TELEGRAPH AGE

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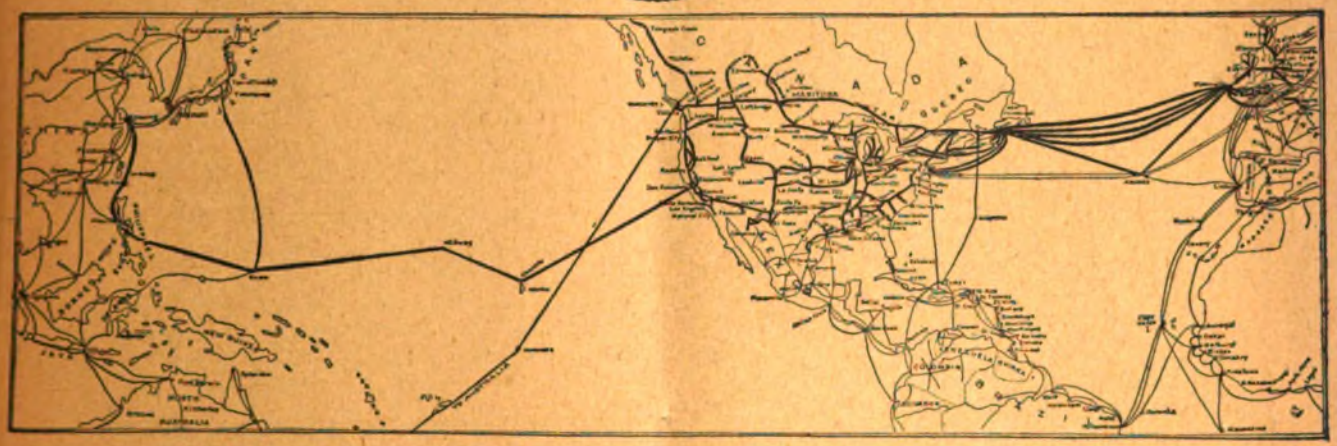
Commercial Cable Co.

PACIFIC ATLANTIC



The Most Extensive Combined Ocean and Land Telegraph System—Over 24,000 Miles of Cable.

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CLARENCE H. MACKAY, President. GEORGE G. WARD, Vice-President & General Manager.

THE REASONS WHY THE POSTAL TELEGRAPH-CABLE COMPANY

IS THE

ONLY SUCCESSFUL COMPETITIVE TELEGRAPH SYSTEM EVER MAINTAINED:

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

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

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

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

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

TELEGRAPH AGE

No. 11. NEW YORK, JUNE 1, 1906. VOL. XXIV.

CONTENTS.

SOME POINTS ON ELECTRICITY.

A New Double-Loop Repeater. — Comparative Efficiencies of a Polar and a Neutral Relay.

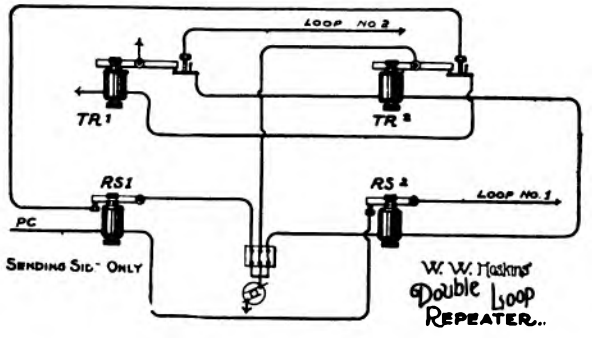
BY WILLIS H. JONES.

Mr. W. W. Hoskins, chief operator of the Postal Telegraph-Cable Company of Texas, Dallas, Tex., has devised a double-loop repeater as shown in the accompanying diagram. This, he believes, possesses minimum simplicity of apparatus and is easier to understand than the old style triple transmitter method. The diagram shows the sending side only, the receiving arrangement being practically alike in all repeaters for this purpose. Its operation is as follows:

The current from the polechanger of the duplex with which the repeater is connected, after traversing the coils of repeating sounder No. 1 and the contact points of repeating sounder No. 2 takes the ground at the terminal of loop No. 1, that is to say, at the branch office.

No. 1 repeating sounder lever when closed gives battery to the coils of transmitter No. 1 through the contact points of transmitter No. 2. The breaking of circuit No. 1. either by means of the duplex apparatus or the branch office operator on loop No. 1, of course, opens repeating sounder No. 1, which latter in turn opens transmitter No. 1. The opening of transmitter No. 1 transfers the ground of repeating sounder No. 2, and transmitter No. 2 from the grounded loop No. 2 to the bar of transmitter No. 1, thus holding transmitter No. 2 and repeating sounder No. 2 closed and at the same time removes the battery from loop No. 2. The opening of loop No. 2 in a branch office opens transmitter No. 2 and repeating sounder No. 2. It may be seen that the opening of transmitter No. 2 holds No. 1 transmitter closed by transferring its battery lead from repeating sounder No. 1 to the bar of transmitter No. 2, while the opening of repeating sounder No. 2 breaks the circuit of the companion loop No. 1.

An interesting subject was recently brought up by a quadruplex attendant regarding the wide degree of difference existing between the respective working efficiency of a polarized and a neutral multiplex relay in wet weather. The information sought was as to whether there was any other reason or reasons for the superiority of the polarized instrument other than that explained by the fact that the latter responds to direction



of current only, while the former absolutely ignores polarity of current.

There are several good reasons to account for the superiority of the polarized relay other than the conventional "blanket" explanation covered by the words "direction of current." It is not at all improbable that the alterations in the polarity or direction of current alone, really contribute less toward building up the great efficiency of that instrument than they are given credit for.

In the writer's opinion the two principal reasons are: First, that a differentially wound polar relay is not affected, perceptibly, by alterations in the volume of any temporary marking current following in the line; second, it is more sensitive to the influence of very feeble currents than the neutral instrument because its coils are wound over a permanent steel magnet, the initial magnetism in which the latter greatly assists and am-

plifies the final magnetic strength of that relay.

The first of these two claims is verified every day in the operation of an ordinary quadruplex circuit. When the distant transmitter is closed the volume of current flowing through both home relays is three or four times as great as it is when the transmitter is open. Yet the incoming signals on the polar relay are not interfered with in the least. The neutral relay, only, feels the alterations in volume. The steel magnet assists the current in this way. The force with which a relay magnet will attract or repel its armature is represented by the figures representing the square of the total number of lines of force flowing through the iron core.

Thus, for example, if the number of such lines in the magnet due to a feeble current alone is 10, the strength of the magnet will be represented by 100. If, however, the magnet is steel, as is the case of a polarized relay, and contains, say, two lines of its own there will be twelve lines in all. Hence the strength of the magnet will be 144, or a gain in efficiency of nearly fifty per cent. It should now be plain that a neutral relay, having no such initial lines to build upon, cannot possibly compete with its more favored companion.

The worst enemy a neutral or single line relay has to contend with is its retractile spring, because the tension strength of the latter is a fixed value and therefore cannot automatically adjust itself to the variations in the strength of the magnet's pull due to variable alterations in the volume of current flowing through the line.

In ordinary wet weather the volume of current that manages to remain in the conductor is sufficiently great to give a working margin to a neutral relay that not only overrides the inconstancy of the current due to "cross-fire," but permits of compensating readjustments of the retractile spring by the operator. In extremely wet and foggy weather, however, the value of the legitimate working current is often but little greater than that due to inductance, leakage and cross fire effects. Under these conditions the alterations in the value of the working current is so rapid and tremulous in character that no temporary readjustment of the spring will meet the requirement, for the reason, previously stated, that the tension is constant while the magnetic attraction varies in strength.

A polarized relay is not affected to so great an extent by these conditions. If the lever of such an instrument is being repelled or attracted in the direction of one of its contact points by the action of, say, a very feeble current, a sudden increment in the volume of the latter will not alter its movement. It will simply be energized a little greater and continue its journey.

[Important articles by Mr. Jones, appearing in back numbers, dating from January 1, 1904, copies of which may be had at twenty-five cents apiece, are as follows: 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 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.]

Book Notice.

"The Land of To-Morrow" is the title of a new volume by Major J. Orton Kerbey, the well-known old-time telegrapher. The book embraces over four hundred pages of text, has more than fifty illustrations, is printed on a finely finished paper, and is bound in cloth, with a decorative cover. Major Kerbey, who is a resident of Washington, a former newspaper man and ex-United States Consul at Para, Brazil, the great rubber shipping port of South America, who was instructed by his government to study and report on the india rubber industry in that part of the world, was a member of an exploring party to the headquarters of the Amazon, the trip being undertaken with a view of making a search for rubber. The newspaper training of the author is everywhere apparent throughout the pages of the book, for the story told by him is direct and lucid in style, giving information incident to the long journey, with its accompanying wealth of adventure, and finally of the object attained, in a manner calculated to hold the close attention of the reader from cover to cover.

The book has especial value, inasmuch as it throws so much light and information on the important industry of rubber gathering and of the need of conservation and cultivation of the product to insure a future supply. To the rubber importer, the rubber trade, as well as to the general reader, who loves a good story as well as an interesting book of travel, the volume possesses worth differing only in degree. Telegraphers who remember Major Kerbey as belonging to the fraternity, and who have read his previous books, "The Boy Spy" and "On the War Path," etc., will welcome this additional contribution of his to a literature which has found a wide and enjoyable reading.

The price of the book is $1.50. Address orders to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Personal Mention.

Mr. J. E. Gobiel, of Ottawa, Ont., inspector of the Dominion government telegraph lines, is in Alaska on a tour of inspection.

Mr. Orrin S. Wood, the veteran first operator in the world, and Mr. Andrew Carnegie, whose early experiences were identified with the telegraph, met for the first time on May 15, and a pleasant hour was passed in exchanging reminiscences relating to the telegraph in its early days.

Major J. Orton Kerbey, of Washington, an old time telegrapher, is about to set off for Rio with the American party to attend the forthcoming Pan-American Congress as a newspaper man at an age which Dr. Osler thinks the turning point for inactivity. If he narrates the proceedings of the Congress as racily as he tells his story of "The Land of To-morrow," recently brought out by him, and mentioned elsewhere in this issue, his letters should make "mighty interestin' readin'."

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Col. R. C. Clowry, president and general manager of the company, who has been in Europe for the past month, sails upon his return trip June 1, on the steamer Celtic, from Liverpool.

The apparatus of the Barclay printing telegraph system has been removed to the Broadway end of the seventh floor. Here in ample space are assembled the various receiving apparatus as well as the perforators on which are prepared the messages for transmission. This department is an exceedingly busy one. The four Barclay printers working between New York and Chicago now carry the entire traffic exchange between these two points, and the rapidity with which the vast volume of business is handled conclusively sets at rest all doubts as to the entire practical utility of this system. It is thought that Barclay printers will soon be installed on other busy circuits. The inventor of the system, John C. Barclay, the assistant general manager and electrical engineer of the company, is constantly improving the operation of his printer by reducing the number of and simplifying the working parts. The next installation of this system will be between New York and Buffalo, and Buffalo and Chicago.

Mr. William Finn, of the electrical engineer's department, has recently been at Rushville, Ind., experimenting with the single phase alternating system located at that point, which has been interfering with the working of telegraph and telephone wires, paralleling the trolley lines in that vicinity. Mr. Finn has met with much success in solving this vexatious problem.

Mr. William J. Lloyd, assistant superintendent of the company at Chicago, will sail from New York for Europe on June 30, to be absent about three months.

Mr. G. H. Fearons, the general attorney of the company, accompanied by his wife, will spend a few weeks in Europe this summer, his departure dating from June 20.

Mr. Jacob Levin, general superintendent of the southern division, with headquarters at Atlanta, Ga., accompanied by Superintendent B. F. Dillon and wife, of Jacksonville, Fla., were recent visitors at Key West, Fla., and Havana, Cuba.

Mr. Charles Corbett, superintendent at Cleveland, O., was in New York on May 16, coming east for the purpose of seeing Mrs. Corbett and their five children off for Europe, who go abroad to be absent about two years.

Mr. John P. Altberger, superintendent at Philadelphia, was married on Monday, May 21, to Mrs. Maud E. Rowles, of that city. Mr. and Mrs. Altberger have gone to Europe on their wedding trip, and will be absent about a month.

Brunswick, Ga., will soon have a new up-to-date telegraph main office, the equipment for which having already arrived at that point.

The stockholders of the East Tennessee Telegraph Company met at Nashville, on May 9, and elected the following board of directors: R. C. Clowry, J. C. Barclay, J. B. Van Every and G. W. E. Atkins, New York; J. Levin, Atlanta, and J. R. Terhune and A. H. Stewart, Nashville.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Among the recent executive office visitors were Mr. E. J. Nally, general superintendent, Chicago.

Mr. E. C. Bradley, vice-president of the company, has returned from San Francisco, whither he hurriedly went at the time of the great disaster.

Mr. S. F. Jones, assistant electrical engineer of the company, has recently returned from a business trip extending through New York state.

Mrs. Julia E. Larish, the wife of Joseph W. Larish, of the electrical department, died May 13, in New York, after a lingering illness. The interment was at Buffalo, N. Y., the native place of the deceased.

A new main office of the company at Atlanta, Ga., will soon be established at the corner of Broad and Alabama streets, where finer and more commodious quarters will be secured, rendered necessary by the increasing business.

Mr. George F. Fagan, chief clerk in the general manager's office, is still confined to his home by illness, yet his friends hope for his early return to duty.

The main office at Albany, N. Y., has been renovated and brought up-to-date. The operating department has been moved to the second floor of the building, where there is found every modern equipment and requirement that goes to make up a first class operating room.

Mr. J. D. Prosser, manager of the office at Washington, D. C., recently spent a number of days in New York, renewing acquaintances with a numerous circle of old friends.

Obituary.

W. E. Hogan, aged twenty-eight years, a telegraph operator, died at Williamsport, Pa., May 5.

W. T. Bouchelle, assistant to Charles F. Cutler, president of the New York Telephone Company, died at his home in Greenwich, Conn., on May 19.

W. P. Frost, aged fifty-nine years, superintendent of construction, and for many years past employed in the telephone service, died at Hartford, Conn., on May 16.

Mark Fleming, aged twenty-eight years, a telegraph operator out of work since the earthquake, who has been living at Camp Inch on Adams Point, San Francisco, Cal., committed suicide May 10.

Charles U. Keep, aged forty-five years, employed by The Associated Press as telegraph operator for fifteen years up to within a short time of his death, died at Colorado Springs, Colo., May 18 after a long illness.

Charles D. Livermore, aged sixty-five years, chief operator of the Western Union Telegraph Company at Portland, Me., died on May 15. For about forty years he was manager of the Portland office, which he relinquished on account of ill health three years ago. He learned telegraphy at Hallowell, under the tuition of his father, who was one of the best known telegraphers in New England. During the Civil War he was a paymaster in the navy. His long held managership gained for the Portland office an enviable name and record. It used to be said that Mr. Livermore, while a strict disciplinarian, was more of a father to his men than their master, because of his kindly manner and disposition to aid them. He leaves a daughter.

The Railroad.

The New York meeting of the Railway Signal Association was held at the Grand Union Hotel, May 8. The revised constitution presented at the Chicago meeting on March 19, and corrected in certain paragraphs, was adopted. A number of interesting papers were also read, including "The Upward Indication of the Semaphore Arm," by L. R. Clausen, signal engineer, Chicago, Milwaukee and St. Paul Railway; "Electric Locking at Electric Interlocking Plants," W. H. Arkenburgh, chief draughtsman Union Pacific Railroad; "Substitution of Track Circuits for Detector Bars," H. W. Lewis, supervisor of signals Lehigh Valley Railroad; "Alternating-Current Track Circuits in the New York Subway," J. M. Waldron, signal engineer Interborough Rapid Transit Company.

The convention of Railway Telegraph Superintendents, which meets at Denver, Colo., on Wednesday, Thursday, Friday and Saturday, June 20, 21, 22 and 23, will mark the "silver" anniversary of this association, for the assemblage will be the twenty-fifth in the series. Headquarters will be established at the Adams House, that city, and that excellent hostelry, one of the best appointed hotels in the west, will extend a grateful hospitality during the four days of the convention to delegates and all who attend in whatever capacity. Suitable room will be provided for the display of exhibits. Reservations for hotel accommodations should be made direct with the manager. Aside from the business programme, which will include the reading of a number of important papers, the entertainment committee, consisting of Messrs. C. A. Parker, E. E. McClintock, J. M. Walker and J. Munday, have planned a scheme of social entertainment to cover the hours of leisure.

Resignations and Appointments.

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

Mr. M. E. Colegrove has been appointed manager at Delhi, N. Y., vice Mr. L. H. Albee, made manager at Walton, N. Y.

Mr. F. D. Lewis, formerly employed at the Lehigh Valley depot, Cortland, N. Y., has been appointed manager of the local office at that point, vice T. P. Lovell, resigned.

Mr. Charles H. Stevens has been appointed chief operator at Portland, Me., vice Mr. Harry H. White, promoted to be manager, and Mr. James F. Madigan has been made night chief operator.

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

Mr. M. H. Donahue, of Olean, has been appointed manager at Geneva, N. Y.

Mr. J. W. Booth, formerly traffic chief of the North American Telegraph Company at the board of trade office, Duluth, Minn., has been appointed manager of the same interests at La Crosse, Wis., vice Mr. L. A. Seaman.

Telegraph Patents.

The following patents have expired:

Patent No. 402,828, for a circuit-closer for railway car telegraphs, issued to G. L. Hopkins, of Manchester, N. H.

Patent No. 402,717, for a telegraph instrument, issued to C. G. Burke, of Richmond Hill, N. Y.

Patent No. 403,472, for printing telegraphy, held by Z. P. Hotchkiss, of Oak Park, Ill.

Patent No. 403,258, for vibratory telegraphy, taken out by S. D. Field, of Stockbridge, Mass.

Patent No. 403,291, for an exchange system for telegraphs, secured by J. H. Robertson, of Rutherford, N. J.

Patent No. 403,292, for a system of combined telephony and telegraphy, obtained by J. H. Robertson, of Rutherford, N. J.

The Cable.

Cables interrupted May 28, 1906:

Tangier, "via Cadiz"	Feb. 18, 1906.
Venezuela	Jan. 12, 1906.
Messages may be mailed from Curacao (see Porto Plata) or Trinidad.	
French Guiana (Paramaribo-Cayenne)	
Mail from Paramaribo.	Apr. 20, 1906.
Pinheiro, "via Cayenne"	Aug. 13, 1902.
Porto Plata, "via Cape Hayti"	May 15, 1906
Messages for Porto Plata, San Domingo and Curacao (see Venezuela) may be forwarded by vessel from Hayti to Porto Plata at ordinary rates or "via Key West - Guadeloupe," at higher rates.	

Orders have been issued by Gen. James Allen, the chief signal officer of the army, for the installation of the duplex system on the Alaskan cables. The commercial business of the cables has become so heavy that even by working night and day, the operators are not able to handle all the despatches. In April, the receipts from the business of the Alaskan telegraph and cables lines was $18,500, and it is estimated that if the government had paid for official cable despatches the income of the line would have averaged at least $1,000 a day. An appropriation is now pending in Congress for the construction of feeders to the main Alaskan cable, which will connect with Ketchikan, Wrangell, and Prince Edward's Island. As the country these branches would reach is rich in fisheries and the seat of many canneries, the War Department's view is that the business of the cables will be greatly increased. Many changes in the telegraph lines in Alaska are also in contemplation by the signal corps. The lines reaching north from Valdez to Eagle City, and extending to the western coast of Alaska, are very crooked, as the country is so rough that it was necessary to follow the streams with the telegraph system. Now, it is the purpose of the signal corps to straighten out these lines and shorten them wherever possible. In this manner, it is believed, the telegraph service will be improved, and the lines made capable of yielding greater income.

The fact that Germany obtained at the recent conference at Algeciras the right to land a cable in Morocco recalls the existence of four cables which connect Europe with Morocco, which latter country is said, with the exception of two short land-lines proceeding from Ceuta, to be entirely without telegraphic facilities at the present time. One of the four cables is British property and one is French, while the other two are Spanish; the latter unite Algeciras and Ceuta and Almeria and Melilla, respectively, and are declared to be only of local importance. The cable of the Eastern Telegraph Company was laid between Gibraltar and Tangier in 1887, the Spanish cables were established in 1891, and the French cable between Oran, Algeria and Tangier was laid in 1901. It is thought in German circles that it will not be necessary to wait very long before the proposed German cable is put in hand. A cable which was first brought into use at the end of 1896, already proceeds from Emden in the North Sea to the Spanish port of Vigo, the line having been laid for the purpose of securing connection with the English submarine cables on the Spanish coast. The Emden-Vigo cable is now in the hands of the German Atlantic Telegraph Company, and no difficulties are anticipated in extending it to Tangier, while at the same time the idea of making extensions to the southern parts of Morocco at a later date is also entertained in Germany.

