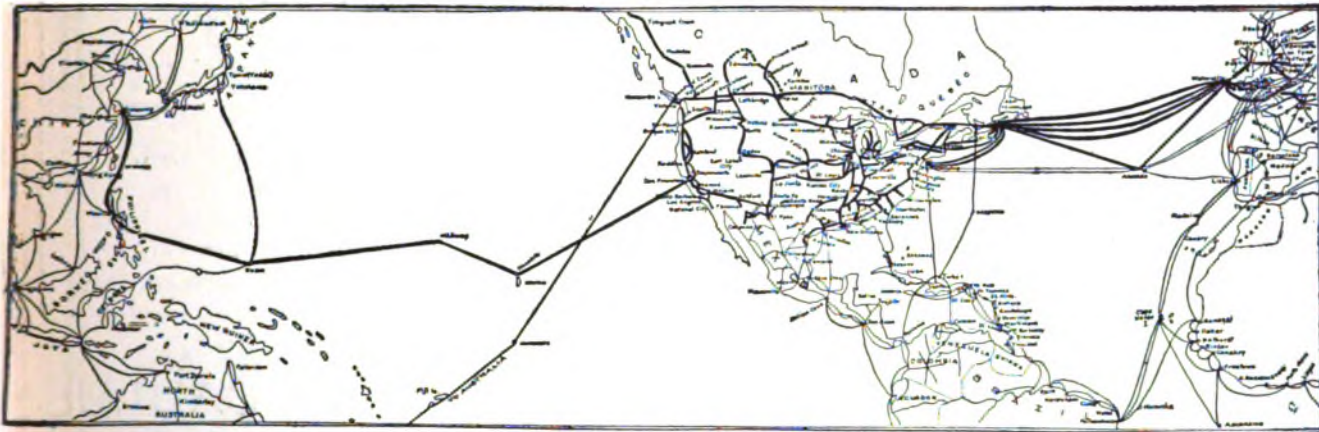


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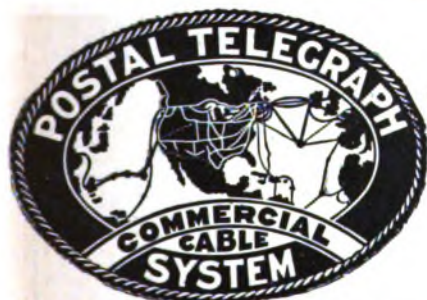
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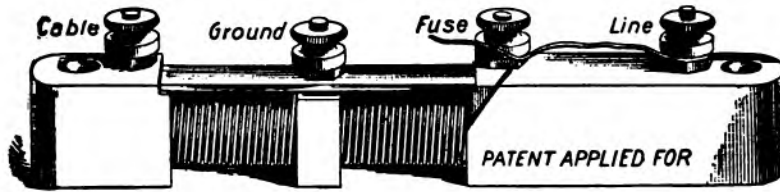
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