Legal.

That a telegraph company must return moneys paid to its messenger boys on fraudulent or forged slips was decided by Justice Greenbaum in the Supreme Court, New York, May 15, in the suit brought by a New York concern to recover from one of the telegraph companies the sum of $592 thus paid out.

The plaintiff corporation had for several years been in the habit of sending despatches through the defendant company, the manner in which messages were sent being to ring up the telegraph company for a messenger, to whom, when he called on the plaintiff, the telegrams were delivered.

The telegraph company upon the following day would send its messenger with as many memorandum slips or bills as represented the number of telegrams sent on the previous day, each slip containing a memorandum of the name of the sender, the place to which the message was forwarded, and the charge for the service. The plaintiff's assistant cashier paid the messenger, who left these slips with him as vouchers.

It appeared that a large number of fraudulent slips were presented for collection and paid by the assistant cashier, he believing them to be genuine.

"The moneys thus fraudulently collected," said Justice Greenbaum, "form the basis of this action. Although no proof was presented as to the authorship of the forged slips, it is apparent that they were forged by two of the defendant's messengers, who were employed to receive the telegrams and collect the amounts called for on the slips, which were written out by the manager of the defendant's office."

A well-known telegrapher in New Zealand, a subscriber to TELEGRAPH AGE, in a recent letter had this to say: "I like your articles on 'The Need of Greater Efficiency in the Telegraph Service.' They might have been written for our department without altering a line. We are at present appointing people who are not technically qualified to fill positions requiring technical knowledge, just because there are no men competent to fill them."

Business Notices.

The sales office of the Electric Storage Battery Company, in San Francisco, destroyed in the recent disaster, has been transferred to 525 Thirteenth street, Oakland, from which point all business connected with the Pacific Coast territory will be handled.

Mr. S. B. Lefley, manufacturer of the Lefley telegraph key, at Columbia, Pa., a device which has acquired an excellent reputation within fraternity circles, announces an important reduction in its cost. Thus, the leg pattern has been lowered from $4 to $3.50, and the legless pattern from $4.50 to $4. This is a substantial decrease, and should serve to further attract the favorable consideration of operators for whom the Lefley key has proved a valuable acquisition.

In these days of 100,000-KW. power stations, the notion is apt to obtain that the old familiar primary battery has been relegated to the high school laboratory and the ringing of doorbells. However, primary batteries are still used in immense quantities, as for the operation of railroad signals, the sparking of gasolene engines and for places where a limited amount of electrical energy is needed constantly and uniformly. The batteries now being supplied are an improvement over the old cells and their manufacture and design have been reduced to scientific perfection. We have before us a pamphlet entitled "Edison Primary Batteries," published by the Edison Manufacturing Company, of Orange, N. J. This pamphlet describes Edison's improvement of the Lalande caustic potash cell, which, as the pamphlet shows by quotation from Prof. Carhart, "Has a capacity of work per unit weight greater than any other either primary or secondary." It is stated that the energy of the Edison cell applied through a perfect motor would raise the cell 16.17 miles. The improvement made by Edison consists in forming the copper oxide depolarizer into firm briquettes which reduces both the internal resistance of the cell and the tendency to polarize, at the same time making the renewal of the cell much more convenient. The cost of electrical energy from these cells for some purposes would not be excessive, as, for instance, a 600-ampere hour renewal comprising all the perishable parts of the cell costs only $2.52, which is less than ½ cent per ampere hour. It is stated that this cell gives rise to no fumes, that the liquid does not corrode machinery, that there is no creeping of salts and that the cells do not freeze in ordinary cold weather.

Municipal Electricians.

The convention city this year of the International Association of Municipal Electricians, as previously announced, will be New Haven, Conn., the dates being August 15, 16 and 17. A number of interesting papers, discussing timely topics, the titles of which were given in our issue of May 1, will be presented for reading and discussion. A full attendance of members appears to be assured.

The advance census bulletin makes the following report upon the fire alarm systems and the police patrol systems of this country:

Electric fire alarm systems were installed as early as 1852, and by 1902 there were 764 such systems in operation. There are, however, a great many communities which still retain the inadequate method of notifying the people of the occurrence of a fire by the ringing of a bell or by the blowing of a steam whistle, the number of strokes or blasts indicating roughly the location of the fire. The fire alarm systems were distributed through forty-eight states and territories, although they were found chiefly in the older and more densely populated sections. The largest number, one hundred and six, was reported for Massachusetts and the next largest, seventy, for New York. The practice of putting the fire alarm wires underground has increased rapidly during late years, and more than one-fourth of the 39,635 miles of such wire was underground in 1902. There were 37,832 signaling and annunciating boxes and 1,900 special telephones for use in connection with the fire alarm service. During the year 1902, 85,070 fire alarms were turned in through these boxes and telephones. Of these alarms, 12,794 were credited to New York; 9,491 to Massachusetts, and 9,027 to Illinois.

The utilization of the telegraph as an aid in the detection and suppression of crime, and also in connection with other duties falling to the protectors of the peace, was resorted to at a rather early date by the police departments in various large cities. The combination of the telegraph and telephone as an auxiliary to the police force was first introduced in 1880. In 1902 the police patrol systems were distributed in thirty-two states and the District of Columbia, most of the systems being located in the states with the greatest number of large cities. Massachusetts is credited with the largest number, 28, and New York ranked second, with 14. There were, in 1902, 148 police patrol systems, with 26,350 miles of wire. The signaling boxes numbered 9,476; and the telephoning boxes, 1,170. Over these instruments 40,626,505 police calls were received or sent. This gives an average, per box or station, of 3,816 messages during the year, or a daily average of more than 10 calls. The use of the telephone predominated, the number of telephonic messages being 23,393,812, as compared with 17,232,693 of all other kinds. In the rural districts the use of the telephone has greatly lessened the labor of sheriffs and constables in connection with the suppression of the "tramp nuisance."

The Last Link of All-American Pacific Cable.

BY LEWIS G. MARTIN*, IN THE ELECTRICAL REVIEW.

A trip which includes a tour of the world is in itself sufficient to excite considerable curiosity and expectation, but, coupled with the knowledge of work to be done among, and with the assistance, of people to whom such work is entirely new and novel, it becomes positively fascinating.

This was how matters stood when, on August 4, 1905, the writer left New York for Shanghai, China, to lay an underground cable for the Commercial Pacific Cable Company, to connect its Manila-Shanghai submarine cable with the cable office in the international settlement of Shanghai. Information concerning the route to be followed was meagre, but great faith (established by previous observation) in the ingenuity of the Chinese quieted all misgivings regarding difficulties likely to be encountered, and subsequent events proved that this confidence was not misplaced.

After an interesting trip through Canada down the Pacific Coast to San Francisco and a record trip across the Pacific in the steamship "Siberia," touching at Honolulu, Midway Islands, Yokohama, Kobe and Nagasaki, Shanghai was reached on September 8. The call at Midway Islands was made in order to allow Mr. E. H. Harriman, the railroad magnate, who was on his way to Japan, to receive and send despatches, and an opportunity was given the writer to visit the cable station there.

The island on which the cables are landed is one and three-quarter miles long and at its broadest point seven-eighths of a mile across. It is quite flat and a sandy waste. A more cheerless and lonesome spot cannot be imagined (and the islands were seen at their best on our visit), but all that possibly could be done for the comfort of the cable staff has been done by the Commercial Pacific Cable Company. The offices and quarters are substantial buildings of steel and concrete construction and fitted with all modern conveniences, including acetylene gas for lighting purposes, and are most comfortably furnished. A detachment of twenty United States marines, commanded by a lieutenant, is quartered on the island, and with the cable staff, numbering about seventeen, forms the population of the islands. Good fishing, shooting and boating are to be had and are the popular forms of recreation and sport.

The principal work to be done at Shanghai was to lay a two-inch galvanized wrought-iron pipe, inserting cast-iron junction boxes every eighth of a mile, and to place therein a four-conductor cable. The cable was manufactured by the Okonite Company, Limited, of New York, in accordance with specifications drawn by the Commercial Pacific Cable Company, the prime features of which were: weight of conductor, 116 pounds per mile; thickness of wall of insulation, three-thirty-seconds-inch, each conductor taped and loaded, and then loaded over all; insulation resistance to be not less than 1,700 megohms per statute mile at sixty degrees Fahrenheit, and conductor resistance not to exceed eight ohms per statute mile at the same temperature.

Some novel features presented themselves in connection with the work, as 1.8 miles of the line had to be laid in the international settlement of Shanghai, ten miles along the embankment of the Shanghai-Woosung forts section of the Shanghai-Nanking Railroad, and 2.65 miles in the open country from Woosung forts to opposite the Chinese city of Pao-Shan, where the submarine cable is landed.

There was nothing out of the ordinary in the way of or the facilities for accomplishing the laying of the pipe line and cable through the international settlement. Means of transportation were plentiful and good, and the coolies, by the time this end of the line was reached, were well broken in.

Along the line of the railroad and in the open country, however, things were not quite so easy. The only two ways of getting material to the railroad embankment were by means of narrow creeks which cross the railroad at more or less frequent intervals, or by the railroad itself. The creeks were all right for the lighter material, such as lengths of pipe, but of no use for heavier material, such as reels of cable, owing to shallow water and want of facilities for hoisting, and the impossibility of rolling the reels along the embankment foot-path, which was in poor condition and only three feet wide. It was necessary, then, to enlist the sympathy of the railroad authorities who, at great inconvenience to themselves (they were working night and day on their Shanghai-Nanking extension), lent us at night time, after the trains had stopped running, their steam crane and locomotive and trucks with which to place the reels.

It was a sight not soon to be forgotten to see the villagers along the line of the railroad turn out en masse and view with astonishment and wonder what must have been to them the mysterious doings of the foreign devils. Numerous questions were asked of the Chinese foreman and coolies, and undoubtedly many strange replies given, for the whole proceeding was as much an enigma to those questioned as to the questioners.

In the open country the reels of cable were rolled over indifferently made roads and foot-paths to their respective locations, the coolies re-

* Mr. Lewis George Martin, the writer of this article, has had an extended and diversified experience in telegraph and cable service. Born at Woolwich, England, August 27, 1869, he first became connected with the French Atlantic Cable Company at London, on June 16, 1882, and later at Brest, France. Subsequently he became identified with the Halifax and Bermudas Cable Company; was a member of the Bermuda-Jamaica cable expedition in January, 1898, and had charge of traffic arrangements at Jamaica during the Spanish-American war. Since 1899 he has been with the Okonite Company, Ltd., of New York, in whose employ he has traveled the world over laying cables of all kinds manufactured by that company.

garding this as fine exercise and sport.

The contract for the digging of the trench, connecting up the pipe and boxes, placing in position of same and refilling of trench, was awarded to a Chinese contractor, who proved to be reliable and trustworthy. After going over in detail with him the work to be done, considerable surprise was caused by his announcing that he would join up the pipe in one-eighth of a mile sections on the opposite side of the track or street from which the trench was to be dug, and then carry it bodily across the track or street and lower it into the trench; but all fears were allayed when he said he intended to have between two hundred and three hundred coolies on the job and would put a sufficient number on the pipe so that no harm could arise. As a matter of fact, the vast majority of the pipe was laid in this way and in an exceedingly satisfactory manner.

The Chinese coolies proved themselves to be, under proper supervision, admirable workmen, quick to learn and appreciate, not afraid of hard work, long hours, and good natured and contented. There were at one time 206 coolies on the job, and the record day was 4,000 feet of completed work, not bad when one considers that the digging implements consisted of an adze-shaped hoe, a one-prong fork, ordinary field rakes and toy spades; and the vast majority of the men had either only the one or the other of these.

Several bridges had to be crossed and no difficulty was experienced in making the contractor understand the method to be adopted or in having the instructions faithfully carried out.

The cable was pulled in at the rate of one-half mile per day and in one-quarter mile lengths, much time, however, being lost along the line of railroad in "moving up," owing to the unevenness of the foot-path and the necessity of caution on account of passing trains.

When completed the cable tested electrically perfect, the results showing an insulation resistance of 6,278.5 megohms per statute mile at sixty degrees Fahrenheit and conductor resistance of 7.158 ohms per statute mile at temperature.

From Shanghai to Woosung, a distance of about ten miles, two two-core armored cables were laid in the same trench as the pipe line for the German-Dutch Submarine Cable Company, and from the Shanghai office of the Imperial Chinese Telegraphs to the railroad, a distance of about two miles, a six-conductor lead-covered and steel-taped cable was laid, also in the same trench, for the Imperial Chinese telegraph administration. It was the writer's privilege to meet Mr. Chow Wan Pang, acting general manager of the latter, a gentlemen educated at Harvard, an energetic worker and fully alive to the needs of an up-to-date telegraph service.

To Mr. F. N. Dresing, chief superintendent of the administration, I am indebted for many courtesies.

Along the railroad the German-Dutch cables were laid out in true submarine style from the end of a truck hauled by a locomotive, much to the amusement of the coolies engaged and the surprise of villagers en route.

On December 18 work had to be suspended, owing to anti-foreign riots in Shanghai, but was resumed again on December 21, when it was quite evident there was no further cause for alarm. The cause of the trouble was a dispute in the mixed court some days previous between the British assessor and Chinese magistrate over the disposition of a Chinese lady and some girls she was accused of having kidnapped, which led to a hand-to-hand fight between the European and Chinese court attendants, in which the latter were worsted.

During the past six months cables have been laid connecting Yap, in the Caroline Islands, and Manila, in the Philippines, with Shanghai, making it, with its numerous cables running north and south along the coast of China and across to Japan, an even more important telegraphic centre in the Far East. Two cable steamers are stationed there, the Pacific and Stor Nordiske, which keep in repair all the cables in Chinese waters and vicinity. These steamers belong to the Great Northern Telegraph Company, to whose officers, particularly W. Schonau, the company's chief engineer in the Far East, the writer is indebted for valuable advice and assistance.

On December 30 the homeward journey was commenced, and short visits to Hong Kong, Singapore, Penang, Colombo, Aden, Suez, Port Said, Naples, Genoa, Paris, London and other parts of England and Ireland completed a trip full of interest from first to last.

American Institute of Electrical Engineers' Election.

At the annual meeting of the American Institute of Electrical Engineers, held in New York, May 15, the election of officers resulted as follows: Dr. Samuel Sheldon, Brooklyn, president; A. H. Armstrong, Schenectady, N. Y.; H. H. Humphrey, St. Louis, and F. G. Baum, San Francisco, vice-presidents; Paul M. Lincoln, Pittsburg; Paul Spencer, Philadelphia; John J. Carty, New York, and A. M. Schoen, Atlanta, managers; George A. Hamilton, New York, treasurer; Ralph W. Pope, New York, secretary.

The report of the board of directors for the fiscal year ending April 30, 1906, showed total membership of 3,870. The total assets of the Institute were $156,472.27. The total liabilities were $101,160.33, leaving a surplus of $55,311.94.

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NEW YORK, JUNE 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 clientage. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same. These will be of especial aid to buyers inasmuch as they contain brief descriptive references of each volume listed, frequently with full chapter titles.

In the gift of sixty-five Monarch visible typewriters, designed for those of its operating staff at San Francisco, who lost their machines in the recent disaster by earthquake and fire, the Western Union Telegraph Company performed a generous and graceful act in behalf of loyal and deserving employees, who will doubtless heartily appreciate and welcome the opportune benefaction, for a typewriter is an indispensable working tool of an operator's outfit.

The International Postal Congress at Rome, of which Edward Rosewater, editor of the Omaha Bee, and a former telegrapher, is a representative of the United States, comprises a highly intelligent body of representative men, assembled from all countries, and gives promise of accomplishing substantial improvements in the mail service of the world. Already several propositions providing greater facilities in this respect have been adopted. There is scarcely a more important department of international public service than that of the mails, and every effort looking to its advancement, its more efficient and economical administration, should be welcome.

By a decree which recently went into effect it appears that the French government has transferred the control of the postal, telegraph and telephone in that country from the department of the minister of commerce and industry to that of the minister of public works, a change, it is said, that will insure at least greater economy in management. Economy is all very well, but efficiency should be the first consideration. It matters little which department of the government administers the telegraph and telephone, unless the taint of inefficent management which characterizes all European countries in the direction of these important public utilities be removed, for otherwise the transfer is simply a case of "jumping from the frying pan into the fire."

It has not been the practice of the English postoffice authorities to encourage the spirit of invention on the part of the members of its telegraph department, and consequently the taking out of patents relative to telegraph improvements cannot be said to have reached stimulative proportions in that country. It might be inferred, however, from the following, taken from the London Electrician, that the government policy has undergone a change in this respect:

In the House of Commons on April 30, Mr. Steadman asked the Postmaster-General whether he would explain why, in view of the amount of money expended at the general factory, Mount Pleasant, in experimenting on electrical condensers and other work, and of the fact that the whole of the work was done at the factory and by the staff generally, some seven patents had been taken out by an officer of the factory on the results of the experiments done, and was he aware that the patents had been let on royalty to a foreign firm who were now manufacturing condensers on the results obtained at Mount Pleasant. Mr. Sidney Buxton, in reply, stated that the officer in question had been allowed to take out patents on conditions which amply protected the interests of the telegraph and other government departments. He thought it was to the public advantage that the inventive faculty of public servants should be encouraged.

Telegraph Conditions.

Conditions, financial and otherwise, that confront the future welfare of the telegraph in this country, appear to involve economic problems in administration of a character such as to place a severe tax on resource, skill and ingenuity in meeting the exigencies of the situation. For the steadily growing cost of maintenance observed from year to year, to which the companies are subjected, constitutes a serious menace to prosperity, and necessarily will increase the difficulties

that face executive management in making both ends meet. The question becomes a natural one, When will a limit to excessive expenditure be reached?

There are several impelling causes against which the telegraph is called upon to combat. In the first place there is the telephone, the competitive pressure of which, particularly in local fields, is felt more and more each successive year. Then there is the exorbitant taxation to which the telegraph is subjected, in amount an apalling burden, the imposition of which by many towns, cities, counties and states through which telegraph wires pass and offices are established, is dictated apparently more frequently by the spirit of opposition to corporate interests rather than by any measure of equity. Still another form of assault upon the telegraph is that manifested in suits for damages, oftentimes having their origin in causes more imaginary than real, and brought in courts all over the land, and which, of course, have to be met and defended.

These adverse instances recited are sufficient to show to what an extent telegraph corporations are publicly regarded as objects of financial attack; and apparently nothing can be done to stop these raids.

In view of such untoward circumstances it will readily be seen that close economy in telegraphic management becomes an imperative necessity. Among other things, this means probably that wages of employees cannot be advanced, except, possibly, in slight measure, beyond the present schedules, even though the higher cost of living would seem to make increased pay but conferring an act of justice to the great army of workers who serve the telegraph interests so well. The undercurrent voice for larger remuneration, so frequently heard, enforced by the argument of general prosperity, unfortunately does not fit the exigencies of this particular case. For the telegraph, indispensable as it is as a contributory agent, can yet hardly be said to be numbered in the list of great corporations that is feeling the buoyancy of current financial success. Nor is the further argument permissible that if a general raise of salary is not warranted under the present margins of profit accruing to the telegraph companies, a solution of the problem would be reached through an increase of telegraph rates.

The question is, Would it? While the rates are low, perhaps too low, especially when considered in comparison with the tolls demanded abroad, even when under government control, the tendency in this country in response to popular demand, is toward still lower rates, and any attempt to increase charges on the part of the telegraph companies would no doubt be disastrous in its results.

Mr. James N. Worl, a forty-niner of the telegraph, and who is probably one of the best preserved old timers in the country, makes some pertinent observations regarding the Old Time Telegraphers' and Historical Association, which are worthy of consideration. Mr. Worl believes that the membership of the association should be separated into divisions. The first division, according to his idea, should include all members of the association who began their telegraph service between 1844 and 1870, embracing a period of the first twenty-six years of the existence and history of the telegraph. This, he says, would accord with the original intention of the founders of the association in 1881, which had this very purpose expressly in view, and which he thinks ought to be preserved. The forty-niners of the telegraph and those who entered the service between the years 1850 and 1870 have little in common with the younger members of the profession, and naturally look with disfavor upon the opening of the doors of the association to those who have been in telegraph service only twenty-five or thirty years. The first division, under Mr. Worl's plan, would therefore form a distinct circle of the genuine veteran telegraphers of the country, an arrangement which, in our opinion, might well be carried out.

It is further proposed that there be a second division, to which membership shall be limited to those who have entered the service since 1870, or as provided for by the constitution. Naturally, as time passes, the members of the first division will pass away, and it will remain only as a memory, while the association will look to its future maintenance through the growth of the second and subsequent divisions.

Mr Worl's observations appear to be based upon the original idea governing the organization of the Old Time Telegraphers' Association, and as such are commended for further and general consideration. The genuine old timers are, no doubt, clearly entitled to their distinctive division.

Magnetic Survey of the Pacific Ocean.

Mr. L. A. Bauer, in a contribution to "Terrestrial Magnetism and Atmospheric Electricity," says that the first cruise of the yacht Galilee, engaged in the magnetic survey, just completed, of the Pacific ocean, under the auspices of the Carnegie Institution of Washington, covered the following route: San Francisco, Hawaiian Islands, Fanning Island, Magnetic Equator, Hawaiian Islands, San Diego. Already most interesting results have been obtained both with reference to the accuracy of the present magnetic charts and as to the accuracy with which the magnetic elements can be determined at sea. These results will be embodied in an early publication. Although the Galilee is not entirely non-magnetic, she has smaller magnetic constants than any vessel thus far engaged in magnetic work.

The Murray Automatic Printing Telegraph System in Russia.

The Murray automatic page-printing telegraph system has been installed between St. Petersburg and Moscow. The inventor Mr. Donald Murray, who has recently returned to London from Russia, states that some successful trials of this system have been carried out on long Russian telegraph lines.

On February 23, 1906, a telegraphic loop line was made up as follows: St. Petersburg-Moscow-Smolensk-Vitebsk-St. Petersburg. The loop was triangular in shape, and the length of the line was 1,106 miles (1,770 kilometres). The wire was 5 mm. iron (about 600 lbs., 8.88 ohms per mile), and there were two Wheatstone repeating stations, one at Moscow and one at Vitebsk. The Wheatstone automatic system (using the Morse alphabet) got fifty-five words per minute perfectly, but failed at sixty words per minute. The Murray system (using the Baudot alphabet), under exactly the same conditions, got ninety words per minute perfectly, but failed at one hundred words per minute.

On February 24, the following loop was made up: St. Petersburg-Yaroslavl-Kazan-Moscow-St. Petersburg, a distance of 1,926 miles (3,082 kilometres), 5 mm. iron wire (600 lb. per mile), with repeating stations at Yaroslavl, Kazan and Moscow. The speeds obtained were indefinite, as one of the sections was not in good condition. The Wheatstone got about thirty-five and forty words a minute, and at times a little higher. The Murray system got fifty-six words per minute, and ten messages were transmitted and printed. They were found to contain two wrong letters, a remarkably good result considering the condition of part of the line. This is the first time on record that a printing telegraph has worked over such a distance as 1,900 miles, even of copper wire, and in this case the wire was iron.

On February 25, a trial was made of a loop without a repeater from St. Petersburg to Moscow and back, 800 miles (1,280 kilometres) 5 mm. iron wire, about 7,100 ohms in the line and 800 ohms in the receiving relay, battery 140 volts and arriving current 13 milliamperes. The maximum speed of the Wheatstone (Morse alphabet) was twenty-five words per minute. The Murray system (Baudot alphabet) under exactly the same conditions got sixty-three words per minute easily and perfectly. Ten messages were transmitted and printed without an error.

On March 9, a trial of the Murray system was made from Berlin to St. Petersburg direct without a repeater. The length of this line is about 1,080 miles (1,728 kilometres). From St. Petersburg to Eydtkuhnen, on the German frontier, the line consists of 600 miles of 5 mm. iron wire, and from Eydtkuhnen to Berlin 480 miles of 3 mm. copper wire (4.37 ohms per mile). The total resistance of the line was 7,425 ohms. The trial was from 8.30 to 9.30 a. m., Berlin time. Berlin tested the wire, and reported that it was "not clean" (nicht rein), and wet snow was falling in St. Petersburg, where there was a thaw. After a few experiments a speed of seventy words per minute was reached perfectly with the Murray system on this line, the German typewriter sentence containing all the letters of the alphabet, "Kaufen Sie jede Woche vier gute bequeme Pelze xy 1234567890" being transmitted and received over and over again perfectly for about ten minutes. Traffic requirements did not permit of further experiments, but it is probable that by the use of a shunted condenser and increased battery power the speed might have been raised up to eighty or ninety words per minute. The highly favorable results obtained with the Murray system during these trials are explained by the inventor as being chiefly due to the employment of the Baudot alphabet, which is shorter than the Morse in the ratio of five to eight. It may also be mentioned that the inductive interference from neighboring wires was very severe on these long lines, and was an important factor in limiting the speeds obtained. The Wheatstone apparatus was well adjusted by skillful mechanics, and the results were as good as could be expected from it under the conditions. Special artifices, such as shunted condensers, were not employed.

Mr. Murray adds that whatever truth there may be in the newspaper reports about other departments of the Russian Government, the Russian telegraph service appears to be efficiently managed. Both in St. Petersburg and Moscow he found the head telegraph offices up-to-date and well equipped and arranged, and the officials hard-working, capable and well instructed. The volume of messages handled in Russia is far less than in Great Britain, about twenty millions, as against ninety millions per annum; but on the other hand, the territory served by the Russian telegraphs is vastly greater and the enormous Russian distances and the arctic winters have introduced special technical difficulties which have been surmounted in a way that would do credit even to American telegraphic enterprise. There is a general demand on the part of the public for an extension of postal and telegraphic facilities, and there are hopes that the newly elected Gosudarstvennaia Duma, or Imperial Parliament, will recommend the appropriation of sufficient funds to enable these increased facilities to be provided. Meanwhile, the Russian post and telegraph department has made the best use of the means at its disposal, and succeeds in bringing in a very large annual profit to the state.

For working over moderate distances the Hughes printing telegraph system is employed, and nearly all the long-distance circuits are equipped with the Wheatstone automatic, the received tape being handed to typewriter girls for transcription, a considerable number of typewriters being used for this purpose both in the St. Petersburg and Moscow telegraph offices. Nearly all the telegraph wires are

5-millimetre iron (about 600 lbs. per mile), and this fact, combined with the colossal distances, renders the use of an automatic system such as the Wheatstone inevitable. There are about sixteen Wheatstone circuits in Russia, among others Petersburg to Rostov, 1,100 miles and two repeaters; Kazan to Omsk, 1,000 miles, and one repeater; Omsk to Irkutsk, 1,200 miles and two repeaters; St. Petersburg to Odessa, 1,000 miles and two repeaters. From Irkutsk to Vladivostok is about 1,800 miles, and from St. Petersburg to Vladivostok is roughly about 5,000 miles. The longest Wheatstone circuit in Russia is the special wire from St. Petersburg to Irkutsk on Lake Baikal. This is 6-millimetre iron wire (about 800 lbs. per mile), and the length of the circuit is about 3,800 miles with six repeating stations. Pekin is, roughly, about 1,000 miles from Irkutsk, and on one occasion the experiment was made of working through direct from St. Petersburg to Pekin. A speed of thirty words a minute was reached quite clearly; a noteworthy achievement, considering that the line consists of over 4,500 miles of iron wire.

When Mr. Murray arrived in Russia the great postal and telegraph strike was over, and normal conditions had been re-established, but in Moscow the telegraph department was still hampered to some extent by the destruction of its city wires during the riots last year. The strikers tore down the telegraph lines in all directions, and in various quarters of the city telegraph poles could be seen with a tangle of wires still clinging to them. The inconvenience caused by the destruction of the Moscow wires was serious, because Moscow is a great telegraph center, from which wires radiate all over Russia. Temporary lines have been erected, but the Government is not going to be caught again in this way, and arrangements are being made for putting city wires underground in cables.

The Murray automatic printing telegraph system has now been working for about two years between Edinburgh and London, and a complete duplex installation is being constructed for London-Dublin. The system has also been working for more than a year between Hamburg and Berlin, and it is now working between St. Petersburg and Moscow. The Indian telegraph department has ordered a complete duplex equipment for use between Calcutta and Bombay, a distance of 1,200 miles, and the Austrian administration is having an experimental set constructed for trial between Vienna and Prague. When sets have been installed between London and Berlin and between Berlin and St. Petersburg, it will be possible (owing to the power of re-transmitting messages automatically from the received Murray tape) for any of the cities, Edinburgh, Dublin, London, Berlin, Hamburg, St. Petersburg and Moscow (and by-and-by Vienna) to exchange telegrams with each other automatically without disturbing the local traffic between any two of these cities.—Electrical Review, London.

Muscles Toil at Telegraph Key.

Did you ever stop to think that when you sent that ten-word telegram you may have made the muscles of a telegrapher's hand work needlessly and that the additional work can be measured in motions at the average rate of twenty-eight a word? asks the Chicago News. Because you insisted on getting ten words in the despatch you caused the muscles to go through 280 motions, and every one may have done its part in robbing the hand and its active finger of just so much strength. Hand paralysis has come to more than one man who has had his hand continuously at the key for hours and days at a stretch.

The toil of the telegrapher as measured in muscle motions has just come to the front as a unique argument in a plea of ten operators at points near Chicago, who have sent a petition to Congressman Crumpacker, who represents a Northern Indiana district. The petitioners want the working hours of a telegrapher, and especially one who works in interlockingt towers, reduced to eight hours.

Their chief argument is that they are forced to employ more muscle motions than any other toilers in the labor field. For this reason they, above all others, should be given an eight-hour day, they say, and receive the same monthly wages that they are getting now.

For instance, in sending the word "good" the operator's hand is compelled to make use of twenty different muscular motions. With the word "telephone" thirty-six are necessary. These embrace the downward movements upon the key, as well as the corresponding upward movements. It is estimated that continuous work for an hour means 48,000 motions, and for a twelve-hour day, 576,000.

The letter "p" is the longest in the alphabet when it comes to sending it over the wires. It necessitates ten muscle motions, and none of the other letters requires more than eight. In the "eight class" are "b," "h," "j," "q," "v," "x," "y" and "z." The alphabet, with the number of motions needed for each letter, follows:

A	4	J	8	S	6
B	8	K	6	T	2
C	6	L	2	U	6
D	6	M	4	V	8
E	2	N	4	W	6
F	6	O	4	X	8
G	6	P	10	Y	8
H	8	Q	8	Z	8
I	4	R	6		

The men who put forth the "muscle motion argument" are hoping it will win them a reduction of labor.

Dr. L. M. Rheem Indulges in Reminiscence.

(Continued from issue of May 16)

[The telegraphic fraternity as it existed thirty years ago at Omaha, continues to afford a theme sufficient in interest to still hold the versatile pen of Dr. Rheem closely to its delination, with which he concludes with this issue. These contributions of the Doctor have been extensively read, republished in the newspaper press, and have aroused a wide measure of attention.]

"John McNevin of the Omaha office was an extraordinarily fine operator and a very rapid sender. I recall a superb piece of work performed by him and Charles W. Hammond at St. Louis one Sunday night after a three days' interruption of our Chicago wire. We were stacked up sure enough; about eight in the evening I heard Ottawa call us; on answering he said, 'Here's St. Louis.' Hammond had patched up a wire somehow and in his usual accommodating way asked us if we had any business. We told him we had. On his telling us to let it come, I started in to send to him. As my particular specialty was sending a little slower than the slowest man that ever lived, I don't suppose I would have ever reached the bottom of the pile. McNevin came in and offered to relieve me, which he did, clearing the pile in a very short time. Hammond's receiving was just like everything else he ever did—that is, fine as silk. All that he said besides saying 'yes' in answer to question 'u tr?' was 'O. K., G. N.' at the end of the performance.

"Besides being a fine operator and a beautiful penman, John Morris was an expert clog and buck and wing dancer; he used to help keep things lively for us by his exhibition of this accomplishment.

"Charles Paxton was a quiet, hard working operator with the same vein of humor in his make-up that seems to have been so evenly distributed by nature among all the old old-timers to whom he belonged. William Wallace was a brilliant fellow, who will be remembered by many of the old Chicago boys.

"Everybody knew Bogardus; and in spite of his failing, or rather outside of it, there never was a cleaner, more honorable gentleman known in the profession. The same will apply to Schermerhorn, from whom I parted with sincere regret when the time came for him to 'move on.' Honey, who died a few years ago in Chicago, went West from Omaha, and later was connected with the Northern Pacific Railway. With the rapid development of the Northwest he became identified with large interests, and at one time was accounted to be a wealthy man.

"I shall always remember John Hanchett with peculiar affection. He was a humorist par excellence; the 'logbook' kept by him at night while he occupied the position of night manager would have been a paying proposition to any one who published it. It was completely filled with absolute gems, the most of which related to the business of the office. What ever induced me to let that logbook go, with other property, to the Western Union, is more than I can now tell. John was sent to Omaha as night manager by Mr. E. D. L. Sweet, the president of the company, who told him that if he handled the 'force' all right he could be assured of further and rapid promotion. The day he arrived he called at the office and asked me what time he was to report for duty. I noticed a sort of a blank look on his face when he reported the first evening, and saw every one leave the office but himself. Until then he did not know that he was the whole show. He always after regarded this as a great joke on himself, and as long as he stayed in the position was careful to enter on the logbook all the meritorious work, as well as the derelictions, of his 'force.' John died a few years ago in California, after a long and distressing malady.

"Before closing the personnel of the Union Pacific-Atlantic and Pacific family, I want to say a word respecting its chief, the late lamented John Jay Dickey, with whom I was intimately associated for nearly a quarter of a century. I have not proper words at my command to adequately express my high appreciation of him as a man and an employer. Kindly and generous by nature, he was an ideal leader as well, a staunch friend to all his associates and subordinates, who, without an exception, sincerely mourned his untimely death.

"In his note to me Mr. L. H. Korty truly says: 'No list of names of old-time telegraphers at Omaha would be complete without that of John A. Creighton, who assisted his brother Edward in the construction of the overland telegraph line. He was always a warm friend of the operators. John inherited most of his brother's immense wealth, which has been considerably added to by his own efforts and business sagacity. In recent years most of his energies and a large share of his wealth have been devoted to charitable work, building of hospitals, institutions of learning and the endowment of same at Omaha. In recognition of his good deeds, Pope Pius conferred upon him the title of Count of the Holy Roman Empire. Count Creighton is still living in Omaha, and bears his honors with proper dignity.

"Likewise in this connection we should not forget the name of the Hon. Edward Rosewater, the distinguished editor and proprietor of the Omaha Bee, which has grown from a little hand-bill in 1870 to a metropolitan journal of world-wide renown, occupying a building which is a marvel of elegance and convenience as the home of the great paper whose name it bears. Rosewater came to Omaha as a common operator. He left the service, I believe, during the strike of 1870. As I understand it, the Bee was established as a sort of protestant in the interests of organized labor. It has passed through many vicissitudes, coming many times perilously near shipwreck, which was averted by the good seamanship of its founder. To-day it is a power in local as well as national politics. It has the same stinger to-day that it had the day of its

birth, and can use it with neatness and despatch on any one whose actions are not comme il faut according to its editorial standards.

"One other product of Omaha should be mentioned. He was not an operator, nor had he any connection with the telegraphic profession. At the time of which I write he was just a broth of a boy with a big vision, which has since materialized. I refer to Henry D. Estabrook, solicitor of the Western Union Telegraph Company, New York city. While Henry is now one of the great telegraph family, I don't suppose he would recognize a dot or a dash if he should meet a pair of them on the street. But when he goes against an abstract proposition as to the rights and wrongs of things telegraphic, it is usually his meat; and when he picks up a few chunks of the English language and begins to juggle them into an oration, cripples and children should immediately get back of the ropes, for there will be something doing in just a minute. His orations are known in all parts of the country, as absolute patterns of good English and exponents of higher life and ideals. As I have always been proud of Nebraska products, I am particularly proud of Henry. Hence this mention.

Thirty Years Ago, with the Boys at the Key in Missouri.

BY J. W. HAYES.

Pleasant recollections of highly esteemed friends of former days are a great solace and comfort as one grows older, hence it is that the memory of my St. Louis days in 1876 always fills me with gladness. As I turn my mind's eye backward and review the faces and forms of the dear old friends of thirty years ago some thoughts have a tinge of sadness, for many of those whom I knew have passed over to join the great majority.

Upon my first arrival in St. Louis I was met at the depot by Fred B. Moxon and William T. Loper, who welcomed me to the city. I shall never forget the generous and hospitable manner in which I was received.

The chief operator in the Western Union telegraph office at that time was William W. Cummings, upright in character, genial in disposition, a man possessed of many desirable qualifications. He was a man that took much interest in field sports, and David S. Anderson, of Chicago, will probably remember the occasion when his big Chicago baseball team bit the dust, victims to the prowess of Mr. Cummings's nine. A. C. Vantine was assistant chief operator and wire chief. He was always full of anecdotes and had a story to fit any phase and condition of life. Charles H. Lawson was temporary night chief, but he went to New York, where he has since been located in the Western Union service; he was succeeded by John H. Topliff, who afterwards succeeded Mr. Cummings as day chief.

One of the most beloved men on the force was Sidney B. Fairchild. He worked the old western pony report wire during the week and was our Sunday night chief operator. He was an educated man and possessed an innate refinement of character. I learned much under his paternal tuition and his influence for good was felt by the entire force.

Edward H. Parmlee, now one of the sages of the St. Louis office, was the gayest of the young men of that day. His hearty laugh and cheery words were much in evidence. William T. Loper, one of the finest operators and most gentlemanly of men, handled The Associated Press, "Patsey" Ayres being the sender in Cincinnati. Mr. Loper was a hard student, a thinker, and later became a noted journalist and stenographer at the national capital and in New York. He died in April, 1895.

The person who seemed to have the brightest future was Fred B. Moxon. He was still in his teens at this time, but despite his youth he was looked upon as a phenomenal operator. His sending was superb and the peculiar copy he executed was like a picture. Mr. Moxon, with myself, published a little telegraph paper in 1876, entitled "The Electric." It was a bright, breezy sheet and numbered among its contributors such happy spirits as Charles Selden and John C. Mattoon. The office poet and artist was John S. Cassidy, and he had a faculty of cartooning everything and everybody, nothing escaped his satirical pencil. He was a great operator in those days and as entertaining at home with his banjo as he was during office hours with his other accomplishments.

Theodore P. Cook, now the general superintendent of the western division of the Western Union Telegraph Company at Chicago, was one of the pleasantest members of the day force. He looked after the way-wires, and it is needless to say that that branch of the office service was well taken care of. Thomas P. Wheeler as an operator was a star of the first magnitude, and together with James S. Nelson and James A. Murray formed a trio of choice spirits, the equal of which was not to be found readily elsewhere. Edward A. Keene, dainty in appearance and gentlemanly in bearing, was especially a good fellow to meet. Charles T. Day, too, was a prominent member of the day force and a man of excellent reputation.

Included among the rest of the operating force at this time were: Paul Murphy, William J. Foy, one of the best fellows in the world; Michael Tully, Charles Burroughs, the office draughtsmen; George King, who had the reddest hair I ever saw; the two Eckert brothers, one of whom was called the "great American balloon man" on account of his immense size; Winfield S. French, one of the handsomest and most polished men in the business; Lara N. Boone, who had

just come from Hannibal, Mo., the home of his youth, and who thought St. Louis was a "wild town," and James W. Cook, a great "jiner" and who belonged to about every order then in existence. John W. McDonald was another of the great operators of that day. He succeeded Mr. Loper as press operator. William A. Manley, David S. Ryan, A. R. Pippitt, David Campbell and John L. Morris came to the St. Louis office from Texas in 1876. This quintette were a big acquisition to the office. I have forgotten the name of the all-night chief operator. He was a foreigner.

R. W. Irwin, known from Chicago to Galveston as "Canada's fastest man," was a whilom member of the St. Louis office. He was a comedian, a musician and a good operator. He died in 1880 somewhere in the South.

I would like to go over the entire personnel of the office force, making mention one by one of all the old friends, but your space will hardly permit.

Of the faces so familiar in those days many have gone on their long, last journey. As near as I know the names of those so departed are: Sidney B. Fairchild, William T. Loper, Frederick B. Moxon, William J. Foy, William W. Cummings, James C. DeLong and J. A. Murray.

An operator in the St. Louis office was always treated courteously and with consideration when he had occasion to call on Col. R. C. Clowry, who was then superintendent of the district. The Colonel liked to become personally acquainted with his men, and a fifteen-minute conversation with him was apt to establish an amity of feeling, fruitful of good results. The Colonel was regarded as a man of keen insight and perception, broad minded and with a strong force of character. It was predicted thirty years ago by S. B. Fairchild that eventually the Colonel would fill the chair of the president of the Western Union Telegraph Company. How true this prediction events have proved.

A quiet, unostentatious gentleman occupied a desk in Col. Clowry's office. This was Mr. Isaac McMichael, who was the Colonel's chief clerk, and the tutelage he received in this school of telegraphic discipline and management evidently qualified him for the position he has since attained, that of vice-president and general manager of the Great North Western Telegraph Company, Toronto, Ontario.

James P. Cassidy, now manager of the Western Union Telegraph Company at Minneapolis, Minn., was one of Mr. McMichael's principal clerks, and he, of course, availed himself of his opportunities to gather knowledge. Edward J. Nally, now the general superintendent of the Postal Telegraph-Cable Company, Chicago, was also employed in a clerical capacity in Colonel Clowry's office at this time. The success that has followed most of the men who were attached to Colonel Clowry's department shows conclusively the value of the training they received when in that association.

E. H. Brown was manager and Augustus Hackett and Richard Brown were the day and night clerks, respectively. R. H. Bohle was manager at the Merchants' Exchange. He was very popular with the business public, always attentive, accommodating and never losing patience.

The Atlantic and Pacific Telegraph Company built their line into St. Louis in 1876. That company was fortunate in securing the services of Charles W. Hammond as manager. Mr. Hammond was a very energetic and far-seeing man. He appointed W. H. Spencer as manager of the Merchants' Exchange office, and after that there were no vacant moments on the company's solitary wire to Chicago. George E. Millar and Charles Cloud were respectively the day and night operators. Mr. Spencer became chief operator for the Western Union after the consolidation of the Atlantic and Pacific with that company. He was a noble fellow, loved by all who knew him. He died about three years ago. Charles W. Hammond was but recently retired from the superintendency of the Missouri Pacific telegraph system honored and loved by all.

I worked the "Long Horn" wire in St. Louis taking in Dallas, Sherman, Houston and Galveston with repeaters at Denison. And who was attending the repeaters at Denison? None other than our old friend Jacob Levin, now the general superintendent of the southern division at Atlanta, Ga., of the Western Union Telegraph Company. Any one who has had the care of button or Milliken repeaters with the fastest kind of work expected, can imagine how the poor fellow attending the repeaters must necessarily get rounds of abuse. This was very much the case on the Long Horn wire, but I would like to say that never did I hear a word of protest from Mr. Levin. Always attentive and patient, with a "soft answer which turneth away wrath," the boys soon got to realize that in him they had no legitimate cause for complaint.

There may be vast improvements in the equipments and furnishings of the St. Louis office since the days of which I have written, but certainly there are no truer hearts nor more generous hospitality shown in these latter days than were found among the Missouri boys of 1876.

Consul James C. McNally, of Liege, Belgium, writes that creosote injected into wood has the well-known preserving effect, but as injected under a German process, according to "The Tramway," the effects are considerably enhanced. It is said that this process has succeeded in submitting the resinous woods to the action of creosote, heretofore considered refractory.

The Associated Press Men's Work at San Francisco—How the Earthquake News was Gathered and Sent Out.

Paul Cowles, superintendent of the western division of The Associated Press, has transmitted to General Manager Melville E. Stone a report of the work done by the association's men in connection with the San Francisco earthquake. Mr. Cowles says in part:

"When the earthquake came at 5.13 in the morning of April 18, Night Editor John Finlay and Operator Ben McInerney were on duty. The building which was occupied by the Western Union Telegraph Company and The Associated Press did not fall, but plaster and chandeliers came down with a crash. Our wire to the East had closed at five o'clock, but the state wire was in operation. Instantly all telegraph communication with the outside world was lost.

"Finlay and McInerney did not leave the building. Finlay wrote a bulletin telling of the earthquake and McInerney rushed up stairs to the Western Union office to get it off to New York. The telegraph operating room was a wreck and there were no wires. He filed the bulletin, however, in the hope that a wire would be secured. In the meantime Finlay was at his desk turning out copy.

"Chief Operator R. E. Geistlich had left the office at five o'clock, and when the shock came went back. He saw the hopelessness of the situation, and taking McInerney with him rushed for the boat to Oakland to make wire arrangements. They arrived in Oakland about 6.30 and found conditions there almost as bad as in San Francisco, so they returned.

"I arrived at the office about 5.45 after a rapid sprint through the streets. It took but a moment to ascertain the telegraph situation so far as the Western Union was concerned, so I went to the Postal office a few blocks away. There Electrician Swayne was found tinkering with a feeble wire to Chicago. He held out a faint hope for a wire, so I wrote a bulletin and stood over him while he tested and manipulated.

"The Pacific cable office was in the same building, and I filed a cable bulletin addressed to you, to be sent across the Pacific around the world to New York. The cable operator declined to take the message, saying it was irregular and he did not know the rate. I offered to pay any rate that would be charged, but the cable man was confronted by an emergency that the cable company's rules had not provided for and he declined to take the message. He did send a message to Honolulu, however.

"Then I went back to Swayne and nursed that bulletin. Finally, there was a hopeful click and away went the news to Chicago. In the meantime Night Manager Johnson, of The Associated Press; Day Editor Curtis and my stenographer Creighton had arrived, and the story of the earthquake was being written as rapidly as the typewriters could work. We were at last given a wire by the Postal company, and the news began to go out. Just after a fair start the wire failed, and we danced up and down with impatience. We eventually got another start, but at eleven o'clock we had to leave the Postal building, as the fire was close by.

"While all this was going on I realized that the Federal troops would be called to guard the city, so I sent a man to General Funston's headquarters for passes for our men. The general issued half a dozen. I also sent for an automobile and scoured the water front for a launch in which to send men to Oakland, as the ferryboats had stopped. Not a launch was to be found, but an exhibition of nerve and the magic name of Funston on a pass induced the captain of the government tug McDowell to take Operators Geistlich and Lynch and a newsman across the bay to Oakland. There workable wires were secured early in the afternoon, and the operators got busy. They had plenty of copy.

"I went back to the office and found all the force there except Jerry Carroll, one of the night editors. The men were sent out to various sections of the city to ascertain the damage. I was alone in the office at one o'clock when soldiers ordered me out, as the building was about to be blown up to stop the progress of the fire. I moved in a hurry to the Bulletin office on Bush street and waited for the men to appear. They had lost the trail, however, and I sat in solitary state waiting for them to turn up.

"Finally I began to write a nightlead for the morning papers. I wrote the story, but I can't remember now how it got to Oakland. All I know is that it got there somehow.

"About dusk Carroll arrived in a badly battered condition. A wall had fallen on his house and he had spent the day in being patched up by a surgeon. He immediately went to work and early Thursday morning went over to Oakland with his story. There he found Johnson, Curtis, McDonald and Finlay. At noon on Thursday Moore arrived from Los Angeles and came over to San Francisco Friday, and never was a man more welcome. I had been appointed a member of the mayor's committee to assist in the administration of the city.

"Vincent arrived from Portland Saturday morning and was another welcome addition. My automobile had been confiscated Wednesday night by the soldiers and I spent Thursday and Friday fighting for a wire and hunting for an automobile. Municipal headquarters, the news center, had been established on Filmore street, three miles from the ferry. There was plenty of news in San Francisco, but the problem was to get to the ferry and over to Oakland. It was sent by messengers on foot, on horseback and in express wagons.

"Saturday I managed to hire an automobile and have been struggling ever since to keep it from being confiscated. Thursday night the Postal had a wire from the ferry to Oakland and we were allowed to send 500 words on it. Next day some one cut the cable, and even that small comfort failed.

"Sunday night Operator Brown arrived from San Diego, and was of material help to our operating force.

"Monday night we secured a wire from the telephone company, which we turned into a Morse circuit. We used this wire for two nights of joy, but on the third night the telephone company went out of business, their cable having been blown up, and we were forced back to the old system of delivering by messenger to Oakland. I secured a permit for the Western Union to run a wire into Municipal headquarters at Franklin Hall, and to-day, at noon, The Associated Press commenced operating the first regular wire out of San Francisco.

"I want to call to your attention the splendid example of devotion to the service shown by everybody from newsmen and operators down to messengers. Most of them have lost their homes and are sleeping in camps and on benches. They braved falling walls and went through the city at night at imminent danger of being shot, and no one hesitated when ordered on dangerous duty. I do not know how our stuff reads, for I have not seen an outside paper, but I do know that the men here have cheerfully given the best that is in them. Your messages of encouragement have acter as a stimulant to the tired and overworked men.

"In twenty-four hours succeeding the earthquake The Associated Press sent 21,300 words from San Francisco."

Wireless Telegraphy.

Germany has issued invitations to twenty-nine different states to take part in an international wireless telegraph conference at Berlin, June 28. Among those invited in the Western Hemisphere besides the United States are Argentina, Brazil, Chile, Mexico, Peru and Uruguay. Japan, Siam and Persia have been invited, but China has not been asked to send representatives. Secretary Metcalf, of the department of commerce and labor, at Washington, has designated John I. Waterbury, president of the Manhattan Trust Company, of New York, as the representative of that department at the conference.

According to the Wyoming Tribune, of Cheyenne, Wyo., the city lines and long distance toll lines out of Cheyenne of the Rocky Mountain Bell Telephone Company were rendered inoperative recently during business hours for several days, owing to wireless telegraph interference from Denver, Colo. Although Cheyenne is 100 miles distant from Denver, the wireless telegraph signals affected all the telephone wires in Cheyenne and the toll lines running out of the city. The dots and dashes of the Morse code could be easily read and sounded in the telephone receiver like the buzzing of bees, the noise being so loud that it was impossible to talk over the lines. The station at Denver is stated to employ 50 kw. in wireless transmission.

The First Galvanometer.

Mr. Henry A. Reed, president of the Bishop Gutta-Percha Company, New York, himself an old-time operator and a forty-niner of the telegraph, never loses interest in the profession of which he was a member many years ago. A few days ago, being in a reminiscent mood, Mr. Reed sent the following to TELEGRAPH AGE:

"The telegraph operator of to-day probably thinks he has his share of troubles, but he knows little of the vexations incident to the business in its early days. Then an operator had not only to repair his own instruments, which were frequently injured by lightning (arresters being almost unknown), but also to repair the lines himself, because repairers were not generally to be had, and in order to expedite such repairs he had to locate faults without the aid of experienced electricians and without the delicate instruments now employed to perform that service. For several years it was thought possible to decide only between offices where the trouble on a line occurred, and accordingly offices for testing purposes were established near together in order that the line might be quickly repaired by sending out the operator from the office on each side of the fault. As early as 1851, however, faults were located by myself, and probably others, by means of relay magnets and the shock measured by fingers and tongues.

"In 1856, after having located a cross and determining that it was ten miles below Poughkeepsie, where I had charge, Prof. S. F. B. Morse, who was a frequent visitor at my office and a resident of Poughkeepsie, became very much interested in my experiment, which seemed new to him. A few days afterwards he presented me with a small galvanometer, made by Henly, of London, which he had brought with him from England but a short time previous. He remarked as he handed me the instrument: 'I think, Mr. Reed, you will find this better than your fingers in locating faults.'

"After the Telegraphers' Historical Society of North America had been organized, and we were gathering different instruments as mementos of early experiences, it was found that this galvanometer was the first to be used in this country for the purpose of testing for line trouble. This instrument is now deposited in the Morse collection in the Smithsonian Institution at Washington."

The Western Union in the San Francisco Disaster

BY H. J. JEFFS, CHIEF OPERATOR.

I hope it is not too late to say a few words of praise for the boys who stood by the helm of the Western Union Telegraph Company in its distress at the time of the San Francisco disaster, and brought it to the front amid the praise of its patrons and the general public.

From fragments a telegraph office of goodly proportions was built, and it was done by the Western Union boys who thought not of recompense. They were loyal to their employers and the cause. They risked their lives. They thought not of meat or sleep until exhaustion and fatigue overtook them and they fell asleep at their keys. They left their families on the hillsides and went in search of their fellowmen, then they found the Western Union and were quick to see what grand service they could be to suffering humanity. Such men the Western Union company are proud of They could not do otherwise under the leadership of so grand a man as General Superintendent Frank Jaynes, whose thoughts were first for the welfare of his employes and second for the company's interests. His first instructions were to secure comfortable quarters for the operators, and second to establish an office from the odds and ends at our disposal. Some who had left their families on the hills or in the parks did not see them for a week but they worked on and on, trusting that the Almighty hand that swayed the earth would protect their dear ones. But every minute brought more anxiety as the fire stretched forth in its sweeping magnitude, driving the occupants of the great city to its remotest parts dealing death and destruction in its path. Steadily they worked as they watched the tongues of fire shoot high into the heavens and the seething flames spread, the volumes of smoke by day and the brilliantly illumined sky by night. They were doing a mighty work for those worse off than themselves and thought only of the distress that such a catastrophe would bring. Relief was urgent and it must come or all would perish. And when one was asked to deliver a message to General Funston in San Francisco, it was "Jim" Cuyler who volunteered to do it, saying: "If any one can get it there I can and I'll do it or die in the attempt." He started out with three cheers from the boys around the pole where the wire had been tapped and the message received from Washington.* It took him hours but he performed the task. He beat his way through the burning streets and past guards some more or less intoxicated and reckless; he narrowly escaped death from falling walls and braved the terrors of dynamite and exploding gas mains. Finally he reached the Hall of Justice where he secured a badge which gave him liberty in the city; he visited the Western Union building at the corner of Pine and Montgomery streets but he found nothing but gloomy surroundings and deserted walls. He returned to West Oakland foot sore, sprinkled with snowy white particles of plaster and a complexion that would make a jack tar envious, from the tremendous heat of the conflagration, but he accomplished the task for which he so determinedly started out and delivered messages from Col. R. C. Clowry, president of the Western Union Telegraph Company, Melville E. Stone, general manager of The Associated Press, and others. This is only one of the many heroic deeds with which the Western Union boys can be accredited.

The old Main Office of the Western Union Telegraph Company, at San Francisco, which was destroyed by earthquake and fire.

At the time of the earthquake there were on duty in the Western Union building the following persons: J. A. Lowery, all night chief operator; W. R. Melville and J. W. Whiteley, operators and A. Winn, case boy. Their escape was miraculous. The building shook gently at first, then it swayed. Old mother earth heaved like a mighty wave and settled. The buildings creaked and plaster flew in all directions. In a few seconds of time the walls of the Western Union office were devoid of all ornamentation, the dynamos had stopped and the click of the sounder ceased. People ran through the streets half clad and frantic. Some injured, others lay dead under fallen brick.

The disaster happened at a most fortunate time as there were not many persons in the business district at that hour. Many hucksters were caught in the marketing district and buried, teams and

* According to the official report Chief Operator Jeffs remained at the top of the thirty-foot pole giving directions to his scattered forces and endeavoring to straighten out the mass of tangled wires, as well as arranging temporary quarters near that point.

all, under fallen debris. But our men stuck to their posts of duty and with pale faces and trembling hands wire after wire was felt, but no electrical impulse could be found. It was a deadly stillness. Wire Chief R. D. Weeks rushed to the office expecting to find all dead, and Electrician H. S. Converse was also one of the first on the scene, and they worked indefatigably to restore the broken threads and to place the office in condition to handle the vast amount of business that would certainly follow such a disaster—they had not learned that the city was then on fire in a dozen or more places. In the meantime I wended my way to Oakland pier, from my home in Oakland, and such a sight that greeted my vision! Chimneys down in all directions, houses leaning and swaying from their foundations, water mains broken, wires a tangled mass and rails twisted out of shape. When I reached the despatcher's office at Oakland pier everything was quiet and the six or eight despatchers on duty were discussing the terrifying event. Their wires were all short circuited and many trains were either tied up or were flagging over the road. They could not even reach the first station, two miles

The new temporary Main Office of the Western Union Telegraph Company at West Oakland, Cal.

away on any wire. In a few minutes an instrument commenced to click. It was R. D. Weeks, who had reached the cable box on the 'Frisco side of the bay. He informed me of the conditions in the city and I started out with a light engine to find communication. I found it at West Oakland after opening all wires on both routes and feeling the wires one by one. I first got the railroad office at Sacramento and it was not long before I was in communication with Superintendent F. H. Lamb at Goldfield, and later with our officials at Chicago and Assistant General Manager J. C. Barclay, at New York, who were quick to grasp the situation and give the necessary instructions. Mr. Harriman was connected with the railroad officials at Oakland pier and train wires were soon made up in a roundabout way. All day and part of the night, working by the dim glare of a lantern, I stayed at my arduous work, endeavoring to make up circuits with the aid of a single relay. The wires were crossed in a hundred places, broken and grounded. Operators had deserted their stations at many places and it was a trying situation, but the day was a glorious one, and beyond the sorrow that brought tears to the eyes of robust men there was the everlasting cheerfulness of the warm atmosphere and the exhuberating sunshine.

By nightfall we had a little telegraph office, and besides The Associated Press and railroad wires, we had a wire to New York, one to Chicago and one to Portland, Ore., all spreading details of the great disaster and appealing to our more fortunate neighbors for assistance for the struggling masses across the bay. We had rented or confiscated a cottage nearby and as fast as instruments could be gathered we moved the dear lady occupant to the home of her mother and took possession of the entire building, but it proved to be too small. San Francisco and New York were kept in constant communication from early morning.

It was well that such was the case, as the fires in the city had spread beyond control, the water supply had failed and the city was doomed to destruction. Nothing could be saved and our people lost everything but their lives, but they were thankful to have been even so fortunate as that. Their losses were only material and above it all still floats the glorious emblem of liberty and prosperity. They are happy and contented and very few have deserted the scenes. The Western Union Telegraph Company, under the supervision of General Superintendent Frank Jaynes, Superintendent F. H. Lamb and their subordinates, have done much to make them so. By the generosity of these officials and the company, the employes had comfortable places to lay their tired and weary bodies and food to strengthen them, and they will soon be enabled to help themselves.

Day after day, through sunshine, rain and fog, I persevered with the wires from the pole, while Messrs. Weeks, McCormick, Lowery, Wilson, Brown and Melville tussled with the vast amount of business, the magnitude of which never before was experienced on the Pacific Coast. The boys tugged away at beef sandwiches with their left hands and bunches of special with their rights. Electrician H. S. Converse, Night Chief R. W. Gillette and Manager J. V. O'Brien looked after the company's interests in the city, resting for a few hours at night on the cold marble floor of the ferry building. I. N. Miller, Jr., and A. W. Sine did not have hands enough to hold what was heaped upon them. Grateful were the boys when the Wheatstone girls came around with baskets of specially prepared delicacies for those at work.

In three days' time Electrician Louis McKisick reached here from the East and Wheatstone and duplex sets were set up in the twinkling of an eye, and Mr. McKisick holds the record for quick work. He brought all the telegraphic pharaphenalia two thousand miles, built an office 60 by 100 feet and put in an up-to-date plant—one that the company can well be proud of—and had 170 operators at work in less than one week's time. We take off our hats to Louis McKisick.

The International Telegraph Tournament at Boston.

Editor Telegraph Age:

I have read with a great deal of interest your recent articles on the coming tournament in Boston, and I would like to say a few words on the subject.

Your correspondent of April 16 makes a good point when he says give us more useful things and less cups. If I were lucky enough to win a cup worth $200 or $300 I do not think I would care to leave it on my sideboard to be gobbled up by the first sneak thief. It would probably be the part of wisdom to keep it in a safe deposit vault where it would be worth about as much to me as last year's straw hat. In the issue of May 1, Mr. S. F. Shirley says that the tournament is being held for charity and that these articles (cups) are contributed by generous friends. But is it more charitable or generous to give a cup than to give its equivalent in money? I do not think so, and see no reason why a contributor should not be just as willing to donate a watch, a diamond ring, the cash itself, or any other equivalent of the amount he had decided to give. What is the use of trying to hide the fact that the money would be the most acceptable prize to the average operator?

In regard to the team, or "bonus" class, I understand it is to be limited to hand senders. This seems to me unfair for the following reasons: It is stated that the Postal Telegraph-Cable Company rule is to govern this contest. There is no rule in that company requiring bonus operators to send by hand. Nor is there such a rule in the Western Union Telegraph Company's service. On the contrary, an operator is permitted to use any method of sending that in his judgment is the best. This is perfectly proper, and if he sends more business with a machine than another man sends by hand he is rewarded with increased earnings. It will probably be said that if one man were permitted to use a sending machine in the tournament he would be given an undue advantage over his competing hand sender. But would he? If he is bright enough to see the benefits to be derived from an automatic sending machine and by persistent effort and hard work becomes skilful enough in its use to distance the hand sender, is he not entitled to the fruits of his work? Why should he be forced back to the level of his less progressive brother? Is it not rather up to the latter to realize that in order to keep in the front ranks of his profession he must adopt new and progressive ideas and methods? Would it not be just as consistent to bar the typewriter and compel the receiver to use a pen?

Philip J. Faulkner.

New York, May 24, 1906.

Commercial Telegraphers' Union of America.

The official souvenir of the convention of the Commercial Telegraphers' Union of America held at Cincinnati, beginning May 7, and which was distributed free to all delegates, is a handsomely gotten up pamphlet, reflecting credit upon those who undertook its production. It printed the programme of the daily meeting of the convention and was abundantly illustrated, giving pictures of officials and others, also many of Cincinnati's show buildings, parks and other points of interest. Under the heading of "The History of the Organization" this appeared thereon:

"Ten or fifteen locals, representing the International Union of Commercial Telegraphers, held a convention in Chicago, 1902. Another organization formed in the East, known as the Brotherhood of Commercial Telegraphers, convened in Pittsburg in December, the same year. Two months and a half later, after considerable agitation in both organizations for an amalgamation, conferrees from both organizations met at Washington, and on March 15, 1903, the two organizations were amalgamated into the Commercial Telegraphers' Union of America. The first convention of the latter was held in New York during the week of July 19, 1903. The second annual convention met at St. Paul during the week of July 19, 1904, at which convention biennial sessions were voted to be held. Cincinnati was chosen as the convention city for the third regular and first biennial convention.

"At the New York convention the organization had fifty-seven local reports. At the second, held at St. Paul there were eighty-seven locals. The third, held in Cincinnati, one hundred and nineteen locals were represented.

"During the past twelve months sixteen schedules and wage scales were presented to employers. The national president, S. J. Small, secured increased salaries and reduction in working hours in fourteen cases. Ten of the schedules provide for the employment of union telegraphers only, and in four cases secured increase in wages and reduction of hours without union contract."

The direct Wheatstone working on the Indo-European Telegraph Company lines now obtaining on all the company's circuits has been extended to the London-Constantinople section, telegrams being transmitted between those points without intermediate retransmission by automatic Wheatstone working over the company's lines and the cable of the Black Sea Telegraph Company.

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.]

PHILADELPHIA, WESTERN UNION.

The sudden death of Rodney Smith on May 9, mention of which was made in this column May 16, removed a man who was highly esteemed in this office. He was a native of South Deerfield, Mass., where he was born March 16, 1852. Going west, he learned telegraphy at Quincy, Ill., subsequently becoming identified with the railroad telegraph service. Entering the employ of this company he later became manager of the office at Atchison, Kan., a position he retained for a number of years. In 1887 he was transferred to a like post at St. Joseph, Mo., where he remained until 1903, when, in seeking needed rest and a change of climate he came to Philadelphia. Refusing the proffered managership of an important office, his wishes were respected and he became an operator in this office, holding the position up to the time of his death. The interment was at Quincy, Ill.

PHILADELPHIA, POSTAL.

A good spring business with a prospectively busy summer, is one of the chief reasons for additions to our force. Among the most recent arrivals are Messrs. N. J. Herron, from Pittsburg; S. J. Reidel, formerly of this office; R. J. Madell and W. T. Dawson.

Miss McTague has resigned to accept a position in a broker's office.

Some tall hustling is done these mornings to keep the heavy berry business on the move. Messrs. E. M. Carpenter, J. B. McKeegan and Horace Steltz find themselves up against it, but never so badly piled that they cannot soon diminish it.

The additional space acquired in the operating department by crowding the manager's quarters and encroaching on the public receiving room, will be utilized to accommodate eighteen new single sets, two quadruplex and two phantoplex sets, all of which will be speedily installed.

With the appointment of Mr. William Griffith from the Drexel Building branch office to the night managership of the Broad street station branch office, things at the latter place have resumed their normal condition. Mr. H. B. Nunneville fills the vacancy created at the Drexel building office.

Miss Alice C. Davis is now night operator at the Germantown office, vice Mr. A. Peoples, resigned to go with a broker.

NEW YORK, WESTERN UNION.

Mr. Oscar Zilly has been appointed manager of the Maritime Exchange office, vice Henry Holland, deceased.

Mr. Andrew Turner, of the first Boston bonus wire, who has been absent on a three-weeks' vacation, which took him on a shooting trip through New England and Canada, is back at his desk again.

Lawrence M. Keating, formerly an operator in this office, who was injured in a trolley accident some time ago while on his way home from Coney Island, died at the Kings County Hospital, Brooklyn, N. Y., on May 14. Interment was at Allentown, Pa.

Harry Dunn, western traffic chief, has returned from his vacation.

Traffic Chief W. B. Purcell is absent on his vacation.

Morris L. Wescoe, formerly of this office, and Miss Marie McCormick, a member of the operating staff, were married on May 14, and sailed for Scotland the same day on the steamship "Ethiopia." Mr. Wescoe will be stationed at the Eastern tower, Machrihanish, Scotland, in the employ of the wireless telegraph.

Miss Clara Ayres has been transferred to the Stock Exchange office.

Wire Chief H. C. Worthen has resigned to accept an outside position with a brokerage firm.

The following changes have taken place: Wire Chief James McGuire to western switch, vice H. C. Worthen, resigned; Traffic Chief H. S. Pearce to Erie switch, and Joseph Pogue promoted to traffic, southwestern division.

NEW YORK, POSTAL.

The Rowland octoplex system is soon to be installed, and tested on one of our Boston circuts.

The following changes have occurred:

Charles B. Obst, eastern night traffic chief, has been transferred to the western traffic, days.

J. W. O'Ryan has been promoted from assistant city chief, nights, to eastern traffic chief, nights, vice C. B. Obst.

J. A. Dupuis, night city chief, has been transferred to assistant city chief, days.

J. M. Mearns, day assistant city chief, transferred to night city chief.

The late arrivals here include: John P. Roohan, James A. Meade, John Yannacie, A. Morris, R. J. Van Hoff, James Gunderson, A. W.

Cervante, James A. Holmes, W. J. Hogan and Charles H. Gessner.

The resignations are: L. M. Strong, F. W. Robinson and Frank Mican.

OTHER NEW YORK NEWS.

Assessment No. 449 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of John E. Reichert, at Kittanning, Pa.; Thomas Stevenson, at Jamaica, N. Y.; Percival K. Jones, at Rochester, N. Y., and David H. Purdon, at De Land, Fla.

Mr. Perry Chamberlain, formerly city solicitor of the Postal Telegraph-Cable Company, is now the New York representative of the Campbell Art Company, of Elizabeth, N. J. Mr. Chamberlain has had wide experience in his new line of business and his friends wish for him every success.

The summer outing of the Magnetic Club will take place on Tuesday, June 19, at the Cove Hotel, Livingston, Staten Island. As usual, the Western Union Telegraph Company will place at the disposal of the club the cable steamer "Western Union," which will carry the members to and from the grounds. The programme will include a game of baseball and other outdoor sports. Many appropriate prizes will be distributed among the members.

The offices of the Serial Building Loan and Savings Institution, which have been occupying temporary quarters on the fourth floor of the Postal Telegraph Building, 253 Broadway, New York, have been moved to permanent quarters on the seventh floor of the same structure, where ample space is provided to take care of the association's growing business.

The Morse statue in Central Park was most appropriately adorned with flowers on Decoration Day. While this beautiful practice is carried out in accordance with the annual custom of the Morse Club, whose object tends to keep the name of Morse ever fresh in the loving memory of those to whom his gift of the telegraph is as their alma mater, its observance this year was rendered the more striking by the interest shown in the performance by numerous Western Union officials. The contributions of these gentlemen for the purpose, made through the committee having charge of the affair, of which Marion H. Kerner was chairman, were of a generous nature, and were received from John C. Barclay, assistant general manager; B. Brooks, general superintendent; E. M. Mulford, superintendent; Herbert Smith, assistant superintendent; T. A. McCamman, chief operator; W. J. Dealy, superintendent commercial news department; T. M. Brennan, F. D. Giles, and others.

Recent New York Visitors.

Mr. Frank B. Knight, special agent of the Southwestern Telegraph and Telephone Company, Dallas, Tex. Before his advent into the telephone business Mr. Knight was manager of the Western Union Telegraph Company at Omaha, Neb., and is well known in telegraph circles. His numerous New York friends were glad to greet him while he was in the city.

Work of the Signal Corps at San Francisco.

Reference has been made more than once to the work done by the United States Signal Corps in San Francisco. In a recent article on the subject, the Chronicle says: "When the work of the army in San Francisco in the days of the fire is told by those who know whereof they speak, there is one branch of the service which will receive praise that will be as unstinted as it is merited. Without the men of the signal corps, commanded by Captain L. D. Wildman, the 2,500 troops under General Funston would have worked like so many scattered individuals, without orders and without a head. 'I was once at the head of the signal corps,' said General Greely, 'and I feel a delicacy in speaking of their work here as I would like to do. But you may say from me that for three days the only electrical communication in the downtown section was over the wires that Captain Wildman's men strung over ruined walls through the heart of the burning district.' At 10 o'clock on Wednesday morning they had a wire from the Presidio to the edge of the burning district. Until 3 o'clock that afternoon, when the Postal Telegraph building went down, they kept one wire opened to Washington. General Funston, who was directing the troops from Market street during those hours, was in communication with his base and with Washington all the time, when a newspaper man could not get a message out of the city for love or money, and the city telephone plant was down and out."

Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Denver, Colo., June 20, 1906.

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 New Haven, Conn., on August 15, 16 and 17, 1906.

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 Buffalo, N. Y., in June, 1906.

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.

Special Government Report on Telephones and Telegraphs.

A report on the telephone and telegraph systems and the municipal electric fire alarm and police patrol systems of the United States has just been published by the Bureau of the Census. The statistics were collected and compiled under the supervision of Mr. W. M. Steuart, chief statistician for manufactures, and the text was prepared by Mr. Thomas Commerford Martin, of New York city, expert special agent.

This is the last of a series of reports on the generation and utilization of electric current for the transmission of power, messages and conversation. Former reports relate to street and electric railways, and central electric light and power plants.

This report presents statistics concerning the physical equipment, service and financial operations of the commercial and mutual telephone and telegraph systems of the country, and the physical equipment of independent rural telephone lines.

The statistics of the telegraph and telephone industries of the United States were first shown in the census of 1880. At that time telegraphy had been growing steadily for nearly forty years and telephony was in the formative stages of development. Since then, however, telephony has progressed to such an extent that it has surpassed telegraphy in physical and financial magnitude.

In 1902 the telephone systems operated more than three-fourths of the wire mileage reported for both telephones and telegraphs, gave employment to seven-tenths of the wage-earners, paid more than two-thirds of the wages, received more than two-thirds of the total revenue, and paid more than two-thirds of the total expenses.

The effect of the telephone in reducing or checking the amount of telegraph business is produced in two ways—by substituting the long-distance telephone call for the telegraph message between two widely separated points, and by obviating to a very large extent the necessity for using the telegraph within city limits.

The rates of the two systems for medium distances do not differ greatly, and for very long distances they are overwhelmingly in favor of the telegraph, if the message be taken as a unit; but if the number of words exchanged be taken into account as well as the time required for getting into communication, the telegraph is at a disadvantage in case of a large amount of traffic.

Frequently the brief message will suffice and the written telegram serves as a record; but where a swift interchange is required, the telephone seems to have thoroughly established its superiority for social matters and for business. The public employs the telegraph at the rate of only a little more than once a year per capita, whereas the number of telephone messages is already sixty-five per capita.

The telegraph systems are divided into two general classes—the commercial land telegraph and the ocean cable systems, including all systems organized primarily for the transmission of messages for the general public; and the railway telegraphs, including all wires owned and operated in connection with railway systems.

The commercial telegraph systems of the country owned and operated 1,318,350 miles of wire in 1902. In addition there were 16,677 nautical miles of submarine cable. The twenty-five systems had an investment, or capitalization of stocks and bonds of $162,946,525; a total revenue of $40,930,038; and total assets of $195,503,775. A sum amounting to $15,039,673 was paid in salaries and wages to 829 salaried employees and 26,798 wage-earners.

The railway telegraph systems were reported by 684 companies. They employed 30,336 operators and despatchers, to whom $20,040,730 were paid in wages. The number of messages sent during the year for railroad business only was 201,743,756 and the number of commercial messages was 4,474,593.

The report contains an interesting chapter on the employment of the telegraph and telephone by the government.

It shows the statistics for the telegraph and telephone service of the signal corps in the United States, in the Philippines and in Alaska, and discusses the use of telegraphy and telephony in the work of the weather bureau and the life-saving service.

Harry H. White, Western Union Manager at Portland.

The appointment of Mr. Harry H. White to be manager of the Western Union Telegraph Company at Portland, Me., already announced in these columns, elevates to that position a man who through long years of loyal service in the office of which he is now the head, has proved his worth and capacity for executive control. Mr. White was born at Eastport, Me., in May, 1864. His entire telegraph experience has been acquired in the Portland office, covering a period of over twenty-two years, for after leaving school he learned the art of telegraphy while acting as night press messenger at this point. His first chance as an operator was given him on a press wire. During the years that have followed he has held every position in the operating room, and here it was that he made his record of faithfulness. He is thoroughly familiar with the business of his office, knows its customers and their telegraph requirements. His promotion exemplifies the very essence of the spirit of civil service reform, and is to be commended from every point of view.

Wireless Telegraph Plans of the Wellman Polar Expedition.

M. J. Smith and C. J. Morley have gone to Europe to join Walter Wellman, who is preparing for an attempt to reach the North Pole in the largest airship ever built. Mr. Smith will be in charge of the wireless telegraph details, by which it is planned to keep in communication with cable stations. He will operate the apparatus in the airship during its flight. Mr. Morley will be in charge of a wireless station to be established on the Arctic steamship Frithjof, which will be anchored at Spitzbergen, while the airship is away. At Hammerfest, in Norway, which is a cable station, another wireless telegraph station will be established to communicate with the Spitzbergen station. Mr. G. A. Robinson, who has just completed a series of wireless experiments abroad with Lee De Forest, will be in charge at Hammerfest.

As many messages as possible will be sent to the Frithjof by Mr. Smith as soon as the airship leaves. Each of the messages, according to the plans, will give the exact latitude and longitude, so that the last location will be known should no messages be received after a certain time, when it will be fair to assume that some accident has befallen the ship. A special code will be used, intelligible only to the three operators. This is done to prevent the acceptance of spurious messages that might be sent from other sources and picked up by the stations either at Spitzbergen or Hammerfest.

Although messages will be sent under somewhat different conditions than have ever been attempted before, Mr. Smith expects the apparatus to work satisfactorily. He says: "The reason why the wireless system on the ship is going to be so much of an experiment is due to the fact that we will have to use the steel frame of the airship as an artificial ground. We shall be up in the air and we shall have to work downward. Instead of having a solid mast or anything of that sort, we shall have to drop our wires from the frame of the ship. Four long wires will be suspended, each 250 feet long. I am taking an alternating-current generator along, and this will be connected with the 55-horsepower gasoline motor, the larger of the two motors on the airship. All of these appliances I shall attach to the frame of the ship in Paris, to be forwarded with the big balloon itself to Tromsoe, Norway, where the entire party will meet early in June. Mr. Morley will meet Mr. Robinson in London and accompany him to Hammerfest to assist in putting up the appliances there, and he will then join the polar party at Tromsoe. Including mechanics, sailors and other workmen, there will be about thirty-five men in the party, but only five will go on the airship, the others staying at Spitzbergen, where quarters will be on Dane's Island.

Concerning other details of the trip, the Chicago Record-Herald, which is conducting the expedition with Mr. Wellman, says: "The French aeronaut, Gaston Hervieu, who will be the pilot of the polar airship, will give Mr. Wellman and the other members of the party several lessons in flying through the air in ordinary balloons before they leave Paris, so that they may be accustomed to traveling at a considerable height above the earth. Mr. Wellman said before leaving New York for Europe that he hoped to get away from Spitzbergen on the trip to the Pole early in August. He wishes to try out his airship there, as it will not be tried in flight before reaching Spitzbergen. He believes the ship can be kept in the air from twenty to twenty-five days. He will carry 5,500 pounds of gasoline, enough for 140 hours' use at an average speed of twelve miles an hour. He hopes to reach the Pole in from two to seven days, according to the winds, and if he succeeds he will have sufficient fuel left to sail back to land and relate his experiences." In the meantime it is expected that Mr. Wellman will be in wireless telegraph communication with the civilized world throughout the entire trip.—Western Electrician.

The Art of Punctuation Easy to Learn.

Good printers work upon "style" which is not so much a science as a system. Few people can punctuate the most ordinary matter. Yet it is a gift easily acquired by common observation in the routine of daily life. A boy from school put to read copy in a newspaper office, by diligently watching the reader, can soon pick up the rudiments of the art. A good reader will contrive to dispense with as many commas as possible, for disjointed and involved sentences are an abomination.

In the early days it was the custom in provincial newspaper offices for the junior reporter to do the reading of news proofs, the editorial matter being first corrected by a regular reader and always revised by the editor himself. Under that system a reporter became a first-class all-round journalist. Under the modern stress of work and pressure of outside engagements the budding journalist does not get the same opportunities. But there is still some scope left him for self-improvement.

Unfortunately, the young gentlemen who now blossom into editors before they are out of their apprenticeship scorn the "drudgery" of proof reading. They consider it "infra dig" and, consequently, miss the valuable experience. It is not much use reasoning with them. Ease and luxury have greater charm than mental training. The result is that many journalists of to-day do not understand the elementary principles of an important branch of literature.—Brighton (England) Gazette.

The Bucket Shop Evil.

In the July number of Everybody's Magazine a crusade is made against bucket shops in a strong article written by Merrill A. Teague, in which he says in part:

"Before I have finished I mean to make clear just how the bucket shop man captures and makes 'way with his swag of over $100,000,000 a year—your money and your neighbors.' If you don't lose under regular market fluctuations you must be made to lose. Your regular broker wishes you to win that your trades may increase in number and volume. Your bucket shop keeper has no purpose other than to steal all the money you have, or can beg or borrow or steal, and when he has done this to steal the home that houses your family, to steal the dress your wife will need next year, to steal the food your baby will require as it grows.

"Yet, because the bucket shoppers simulate respectability, they are permitted to perpetuate their swindles with virtual impunity. The proprietor, operator or manager of horse-racing poolrooms is under the ban of the law in nearly every state in the Union. The professional gambler sets up his outfit for poker, faro, roulette, monte and craps behind barred doors and drawn screens. The expert manipulator of three English walnut half-shells and a pea is chased from every county fair ground in the republic.

"But the bucket shop keeper goes his way almost unmolested. Banks solicit his accounts. Newspapers are eager to print his advertisements. Proprietors of office buildings importune him to become their tenant. The telephone and telegraph companies furnish him with every facility to thrive by theft. Regular exchanges seldom punish members who maintain 'underground' with the thieves of the bucket shopping class. And, as though the immunity they enjoy were not otherwise broad enough, the United States affords to the bucket shop thieves freest use of the mails, albeit investigation by postal inspectors would invariably show up the fact that such use of the mails is fraudulent."

In conclusion Mr. Teague says: "Bucket shopping should be suppressed, or placed at par with the poolroom and the poker or crap joint before the law of every state in the Union. The bucket shop keeper should be hunted by police, secret service and county officers, with the same relentness which is shown in the chase of the professional card-sharper, the green goods operator, the bunco-steerer, the confidence man, the poolroom proprietor and manager, the pickpocket, the safe-cracker and the porch-climber."

General Mention.

Edwin Emerson, Jr., of New York, and Miss Edith Griswold, of Oakland, Cal., were married May 16 at the home of Mrs. Robert Louis Stevenson, of that city, the proposition and acceptance of the offer of marriage being made by telegraph.

Mr. George W. Jackson, identified with the telegraph for the past twenty-three years at Rochester, Washington and Buffalo, has become associated with "Spare Moments," published at Rochester, N. Y., as circulation manager of that journal.

The McGraw Publishing Company has purchased property on West 39th street, New York, upon which will be erected an eight-story structure, which will be the home of the Electrical World and other publications controlled by this company.

Mr. George M. Dugan, formerly superintendent of telegraph of the Illinois Central Railroad at Chicago, in a recent letter to this journal, writes: "Notwithstanding I am on the superannuated list, I always read Telegraph Age with a great deal of interest." Mr. Dugan is now residing on his farm at Tip Top, Ky.

Submarine Bell Signaling.

A paper describing this system was read before the Society of Arts, London, Eng., on May 11, by Mr. J. B. Millet, who for some years past has been devoting his best energies to the matter. Sir William H. White, who presided, expressed his unqualified approval, and mentioned that so important is it as an aid to navigation in thick weather, that owners of ships provided with the apparatus do not fail to mention the fact in their advertisements to attract passengers. All important lightships on the North American coast are provided with the submarine bells; before long German lightships in the North Sea are to be similarly equipped, and our own Trinity House has recently made exhaustive experiments with, we are informed, most satisfactory results, and there is little doubt that this new method of communication will be largely adopted in the future, not only for the purpose of guiding ships in thick weather, but also for the passing of actual messages. There is nothing new about the system, and the discussion brought to light other workers who were in the field earlier than Mr. Millet, though not one of them appears to have appreciated the practical utility of the system. It seems that the vibrations of a bell weighing only a few pounds, but of somewhat peculiar design, when struck under water are easily and unmistakably audible over distances of ten or twelve miles with the help of a microphone placed in a tank of water joined to the skin of a ship below the water line and connected with telephone receivers placed in a convenient position on the bridge, while with proper tuning even thirty miles is within the bounds of possibility. Unlike air, water is a very reliable medium, and plays no tricks, so that it may be expected that it will be found more suitable for short-distance communication than any other medium—ether included.

While listening to the paper it occurred to us that it would be very convenient if the buoys used by telegraph repairing ships could be provided with bells placed under water and struck automatically by some simple means. A ship fitted with the receiving apparatus, as arranged by Mr. Millet, would then be able to find the buoys without much difficulty in foggy weather and repairing operations in certain localities might be considerably facilitated. —London Electrical Review.

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 stamps and address

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

For Sale.—A new Yetman transmitting typewriter; practically has never been used; $70. W. C. Graves, 210 Girard Trust Building, Philadelphia, Pa.

Wanted—The names and present addresses of telegraph operators employed by the Automatic Telegraph Company on its line between New York and Washington prior to 1875. Address "Wanted," Telegraph Age, New York.

TELEGRAPH AGE

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

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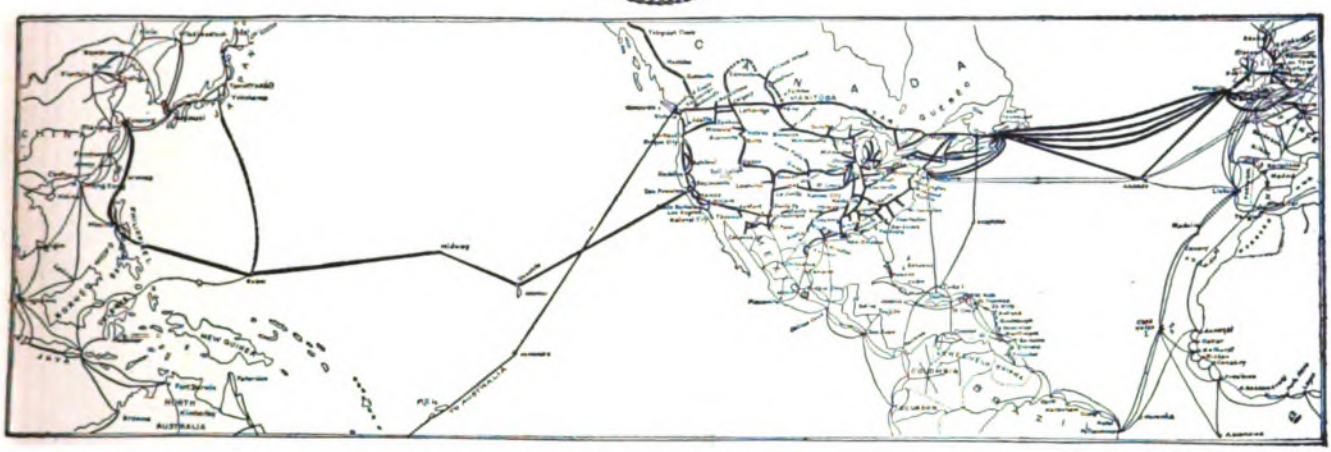
VOL. XXIV., No. 12. NEW YORK, JUNE 16, 1906. Whole No. 554.

Commercial Cable Co.

PACIFIC ATLANTIC



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THE REASONS WHY THE POSTAL TELEGRAPH-CABLE COMPANY IS THE ONLY SUCCESSFUL COMPETITIVE TELEGRAPH SYSTEM EVER MAINTAINED:

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

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

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

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

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

TELEGRAPH AGE

No. 12. NEW YORK, JUNE 16, 1906. VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

Influence of Weather on "Static."—An Electrical Phenomenon.

BY WILLIS H. JONES.

Mr. F. R. Veale, of Richmond, Va., requests the opinion of this journal regarding the two questions asked in the following letter:

I have recently run across one or two things electrical on which I would like to be enlightened. If, through Telegraph Age, you can give me the desired information, I will appreciate it. First: Has a well insulated wire of given size and length a higher static capacity than a poorly insulated wire of like dimensions? I have always understood that the wires in cables have a much higher static capacity than open ones, yet I am told that on wet and heavy days telegraph wires possess more static than in more favorable weather. Second: In this office where the 3-wire system of lighting is used, I note that there is invariably a collection of dust on the ceiling directly above the positive and negative leads and that that portion of the ceiling over the neutral wire is always clean. Of course, it is easy to see why this condition should exist in the main circuit, but I cannot see why it should also be true in the branch circuits where only two wires are used, either positive and neutral or negative and neutral. The current which flows out on one wire must surely return on the other, and where the negative and neutral leads are used the neutral must necessarily act as positive until the main leads are reached again. Am I correct in my understanding and will you kindly explain the phenomena?

Replying to the first question of our correspondent we will state that the perplexity concerning the facts in the case is probably due to the necessity in having to readjust the condensers on multiplex circuits to meet the requirements of effects produced through alterations in weather conditions. The natural conclusion, therefore, obtains that the static capacity of a conductor varies in degree as a result of such alterations. This is not true, however, the static charge is simply distributed in a different manner, and for that reason causes a stronger or a weaker recording effect on telegraph apparatus under one condition than another.

The highest authorities agree that the "static" capacity of a conductor is a fixed quantity and unalterable under a given potential. Leakage, however, allows a portion of the static charge to escape to the earth, hence that part does not manifest itself in the recording apparatus. The static is the same in all weather. In wet weather we seemingly have less because some of it flows to the earth.

Some insulating compounds apparently impart to a conductor a greater static capacity than others. This is due to absorption, or a minute storage effect, particularly noticeable in gutta-percha and to a less degree in paper; but take any given conductor, permanently located, the static capacity is unvariable, but the manifestations of such capacity vary directly as the insulation of the conductor.

Concerning the second question the source of the phenomenon mentioned has yet not been disclosed to us conclusively.

A letter from Mr. Francis W. Jones, electrical engineer of the Postal Telegraph-Cable Company, New York, shows how difficult a solution of the question really is. The phenomenon is apparantly a rarity, but few having observed it. One inspector for many years employed by the Edison Electric Light Company in reply to our request for information on the subject remarked that in all his experience he had never even seen such a thing. Still we know that the phenomenon is real. (This was written in the original). Here is Mr. Jones' letter:

In reply to your favor I beg to say, that I remember publishing in Telegraph Age a long time ago, something upon this subject, for the purpose of eliciting information from practical electricians and telegraph men. I find that certain switchboard rows of discs, which are connected with dynamo machines, are coated more heavily with some dust, or other particles, from the air than are other rows similarly situated, and I found at the time, where there were several 50-wire

switchboards, side by side, that a horizontal row in one board connected with a plus current, would be thus affected, but a horizontal row in some other switchboard connected to the same machine, would not be affected, but that in such a board, the row of discs upon the same horizontal plane connected to the minus pole, would be affected in the same manner as another board whose similar row of discs were connected to the plus pole. I called the attention of some eminent electrical engineers to the matter at the time, but have never succeeded in securing an explanation that I was able to grasp.

In regard to the three wire phenomenon the most plausable explanation as to why the ceiling above the neutral conductor of the mains only remains clean, while the portions above the neutral and the positive conductors in both the main and the office branch leads collect dust, is that the well balanced neutral conductor does not carry a sufficient volume of current to cause that degree of electrification therein that obtains in the other conductors. A highly electrified conductor seems to collect dust and hold it in bondage, while dust that is free from electric influence, or at least, insufficiently influenced, drops from the ceiling in the usual way owing to the vibrations of the building. Possibly some of our readers may be able to suggest a better explanation of the phenomenon. If so we shall be pleased to receive it.

[Important articles by Mr. Jones, appearing in back numbers, dating from January 1, 1904, copies of which may be had at twenty-five cents apiece, are as follows: 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 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.]

Business Notices.

The Mecograph Company, of Cleveland, O., announces in this issue a further improvement in their transmitting device. These people are progressive and alive to the needs of operators of all classes. They invite correspondence, both with themselves and with users of their instruments.

Messrs. W. R. Ostrander & Co., manufacturers of electrical supplies, of 22 Dey street, New York, are distributing a pamphlet on electric fans, illustrated and with price list. This should serve as a timely notice, for what renders a more grateful service during the warm months than an electrical fan? Copies of the pamphlet will be sent on application to any one who may be interested.

Another important industry has been added to the many existing at Rochester, N. Y., where a factory has been established for the manufacture of a new style of telegraph signal and its coordinate circuit protecting appliances. The new apparatus is especially adapted for use on single track railways. The device is connected directly into the despatchers' circuit and instrument in such a manner that, so long as it is not necessary to use it as an emergency signal, the working of the despatchers' circuit is normal. Similar instruments are placed in the circuit at each telegraph station. By means of a "selector," the despatcher is enabled, from his office, to throw both the east and west, or the north and south bound semaphores, or either, to indicate danger. In connection with a disk similar to a messenger call, the despatcher is advised when one or both semaphores are in "stop position." The semaphore appliance is strictly interlocking, and semaphores remain "at danger" until placed "at safety." An additional feature is that despatchers can, at will, ring a bell in the office at a way station, and, if desirable, another bell in series at the room or home of the operator, in cases where the station is not a night office, thus calling attention to conditions. In case the operator should be absent from his station, or if his key remains normally closed, or has been inadvertently left open, or in case the operator should become disabled or sick and his key be left open, then, by means of the signal apparatus, the despatcher can still throw the semaphore or semaphores to "stop position" and ring his bell, or series of bells, just as he could if the operator were at his desk and his key closed. This apparently paradoxical effect is produced by a simple appliance, by which a short-circuiting effect is produced on the key at the station where the key is inadvertently left open. A falling ball is so arranged as to short-circuit that particular key, this being a normal effect of the operation of the signaling device by the despatcher. The addition of this telegraph signal apparatus to the despatchers' circuit does not involve, at any stage, an increase of electric energy on the despatchers' line.

PATRICK B. DELANY.

Mr. Delany was born in Kings County, Ireland, January 28, 1845, and came to America when nine years of age. He learned telegraphy at Hartford, Conn., and was a good operator at the age of 16 years. He held the position of press operator at Worcester, Mass., at the age of 18. It was during this period that Mr. Delany made his reputation as an operator, espe-

cially as a "receiver," and his wonderful ability to copy press twenty to twenty-five words behind the sender. In 1865, Mr. Delany was appointed night circuit manager at Albany, for all the wires between New York and Buffalo. He afterwards became chief operator of the Franklin Telegraph Company, at Philadelphia, Pa., assistant general superintendent of the Southern and Atlantic Telegraph Company, and superintendent of the Automatic Telegraph Company.

PATRICK B. DELANY.
Technical Adviser of the Delany Telegraphic Transmitter Company, New York.

Giving up telegraphy, Mr. Delany became a newspaper correspondent at Washington, and subsequently editor of the Harrisonburg, Va., Old Commonwealth. Having in the meantime made several important inventions in telegraphy, he, in 1880, turned his attention to inventing, and has followed it almost exclusively ever since. Over one hundred patents have been granted to him, comprising almost every branch of electricity, but mainly in telegraphy. Among the most prominent may be mentioned his anti-Page relay, anti-induction cables and synchronous multiplex telegraphy. This multiplex system was adopted by the British postoffice in 1885, and is now in use in the United Kingdom.

For some years he devoted himself to cable telegraphy and has perfected several forms of transmitters, automatic and manual, which increase materially the speed of sending.

His greatest work is his rapid automatic system, by which 1,000 words or more per minute can be sent on one wire.

For the past year or so Mr. Delany has been giving special attention to telegraphic transmitting devices. He has perfected keyboard machines for all branches of Morse telegraphy, land lines, cables, and wireless. He has invented automatic dot-making devices, both mechanical and electric.

In order to handle these inventions there has been organized the Delany Telegraphic Transmitter Company, with offices at 20 Broad street, New York, of which Mr. Delany is the technical adviser and Mr. George W. Conkling general manager.

GEORGE W. CONKLING.

George W. Conkling, of New York, recently appointed general manager of the Delany Telegraphic Transmitter Company, is recognized as one of the best all-around telegraphers in the United States and holder of the championship for code sending for a number of years past. He has also been winner of numerous other prizes, besides having the honor, conceded by all members of the fraternity who know him, of being one of the most beautiful Morse senders of to-day, and was awarded in consequence a silver loving cup in a Philadelphia tournament in 1903. He is a man of fine capabilities in an executive or managerial capacity.

He was born at Mountaindale, N. Y., on December 22, 1871. At the age of fifteen he learned telegraphy on the West Shore Railroad and soon became master of the dots and dashes. He worked on several railroads in telegraph and despatchers' offices until 1890, when he went with the Postal Telegraph-Cable Company at its old office, 187 Broadway, New York, where he soon became known as a fast operator with the key and a copper-plate pen receiver; he was made one of the fast quartette on the Boston quadruplex, where he remained for a year and a half. Having become master of the typewriter and the Phillips Code, Mr. Conkling was next employed by The United Press. In 1898 Mr. Conkling went into the financial district, New York, and has since been working for brokers, where he has a wide

GEORGE W. CONKLING.
General Manager of the Delany Telegraphic Transmitter Company, New York.

circle of friends. Mr. Conkling has been educated in all branches of the telegraph, railroad, commercial, broker, poolroom, a little cable and wireless, and is considered an authority on a great many matters of interest to telegraphers. Possessed of a clean record and, before everything else, an operator, he can be expected to deal justly and liberally with all members of the craft.

Personal Mention.

Mr. M. W. Rayens, general manager of the United District Messenger Company, New York, was recently seen in the Berkshire Hills, where he spent a brief vacation.

Mr. P. B. Delany, the well-known old time telegrapher and inventor, who is spending the season at his summer home on Nantucket Island, Mass., was in New York a few days since on business.

Dr. A. D. Campbell, of Cleveland, an old time telegrapher, prominent in the seventies as a knight of the key, now a member of the medical profession in the Forest City, accompanied by his son, recently passed several days in New York.

Mr. Robert Pitcairn, resident assistant to the president of the Pennsylvania Railroad Company, Pittsburg, Pa., was retired on a pension on June 1. Mr. Pitcairn was born in Scotland in 1836, and his entire railroad service has been on the Pennsylvania. He began life as a telegraph operator in 1853.

Mr. J. H. Shearer, division operator, Pennsylvania Railroad Company, Elmira, N. Y., was in New York recently, and was a caller at the office of TELEGRAPH AGE. This is his forty-second year in the employ of the Pennsylvania Railroad, and he promises to be in attendance at the convention of the Old Time Telegraphers' and Historical Association at Washington in October next.

It was a pleasant incident that determined the whereabouts recently, each to the other, of two oldtime telegraphers who had not met since the days of young manhood, over fifty years ago. It appears that Mr. W. A. M. Grier, a retired banker, now a resident of Brooklyn, New York, taught telegraphy to Mr. Thad. M. Schnell, at Bellefonte, Pa., in 1851, and now of the Western Union Telegraph Company at Omaha, Neb. Through the casual influence of TELEGRAPH AGE an interchange of letters has recently passed between the two gentlemen and a renewal of friendly intercourse effected. Dipping into politics somewhat, it appears that Mr. Grier was a delegate from Pennsylvania to the Republican convention at Chicago in 1880, which nominated Gen. Garfield for the Presidency, a result due to Mr. Grier's persistent vote, an influence which finally led to Garfield's nomination. Afterwards President Garfield, in recognition of Mr. Grier's loyalty, tendered him the position of Third Assistant Postmaster General, an office which was declined, however.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Col. Robert C. Clowry, president and general manager of the company, accompanied by Mr. and Mrs. H. D. Estabrook, arrived home on the Celtic on the 10th inst. The Colonel spent most of his brief holiday at London and Paris, and while abroad was the recipient of much attention. The day prior to his sailing on his return voyage, he was entertained at luncheon by Ambassador Whitelaw Reid at London, at which function Andrew Carnegie and other prominent people were present.

His return was signaled in a most delightful manner on the evening of Monday, June 11, when the officials of the company tendered him a dinner at Sherry's. The affair, which was characterized by an earnest expression of good fellowship, spoke eloquently of the warm regard in which the Colonel is held by those who are associated with him in the management of the great property of which he is the head.

Besides the guest of the evening, the other invited guests to the dinner were: George J. Gould, Judge John F. Dillon, Gen. Thomas T. Eckert, H. D. Estabrook, J. B. Van Every, John C. Barclay, Rush Fearons, Thomas F. Clark, B. Brooks, G. H. Fearons, A. R. Brewer, M. T. Wilbur, Charles Trippe, G. W. E. Atkins, J. C. Willever, E. M. Mulford, F. J. Scherrer, G. F. Swortfiger, P. J. Casey, M. W. Hamblin, C. F. Patterson, William Holmes, H. E. Roberts, A. G. Saylor, W. J. Dealy, C. H. Bristol, I. B. Ferguson, Theodore P. Cook, of Chicago; Jacob Levin, of Atlanta, and Isaac McMichael, of Toronto. T. W. Goulding, of London, Eng., and Frank Jaynes, of San Francisco, were also invited, but were unable to be present.

Among the recent executive office visitors were: Mr. Isaac McMichael, vice-president and general manager of the Great North Western Telegraph Company, Toronto, Ont.; Mr. T. P. Cook, general superintendent, Chicago, Ill., and Mr. Jacob Levin, general superintendent, Atlanta, Ga.

Belvidere Brooks, Jr., and Bruce Brooks, sons of Belvidere Brooks, general superintendent of the Eastern division, will sail for Europe, together with a companion, on June 23, to be absent three months.

Mr. Fred O. Miller, secretary and son of Mr. I. N. Miller, superintendent at Cincinnati, O., was in New York last week, the guest of Mr. Ralph E. Bristol, of the general superintendent's office. Mr. Miller was en route to Boston to participate in his class reunion, he being a graduate of the Boston Institute of Technology.

Mr. George H. Fearons, general attorney of the company, accompanied by his wife, sailed for Europe on June 12.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Mr. Charles P. Bruch, assistant general manager, Mr. Francis W. Jones, electrical engineer, and Mr. George H. Usher, superintendent, have returned from a trip to Baltimore and other points, whither they had been in the interests of the service.

Among the recent executive office visitors was Jesse Hargrave, assistant electrical engineer of the company at Atlanta, Ga.

On May 29 this company occupied its new main office at Atlanta, Ga. A. M. Beatty is the man-

ager; J. H. Twyford being the chief operator, and A. D. Holcomb night chief. The equipment of this office, which is first class and up-to-date in every respect, consists of nine motor generators, four quadruplex sets, six duplexes, one phantoplex circuit to Birmingham, twelve single sets, six sets of repeaters and ten lamp annunciators for city wires. The work of installation was done by A. Kent and Thomas Neelon, foremen, under the direction of Assistant Electrical Engineer Hargrave. Atlanta is not a relaying office; the relaying points for this district being Birmingham, Ala., and Augusta, Ga., which are more centrally located and therefore better adapted to the requirements of this branch of the service.

The Cable.

United States Consul Pierre P. Demers sends from Baranquilla, Colombia, a copy of a cable concession recently granted by the Government of Colombia to Francisco J. Fernandez, a native of that country, which concession has been accepted and ratified by the Colombian Legislature. The merchant of the coast must now send his messages overland on the national telegraph lines to Buenaventura on the Pacific side via Bogota, a distance of nearly 1,500 miles, or almost that from Savanilla to New York. This is not only very expensive, but extremely uncertain, and frequently involves delays of from three to five days. It is the intention of the present owner to sell his privilege or develop it with foreign capital. The French Cable Company, operating in Venezuela, is considering a proposition made by the grantee of the concession. The concession includes also the exclusive privilege of erecting wireless telegraph stations within the jurisdiction of Colombia. In that respect Savanilla, the seaport of Baranquilla, offers unusual advantages for the erection and successful operation of a wireless station. Stations are already established in Colon, a little over 300 miles from Baranquilla, Bocas del Toro, Port Limon, Bluefields and many other ports of the West Indies. The government guarantees, it is said, an interest of seven per cent. on practically all the capital invested.

The fleet of the Eastern Telegraph Company, Ltd., has been increased by the launch recently of the cable steamer Sentinel, at Paisley, Scotland. The vessel is designed and equipped for work of a special character. A cable steamer for the Western Telegraph Company will soon be launched at the same place.

Consul-General J. P. Bray reports from Melbourne the termination of the agreement between the Government of Australia and the Eastern Extension Telegraph Company. The latter declines the proffered extension of privileges to 1915, falling back on the separate agreements made with the states of New South Wales, South Australia, Western Australia and Tasmania prior to the establishment of the commonwealth. These allowed the company for all time to carry on a cable business in the states named. The company has therefore closed its Melbourne and Brisbane offices and will in future transact its Australian business under the agreement with the states named.

At the annual meeting of the Mexican Telegraph Company, held in New York June 5, John W. Auchincloss was elected a director in place of William J. Hamilton. The other directors were re-elected.

Mr. Michael Fitzgerald, who up to six years ago was superintendent of the New York and Hayti Cable Company, a man well known in telegraph and cable circles, and for many years connected with the French Cable Company, at Orleans, Mass., from which he retired last fall in order to obtain much-needed rest, is now quietly living the simple life, as he puts it, at a Cape Cod farm, at East Brewster, a point within easy hail of Orleans. In this secluded retreat Mr. Fitzgerald has abundant opportunity to commune with nature as exemplified on that long, narrow stretch of land; to study the native in all of his original picturesqueness of character, and to receive the strenuous attentions of the local type of mosquito.

Cables interrupted June 13, 1906:

Venezuela — Jan. 12, 1906.

Messages may be mailed from Curacoa or Trinidad.

French Guiana, — Apl. 20, 1906.

Mail from Paramaribo.

Pinheiro, "via Cayenne," — Aug. 13, 1902.

Dominica, — June 9, 1906.

Messages will be forwarded from neighboring islands as opportunities offer.

Resignations and Appointments.

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

Miss M. J. Dunigan has been appointed manager at Kittanning, Pa., vice B. G. Shoup, resigned.

Mr. D. F. Cason has been transferred from the managership of the Dothan, Ala., office to a similar position at Pensacola, Fla., relieving Mr. L. LeBaron, who has been manager of this office for the past twenty years, and now retires from that branch of the service. Mr. Cason has been in the telegraph service for the past fifteen years, beginning with the Postal as messenger at Augusta, Ga., afterwards serving in the capacity of clerk, operator and office manager at various points; for the past three years as manager at Dothan, Ala.

Mr. U. W. Boggess, manager at the Milwaukee Chamber of Commerce for the Chicago and Milwaukee Telegraph Company, has been appointed manager at Clarksburg, W. Va., vice J. C. White, resigned. Since 1872, when he first entered the telegraph service, Mr. Boggess, who is a man of excellent executive ability, has had a varied and successful experience as a commercial, railroad and press operator, serving in various

parts of the country. His connection with the Chicago and Milwaukee company covered a period of sixteen years. In going to Clarksburg he returns to his native state, and near to his place of birth.

The following change has occurred in the Postal Telegraph-Cable Company's service:

Mr. W. A. Frazier, for many years, and until a few months ago, manager of the Helena, Mont., office, has been reappointed manager at that point, succeeding F. D. Nash, resigned.

Standard Time.

It is safe to say that it is owing to the railways that we have that time-keeping arrangement all over this continent which is called standard time. The circumference of the earth is, at the equator, roughly speaking, 25,000 miles, and as the earth turns on its axis once every twenty-four hours, it follows that the sun sweeps over about 1,041 miles every hour. One degree of the great equatorial circle of the earth is a little over sixty-nine miles long, and, at the rate of revolution just stated, about fifteen degrees pass under central solar beam every sixty minutes.

As arranged in North America, the 75th meridian of west longitude has practically been made the one from which the other distances involved in the standard time scheme are measured. The 75th meridian time is Eastern standard time. This meridian passes close to Philadelphia, and is near enough to New York, Washington and Ottawa to make a very satisfactory time reckoning basis for those cities.

Central standard time is that of the meridian fifteen degrees further west, which is the 90th, and this line passes through New Orleans and is a little west of Chicago. Fifteen degrees further on is the 105th meridian, which gives Mountain standard time. This is practically the time of the city of Denver, Col., and the name "Mountain" may have been chosen on account of the proximity of the Black Hills of Wyoming; also such mountains as Longs Peak, the Big Horn, and other broken spurs of the Rocky Mountain chain in Colorado. The 120th meridian gives us Pacific standard time, and this imaginary line passes through the centre of British Columbia and the States of Washington, Oregon and California.

Coming again to the Atlantic seaboard, the 60th meridian west from Greenwich, the time of which is four hours slower than London, is called Colonial time. The meridian passes through the Gulf of St. Lawrence, between Newfoundland and Nova Scotia, and though it gives the time for some of the points in the maritime provinces of Canada, it does not pass over any land. Eastern time is five hours slower than that of London, and Pacific time is eight hours slower. The standard system of time-reckoning is such that points seven and a half degrees east or west of a standard meridian use the time of that meridian. In 1883 the railways of the United States and Canada adopted the standard time system, and in addition to this, the Intercolonial Railway, and the lines west of Fort William, on the Canadian Pacific, have used the twenty-four-hour system for a number of years.

Standard time was introduced into India at the beginning of this year, and the prejudice incident to any new departure in that ancient land is being gradually overcome. In fact, the British Government is doing very well in this regard, when it is remembered that in that vast Empire there are one hundred and forty-seven distinct vernacular languages, and the immense population has never been accustomed to scientific modes of thought. The British Empire, as it stands today, comprises one-fifth of the earth's surface, and includes more than 400,000,000 people. Outside of the United Kingdom itself, India has a greater number of persons to the square mile than any other portion of the British Empire.

Standard time for India is five hours and thirty minutes faster than that of Greenwich, being nine minutes faster than Madras time; about twenty-four minutes slower than Calcutta time, and about thirty-nine minutes faster than Bombay local mean time.

Five hours and thirty minutes faster than Greenwich time is local mean time for longitude 82 degrees 30 minutes east of Greenwich. This meridian passes through India at about the eastern mouth of Godavery river, in the Bay of Bengal, and is near Benares, the sacred city of the Hindus, on the Ganges river. It is, roughly speaking, the center of the country, just as the 90th meridian west is with us. The time of this meridian, eighty-two and a half degrees east of London, is the meridian that now sets the standard time for all India.—Railway and Locomotive Engineering.

First Newspaper Telegram.

The first newspaper in England, according to "Stray Stories," to receive the first telegraphic news report was the London Morning Chronicle, May 8, 1845.

During the railway mania of 1845 a meeting of considerable importance was convened at Portsmouth, England, to take into consideration the respective merits of the proposed lines from London. A great desire existed to know the result of the meeting, and as it was not to take place at Portsmouth until after the last London train, recourse was had to the telegraph.

A full report of the meeting, headed "Portsmouth Lines, communicated by electric telegraph," appeared in a London paper next morning. The editor called attention to the fact in the leading column as follows:

"In our article on railways will be found a report of a meeting held yesterday evening at Portsmouth which was transmitted by electric telegraph. This is the first example of the electric telegraph being used for such a purpose, and it indicates the important and numerous services which that valuable invention will soon render to the public."

The Railroad.

The Mexican Central Railway, under the superintendency of G. O. Perkins, is experimenting on its lines with simultaneous telegraphy and telephony.

A patent, No. 820,529, for an automatic train reporting system, has been awarded to Elmer E. Steiner, Knightstown, Ind. Depressible tappets are provided at points along the track so as to be engaged by specially constructed shoes carried by the train. The latter have a plurality of projecting lugs spaced in a special and predetermined way for each train so as to give a distinctive signal when passing over the tappets.

Because of the enactment by the Maryland Legislature reducing the length of the working day to eight hours, the Pennsylvania Railroad has accordingly reduced the wages of its signal-tower telegraph operators in the state twenty per cent., thus bringing the monthly payment of $55 down to $44; and the Baltimore and Ohio Railroad Company has also reduced the pay of its operators by twelve per cent. in order to offset the provisions of the eight-hour law.

A patent, No. 822,168, has been issued to Eugene W. Vogel, of Chicago, which covers every possible form of a bonding or channel pin such as used in electrical signal construction. These pins are tinned or galvanized. Up to within about six months ago, all channel pins to prevent them from rusting and to insure a good contact, were copper plated. It was found that the bond wires always broke off where same was in direct contact with channel pin and rail. It has always been assumed that this was due to ordinary processes of rusting. Mr. Vogel discovered by thorough investigations and tests, which covered a long period of time, that as a matter of fact, it was electrolysis which ate off these wires electrically where they entered the rail. This was due to the fact that the copper plating of the channel pins and the zinc coating or galvanizing of the bond wire formed a combination with the damp atmosphere, making a miniature battery, and would slowly but surely eat the bond wire in two. To overcome this, it was necessary to have the channel pin coated with a metal which is approximately the same contact potential as the bond wire. Tinned channel pins have now been in use for about two years, during which time no cases of electrolysis have been found, whereas with the copper plated channel pins this trouble was frequent and bond wires would last but a very short time. The tinned channel pins have always been recommended by the official organization of signal engineers, the Railway Signal Association.

Obituary.

H. L. Goodman, forty-one years of age, identified with the American District Telegraph Company at Philadelphia, Pa., died on May 30.

Richard M. Simpson, aged twenty-three years, wire chief of the Western Union Telegraph Company at Dubuque, Ia., died on June 1.

Charles O. Brigham, aged seventy-one years, up to five years ago and for the previous forty-five years, chief operator of the Western Union Telegraph Company at Toledo, O., died recently.

James F. Malone, aged forty-eight years, one of the leading telegraph operators in the service of the old United Press and The Associated Press, died suddenly at New Haven, Conn., on May 27.

The death is reported of Milan R. Hults, aged forty-eight years, for many years prominent in New York telegraph circles, and at one time manager of the Western Union Telegraph Company at Bridgeport, Conn. Mr. Hults was also prominent at one time in the conduct of outside electrical enterprises, which were successful.

J. Coleman Wilson, who died in Indianapolis, Ind., recently, was a telegraph operator years ago, and during the war of the rebellion was employed by the Western Union Telegraph Company in that city. Mr. Wilson began his telegraph career as a messenger boy in 1852 with the Ohio, Indiana and Illinois Telegraph Company. This concern afterward consolidated with the United States Telegraph Company, which for several years was the only company in Indianapolis. The United States company in 1865 was absorbed by the Western Union. Mr. Wilson and John F. Wallick, now superintendent of the Western Union company at Indianapolis, worked together in the old days. There were strenuous times for the telegraph companies during the rebellion—the days of the cipher despatch. During the war the Western Union Telegraph Company had its offices at Meridian and Washington streets. There were not many operators in Indianapolis those days, and few of the men who worked for the Western Union in Indianapolis in war times are there now. For several years Mr. Wilson was stationed at the Union depot, where he handled the business for the Western Union and the Pullman Car Company. In 1848 a telegraph company was established in Indianapolis, which was the first opportunity the people had of using such service. Superintendent Wallick has the cash books used by this company. The books show that the first day's business netted the company thirty-five cents. As a striking comparison, Mr. Wallick says the business of the Western Union in Indianapolis now aggregates from $300 to $500 a day.

Mr. J. J. Corrigan, chief operator of the Scripps-McRae Press Association, Cleveland, Ohio, in renewing his subscription states: "As I have not missed a copy of your paper since Brothers Taltavall and Mitchell entered the journalistic field in 1883, I surely can see no reason for discontinuing. Enclosed find check for another year."

Congressman Smith on Postal Telegraphy.

A speech for government ownership of the telegraph was made in the House May 26 by Representative Samuel W. Smith, Republican, of Michigan. He said in part:

"We should have a first-class postal telegraph in the United States in connection with our splendid postal facilities, and the rates can be reduced at least one-half, leaving a sufficient amount to dispose of the deficit, and have money left to extend the rural service to practically every home and pay the city and rural carriers a compensation fitting their services and expenses. In fact the surplus could be used in many ways to the great advantage of the general public.

"In these days of rate making and state making," he said, "I would like to invite your candid and careful consideration to the success of postal telegraph and to the arbitrary and exorbitant telegraph rates that we are paying in this country. I maintain that it is the duty of the Government, under the Constitution, to establish a postal telegraph system.

"Gardner G. Hubbard, than whom there was no higher authority on the subject of the telegraph and its relations to the government, used these words, 'That Congress had no more right to delegate the power of transmitting intelligence than the power to coin money or declare war.'

"The first telegraph line was built between Washington and Baltimore by a Congressional appropriation of $30,000, and the telegraph belonged to the government from 1844 to 1847, when, under mistaken notions of economy, it was turned over to private ownership. Of the public men who earnestly protested against this course were Henry Clay, the great Whig leader, and Cave Johnson, the Democratic postmaster-general.

"Had the prophecies of Professor Morse and the appeals of such men as Clay and others been heeded, the people of this country would be enjoying the telegraph even to greater degree than the people of the Old World and millions would have been saved instead of going into the coffers of an odious monopoly."

Tracing the growth of the telegraph monopoly, he concluded:

"It was the late lamented Senator Platt of Connecticut who used this language: 'The telegraph is the rich man's mail.' Let us hasten to give the people, rich and poor, learned and unlearned, in all walks of life, a blessing commensurate and co-extensive with that which was given to the farmers of the nation by the free delivery of the mails, the greatest boon that has come to them since the birth of the Republic.

"I hope to have said something to enlist of every lover of manhood, justice and fair play for lower telegraph rates."

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.

At the Morse Statue.

Editor TELEGRAPH AGE:

While seated with my wife opposite to the Morse statue in Central Park on Decoration Day, watching the crowds of pleasure seekers and sight-seers as they passed to and fro before us, a young lady with her escort stopped to admire the floral display which adorned the monument of the inventor of the telegraph. The words of the historic first message were conspicuously wrought in immortelles on the base of the monument. "What Hath God Wrought," the young lady read musingly aloud. "You can search me," was the young man's laconic reply.

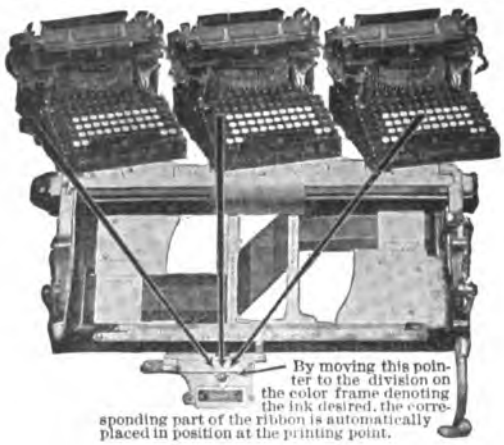
Recovering from the surprise and laughter occasioned by this incident, I said to my wife: "Half the people, apparently, don't know what that inscription means." I had scarcely finished the remark when a party of ten or a dozen young people of both sexes gathered in front of the monument, and after scrutinizing it intently for a few moments one of the young men with the dignity of a leader beating time with his arms, in sonorous tone read: "What Hath God Wrought." "What's the answer?" promptly inquired one of his serio-comic companions.

After a few minutes along came two young fellows who had evidently been doing a little "interior decorating" themselves. They were in a jolly mood and out for a good time, no doubt. Halting in front of the monument, one of them, bowing very reverently, sung out: "Old Morsey! Well, well, and they've got him decorated. 'What Hath God Wrought,'" he read. "Why, the old man was ashamed of his job and wanted to put it up to the Almighty." "Do you blame him?" replied his exhilarated friend. Then both of them bowing very low, with hats in hand, passed on with a final salute of, "By-by, Morsey."

A very interesting and pretty exhibition of juvenile education took place when a party of ladies and gentlemen were discussing the significance of the inscription on the tomb. None of them appeared to understand it, when a little boy, apparently about twelve years of age, jumped from his seat on a near-by bench and approaching the party, said: "I can tell you what that means; it's the first message ever sent over a telegraph wire." A chorus of voices exclaimed, "Good boy." I did not see the size of the tip the little fellow received, but he hung around for a considerable time, apparently eager to enlighten the uninformed.

New York, June 2. A Telegrapher.

Mr. E. W. Collins, superintendent of the Postal Telegraph-Cable Company, Cleveland, Ohio, in a recent letter, states: "I do not know of any other $1.50 investment which pays so much in monthly dividends as a subscription to TELEGRAPH AGE, and consequently it is a pleasure to remit."



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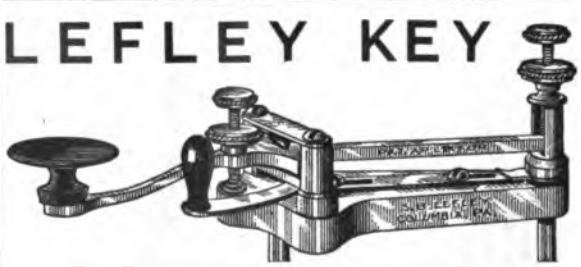

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NEW YORK, JUNE 16, 1906.

The Military Telegraphers' Pension Bill in the House.

Mr. F. A. Stumm, of New York, who has been enthusiastic in advocating the passage by Congress of the bill seeking to relieve the military telegraphers who served the government in the army during the Civil War, by placing this body of men upon the pension list, has received the following letter from Cyrus A. Sulloway, chairman of the Committee on Invalid Pensions in the House of Representatives:

Your letter to hand. Will say in reply that while I appreciate the great services the telegraphers rendered the country in the Civil War, still they have never been recognized nor are they upon the muster roll of the United States, consequently they have no title to pension under the law. They were civilian employees, and in order for them to secure a pensionable status they must first be given a military standing. Our committee would have no right to do this. This is a matter that must properly come before the Committee on Military Affairs, and with the conditions as they are the Committee on Invalid Pensions has no jurisdiction in the matter.

The British Postal Service.

The post and telegraph employees in Great Britain have for many years past been fighting for reforms with but poor success. That their grievences are genuine there can be little doubt, a committee of business men appointed by Parliament having, in what is now known as the famous "Bradford report," strongly recommended certain improvements in the service. But Lord Stanley, the then postmaster-general, declined to act on the recommendations, and his refusal to ameliorate the lot of the employees whose grievances were found, by a committee formed of non-partisan business men, to be badly in need of redress, had caused a feeling of bitterness and indignation toward him to pervade the service for some years past, for, it is said, he made use of the term "bloodsuckers and blackmailers" in referring to the telegraphers of England.

The foregoing is a part of a lengthy aggressive article on the subject appearing in "The Advocate," a telegraphic journal published in the British island of New Zealand. It serves to show the bitter state of feeling entertained by the working telegraphic staffs in England against the prevailing system in that country due to the mismanaging control of the telegraph by the postoffice department—a feeling that is shared in large measure by the English public.

It appears that when the defeat of Lord Stanley, the postmaster general, in a recent parliamentary election was assured, the telegraphic operating force in the main office in London vented its satisfaction by arising en masse and giving three cheers for the man who had vanquished the unpopular head of the telegraph.

Postal Telegraphy Again.

The proposition to establish Government, or postal, telegraphy in this country in emulation of such practice abroad has found a champion in the House of Representatives in the person of Samuel W. Smith, of Michigan. In a somewhat lengthy speech delivered recently on the subject, a condensed extract of which is printed in another column, showing all the earmarks in its presentation of "playing to the galleries," the usual stock arguments, like in character to those employed by others who, parrot-like, occasionally take a whack at the question, were brought forward to show how far in advance foreign countries were to our own in the way they do things telegraphically. Heaven help us! No other country in the world possesses such a complete, effective and up-to-date telegraph equipment and service, low in price, as obtains on this continent, in the United States and in Canada.

In praising the efficiency of the post office in this country, to which Mr. Smith would make the telegraph an auxiliary, he fairly beams with delight when he makes known the discovery that the taking over of the telegraph by the former would act as an effective barrier against further loss to the Government by its unfortunate postal

department, inasmuch as the telegraph receipts would serve to wipe out the annual postal deficit. The post office must be in a peculiarly bad shape when such an advocacy as this is argued. Rather, we should say, turn the post office over to the care of the telegraph, or to some other proper private corporation even, if effective management be urged as necessary to its well being. It cannot be doubted, were this done, that first-class letter postage would be reduced from two cents to one cent, the service rendered more efficient, and conducted at a profit instead of at a loss, as now. This would be because more direct, practical, economical and efficient business methods would be introduced, such as individuals or corporations, by reason of necessity, are compelled to adopt in the management of their own affairs. It is not, we think, too much to say that nearly every business man who uses the mails to any extent, harbors many grievances of one kind or another against the post office, grievances regarding which it is often impossible to obtain redress, as it would be in the case of dealing with an express company, for instance. To tack the telegraph, therefore, to the post office, which already exhibits such an unfortunate dead weight of its own, would be farcical, indeed, if the telegraph is to continue to render the service which business needs demand.

If Mr. Smith had consulted competent telegraph authorities; had taken the wise precaution to have delved a little deeper into the statistics of the case before committing himself as to alleged facts, figures and comparisons respecting a subject of which evidently he possesses but a superficial knowledge, he doubtless would have hesitated to unburden himself in the public manner in which he has done.

The entire question of postal telegraphy in this country has been thrashed out repeatedly in these columns, and it is hardly necessary at this time to be betrayed into answering Mr. Smith in detail, yet we would strongly recommend that gentleman to put himself in communication with Mr. Robert P. Porter, the former United States census commissioner, who has made a study of the telegraph as it actually exists abroad. What Mr. Porter had to say in part on this subject was published in this paper in its issue of May 1. Mr. Porter would doubtless furnish Mr. Smith and all others who would blindly commit the policy of this Government to postal telegraphy, with such information as would cause them to "guess again."

A Report on Municipal Ownership.

A very interesting and elaborate report on municipal ownership in Great Britain, made by Everett W. Burdett, a Boston lawyer, is published in the Journal of Political Economy for May. Mr. Burdett went abroad, remarks the Electrical World, to make the investigation of public operation of utilities on behalf of conservative American interests. Their reports heretofore have been held as confidential. Briefly stated, Mr. Burdett's conclusions are that municipal ownership and operation of public utilities in Great Britain has been only partially successful at the best, and has failed in many of the very respects for which its supporters claim most; and that, so far as the present status in Great Britain is desirable, it is owing to the conditions which do not exist and cannot be duplicated in America. Perhaps the most serious of the ill consequences is the hampering and restriction of industry. The backwardness of the development of electrical enterprise in England led to such a state of things that in 1902 the Council of the Institution of Electrical Engineers appointed a committee to investigate conditions and suggest action that would assist the industry. The committee's tabulated conclusions showed that the United States, with less than double the population of Great Britain, has six times the amount of apparatus installed for furnishing electricity to lamps and motors, sixteen times as much for traction, twenty-three times as many miles of electric railway, twenty-six times as many motor cars, and over five times as much invested in such enterprises.

Dr. S. S. Wheeler, president of the American Institute of Electrical Engineers, in a recent speech before that body, referred to Bacon's saying, that every man owes a debt to his profession, which he should recognize and pay as he is able. Every one should endeavor to uplift his profession and carry it forward. To this end the ethics should be well recognized. In the learned professions this is true, but the public, while classing engineerng as a learned profession, does not accord it the same high standing. It should be the effort of each engineer to change this condition and to stand on the same high plane. Electrical engineering is the youngest branch, and as yet no definite stand in the matter has been taken. In the other branches the matter has been more discussed and codes laid out to guide those who can not decide such matters for themselves.

Mr. C. E. Diehl, manager of the Postal Telegraph-Cable Company at Harrisburg, Pa., and superintendent of fire alarm telegraph at that point, in a letter regarding the continuance of his subscription, wrote: "You did wisely to renew my subscription. I enclose herewith check for same. A man can't keep up with the times, telegraphically speaking, without your valuable journal. I take occasion to congratulate you upon the success you have attained in putting out a truly first-class telegraph paper, which every person in the business should take."

The Convention of the Railway Telegraph Superintendents.

The twenty-fifth anniversary of the first meeting of the Association of Railway Telegraph Superintendents, will occur this year at Denver, Colorado, and may well be considered as marking an epoch in the history of that organization worthy alike of special celebration and of extended notice. To reach so dignified an age, so notable

"THE ADAMS," DENVER.
The place of meeting of the Convention of the Railway Telegraph Superintendents.

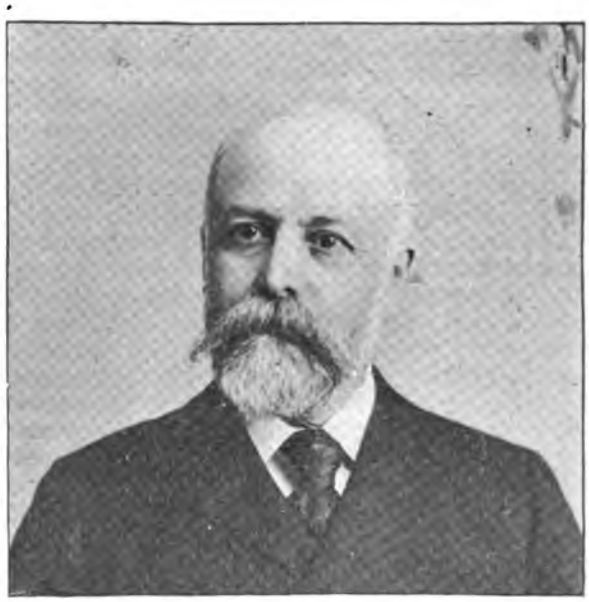
an event as a "silver" anniversary would indicate, is accorded to but few societies, and if for nothing else is especially noteworthy on that account. The superintendents are to be congratulated on so auspicious an occasion, and that intelligent body of men have every reason to felicitate themselves on the substantial growth that has followed their efforts as an organization, the original declared

E. E. TORREY.
President of the Association of Railway Telegraph Superintendents.

purpose of which was the improvement of the railway telegraph service. How far they have succeeded in effecting this laudable object may be observed by anyone who studies the improved methods of to-day, compared with those of twenty-five years ago, for the superintendents, as a class, have been quick to recognize and adopt improvements as they have arisen from time to time. Then again as the importance of these annual meetings has come to be more generally recognized on the part of the railroad companies, the requirements of whose telegraphic departments have continually

E. A. CHENERY.
Vice-President of the Association of Railway Telegraph Superintendents.

advanced the standards of that part of the operating service, the value of the office of the superintendent of telegraph has measurably increased. Particularly is this true where mergers have conspired to expand railroad systems into vast lengths, thereby adding to the responsibility of



P. W. DREW.
Secretary and Treasurer of the Association of Railway Telegraph Superintendents.

the head of the telegraph department. The importance to the various telegraphic departments of the great railway systems of this country, between which, at least, there should be a general harmony of thought and purpose, in having executive heads meet thus yearly in conference, cannot be over-estimated. In these progressive

times, fraught with continual change, marking a higher development in methods and materials, of the adoption of new and improved ways and means, such meetings are productive of the greatest good. They afford an opportunity for an interchange of thought and views, the presentation of fact and experience, the discussion and comparison of which cannot be accomplished so readily in any other way. The growing worth of

CHARLES SELDEN.
Superintendent of Telegraph, Baltimore and Ohio Railroad, Baltimore, Md.

these meetings to the individual and to the road he represents, should be the means of drawing to the rolls of membership the name of every railroad telegraph superintendent on the Continent of North America. In the long succession of valuable papers, covering every phase of the telegraph in its adaptability to the requirements of the railroad service, that have been read and discussed at the annual conventions of this association during the past twenty-five years, much practical good has been evolved. The subjects presented possess a greater significance and value because they have been wrought out of the everyday practical experience of their authors. Educatory in its influences many a superintendent, because of these conventional meetings, has had the horizon of his knowledge expanded and has found his reward in promotion to higher executive office, many reaching the round of the presidency of vast railroad systems.

The coming convention at Denver will be held on Wednesday and Thursday, June 20 and 21, the official days named, but Friday and Saturday, June 22 and 23, will be especially set apart for social recreation and sight-seeing of which Denver and its vicinity offers such a grand opportunity in its magnificent environment of natural scenery. Headquarters will be established at The Adams, that city, and that excellent hostelry, one of the best appointed hotels in the West, will extend a grateful hospitality during the three days of the convention, to delegates and all who attend in whatever capacity. Suitable room will be provided for the display of exhibits and it is expected that a number will be on view. The rates at The Adams, which is conducted on the American plan, are $3 per day; room with bath, $3.50; two persons in one room, with bath, $6.50. Reservations for hotel accommodations should be made direct with the manager.

June 20 and 21 the time of the members will be devoted closely to the demands of the business end of the convention, a full report of which will appear in these columns in the issue of July 1. Many important topics are coming up for consideration and there will be read a number of highly interesting papers treating on timely subjects.

The committee of arrangements, consisting of Messrs. C. A. Parker, E. E. McClintock, J. M. Walker and J. Munday, all of Denver, has planned an admirable scheme of social entertainment to cover the hours of leisure.

Other committees are: Topics—V. T. Kissenger, of Lincoln, Neb.; F. H. Van Etten, of Danville, Ill., and S. K. Bullard, of Sedalia, Mo. Composite circuits—U. J. Fry, of Milwaukee, Wis.; G. H. Groce, of Chicago, and R. L. Logan, of Kansas City, Mo.

Officers will be chosen to succeed E. E. Torrey, of the Mobile and Ohio road, Jackson, Tenn., president; E. A. Chenery, of the Missouri Pacific

EDWARD P. GRIFFITH.
Superintendent of Telegraph, Erie Railroad, New York.

Railway System, St. Louis, vice-president, and P. W. Drew, of the Wisconsin Central Railway, Milwaukee, secretary and treasurer.

On Wednesday afternoon, June 20, the ladies of the party will be afforded a view of the city of Denver by means of a trolley ride. On Thursday, June 21, the Georgetown Loop trip is planned for the ladies, leaving Denver about 8 A. M., and returning about 3.30 P. M., and the "Seeing Den-

ver" car ride for the members of the association in the afternoon will be undertaken, if business will permit. An informal dance will be given in the evening by the management of The Adams.

On Friday, June 22, a fine excursion will be made to the famous gold mining camp of Cripple Creek. This will be an all day affair, for it is planned to leave Denver about eight o'clock in the morning, reaching the city on return about nine o'clock in the evening. Such a trip will afford a day of intense interest to all.

It is especially desired that all will remain over Saturday, the 23d inst., in order to take the trip over the Continental Divide. This will be a magnificent excursion of rare pleasure to those who participate in it. The route is over the "Moffat Road," and the excursionists will leave the city at eight o'clock in the morning, expecting to return by half past five in the afternoon. This road, in crossing the Continental Divide, climbs to an altitude of 11,660 feet above the sea-level, or about 700 feet above timber line. The snow at this elevation never entirely disappears, and at the time of the convention the summit will doubtless be clothed with several feet of the same.

The Denver and Rio Grande, Colorado and Southern, Denver, Northwestern and Pacific, Crystal River and Colorado and Wyoming railway companies tender free transportation to all members and families to any and all points on their lines, and it is hoped that many will visit the various resorts, and remain as long as possible.

U. J. FRY.
Superintendent of Telegraph, Chicago, Milwaukee and St. Paul Railroad, Milwaukee, Wis.

It is interesting to trace the history of the Association of Railway Telegraph Superintendents, even if space permits but a brief chronological reference. The organization was effected in Chicago, November 20, 1882, the officers elected for the first year being W. K. Morley, president; William Kline, vice-president, and C. S. Jones, secretary and treasurer.

The second meeting was also held in Chicago, at the Grand Pacific Hotel, on June 13 and 14, 1883. There were thirty railroads represented at this meeting, showing at that early date the interest felt in the organization. Mr. Morley was again elected president; Charles Selden, vice-president, and P. W. Drew, secretary and treasurer, now the veteran office holder of the association, for each year since he has been elected to the position he has continued to fill with so much credit, alike to himself and to the association.

W. W. RYDER.
Superintendent of Telegraph, Chicago, Burlington and Quincy Railway Company, Chicago, Ill.

At the third meeting, held September 17, 1884, Charles Selden was made president, E. C. Bradley vice-president, and P. W. Drew secretary and treasurer.

The fourth meeting was held in Cleveland, O., June 17 and 18, 1885. The retiring president, Charles Selden, who was very popular, was presented with a gold-headed cane. He was succeeded by C. W. Hammond, Geo. L. Lang becoming vice-president, and Mr. Drew secretary and treasurer.

St. Paul was the place for the 1886 meeting, fifth in the series, the dates being June 16, 17 and 18. Thirty-four railroads were represented. The guests were handsomely entertained, an excursion being given in their honor to Duluth and the Apostle Islands by rail and boat. A. R. Swift was elected president, Geo. L. Lang vice-president, and P. W. Drew continued as secretary and treasurer.

Boston claimed the sixth convention, July 13 and 14, 1887. A gavel was presented to President Swift. It was at this meeting that the practice of showing exhibits of telegraphic and other electrical devices was first introduced. Geo. L. Lang was elected to the presidency, G. C. Kinsman was

made vice-president, and Mr. Drew secretary and treasurer.

The seventh annual meeting was held in New York, at the Murray Hill Hotel, July 11, 1888. At this convention Commander Brown, of the Naval Observatory, Washington, was present and made some interesting remarks regarding the distribution of time. Edison's phonoplex system was shown in operation. The election of officers resulted in making G. C. Kinsman president, C. A. Darlton, vice president, and Mr. Drew secretary and treasurer.

In 1889, the eighth convention met at Washington, D. C., October 16 and 17. Mr. Harrison was then president of the United States, and he received the members at the White House. C. A. Darlton succeeded to the presidency, Geo. T. Williams becoming vice-president, and Mr. Drew, of course, secretary and treasurer.

The next convention, the ninth, assembled at Niagara Falls, June 18 and 19, 1890. This meeting was notable for the large number of papers read and the exhibition of the long distance telephone by which conversation was held with parties in Albany and in New York. Geo. T. Williams was elevated to the presidency, George M. Dugan was elected vice-president, and Mr. Drew retained in his old position.

June 17 and 18 were the convention days of the tenth annual meeting, held in 1891, at Cincinnati. There were representatives present from thirty-seven railroads. At this date the annual dues were advanced to $5. C. S. Jones was elected president, L. H. Korty vice-president, while Mr. Drew was not defeated for secretary and treasurer.

The eleventh annual convention met at Denver, on June 15 and 16, 1892. Forty-seven members were present, and a meeting unsurpassed for interest and enjoyment was held. Thomas A. Edison had a paper. L. H. Korty became president, U. J. Fry vice-president, and Mr. Drew secretary and treasurer.

Milwaukee was selected as the next place of assemblage, the dates being June 20 and 21, 1893, the twelfth in the list. The World's Fair at Chicago was then in progress and thither most of the members went after the convention adjourned. U. J. Fry was elected president, O. C. Greene vice-president, with Mr. Drew as usual was third in the race.

The superintendents celebrated their thirteenth convention at Detroit, June 13 and 14, 1894. O. C. Greene was elected to the presidency, E. R. Adams to the vice-presidency and P. W. Drew to the secretary and treasurership.

In 1895 the railway telegraph superintendents went to Montreal, Que., holding their fourteenth annual meeting in that ancient city on June 12. M. B. Leonard was elected president, J. W. Fortune, vice-president, and Mr. Drew was returned to his old office by acclamation.

Fortress Monroe, Va., next claimed the superintendents for their fifteenth convention, June 17, 1896. George M. Dugan became president, J. W. Lattig vice-president, with Mr. Drew in the third place.

For the second time Niagara Falls fulfilled its claims as a convention city, for there the superintendents met for their sixteenth annual meeting on June 16, 1897. J. W. Lattig was promoted to the presidency, W. W. Ryder was elected vice-president, and Mr. Drew secretary and treasurer.

The seventeenth convention took place at Omaha, Neb., the date being June 15, 1898. A committee made a lengthy report on low resistance relay experiments. W. W. Ryder received the election to the presidency, the position of vice-president going to L. B. Foley, and that of the secretary and treasurer, as usual, to Mr. Drew.

It was at Wilmington, N. C., that the eighteenth annual convention was held, the dates being May 17 and 18, 1899. L. B. Foley was made president, W. F. Williams vice-president, and Mr. Drew, of course, secretary and treasurer.

The next convention, the nineteenth in the series, occurred June 20, 1900, at Detroit, Mich. The claims of the telephone as an auxiliary agent to the telegraph in railroad operating, received considerable attention at this meeting. Mr. W. F. Williams was advanced to the presidential office, C. F. Annett was elected vice-president and Mr. Drew was returned to his accustomed place.

Buffalo, N. Y., was selected as the meeting place for the twentieth annual convention, the date being June 19, 1901. This was the year of the Pan-American fair in that city, a fact which stimulated a large attendance, for the presence of superintendents surpassed in numbers all previous records. The presidency of the association went this year to C. F. Annett, the vice-presidency to F. P. Valentine, and to Mr. Drew was accorded the secretary and treasurership.

In 1902, the twenty-first convention assembled at Chicago, on June 18, about fifty members of the association being present. The discussion of the subject of typewritten train orders was a feature of this session, a matter that awakened much interest. The use of the telephone in connection with railroad operating, also, received earnest discussion. J. H. Jacoby was elected president, W. J. Holton vice-president, and P. W. Drew secretary and treasurer.

The South claimed the twenty-second convention of the railway telegraph superintendents, and it was on May 13, 1903, that the association met at New Orleans. At this meeting Mr. Drew read an interesting paper, reciting what the association had accomplished and making the statement that its membership had reached sixty. The election of officers resulted as follows: C. S. Rhoads, president; C. P. Adams, vice-president, and Mr. Drew, secretary and treasurer.

It was at Indianapolis, Ind., June 15, 1904, that the twenty-third convention was held. Once again a World's Fair was an attractive side issue, for at the neighboring city of St. Louis the big exposition was in full operation. The "Big Four"

railroad, through the influence of C. S. Rhoads, its superintendent of telegraph, at the conclusion of the convention generously conveyed free of expense all who wished to go to St. Louis. The question of composite circuits was ably considered in a paper read by Mr. E. P. Griffith, and the interest shown in the subject was apparent in the long and animated discussion that followed. The election for officers resulted in the selection of H. C. Hope, president, E. E. Torrey, vice-president, and the continuance of Mr. Drew as secretary and treasurer.

The convention of last year, 1905, met at Chattanooga, Tenn., on May 17, and was the twenty-fourth. This was a very interesting meeting. A feature of the occasion was the reading by W. J. Camp of his paper on "High Tension Wires on Railway Right of Way." The elections resulted in placing E. E. Torrey in the presidential chair, making E. A. Chenery vice-president, and Mr. Drew secretary and treasurer.

SOMETHING ABOUT DENVER.

Denver, like Jerusalem of old, is beautiful for situation. It may well be questioned whether any other American city possesses such magnificant environments of bold and majestic mountain scenery. To the westward, beyond the foothills, the long line of the Rocky Mountains, snow capped, rear their lofty heads, ever changing in appearance, responsive to different moods of the atmosphere, and presenting a most impressive view. To the south rises the great sentinel elevation of Pike's Peak, its distance seemingly reduced by the clearness of the atmospheric conditions. Other mountains also group themselves. To the north spread the great plains. Hereabouts is the highest land on this continent, and near at hand is the Continental Divide, separating the flow of waters descending to the Pacific and to the Gulf of Mexico. Denver itself is situated on a table land elevated about one mile above the sea level, and with an equable and delightful climate throughout the year, and with architectural beauty of physical construction it may well be termed "The Queen City of the Plains."

The city occupies a succession of gentle inclines, gradually rising from the South Platte river, and extending to Capitol Hill, the finest residential quarter of the town. The city is well drained, and an abundant water supply of excellent quality is obtained from artesian wells.

The business thoroughfares, such as Sixteenth and Seventeenth streets, contain many fine stores, banks, etc., and the crowds of people and appearance of activity on all sides clearly indicate the commercial greatness of the town. The financial interests also centering here are important, while the manufacturing industries are large and diversified in character. Denver, in fact, is a busy town. The Chamber of Commerce fills an important place in the business life of the city, and has a large membership, likewise the Mining Stock Exchange, for Denver early became the receiving and distributing point for the valuable minerals mined in that section of the country.

The residential streets have a peculiar charm and attractiveness of their own, impressive at once to the stranger. Most of the dwellings stand detached, and many are fairly buried in a wealth of foliage and shaded by forest trees, for vegetation here is almost tropical in its luxuriance. Such avenues as Grant, Sherman, Logan, Pennsylvania, and others that might be named, lined with beautiful homes and surrounded with shaded lawns, are nowhere exceeded in beauty and stand in evidence of the refinement observed in the people of that city.

A reference to Denver would not be complete without mention of its public buildings. Many of these are massive and costly in character and exceedingly attractive, considered from an architectural standpoint. The state capitol, with its high dome, and from which one of the finest views of the city may be obtained, is built of granite, and cost upwards of $2,000,000. Then there is the Tabor Grand Opera House, valued at nearly a million; the federal building, $700,000; the county court house, costing $400,000; the city hall, $350,000, and others.

The situation of Denver is such as to constitute it as the natural gateway to the mountainous country further west, hence it is that the numerous and important railway systems meeting here, constitutes this one of the largest railway centers in the country. Nearly all roads occupy the Union depot, a splendid structure built of lava and sandstone.

Denver has had a rapid and almost magical growth, covering an entire period of less than fifty years, for it was in 1858 that it was first settled. The first house erected was on the west bank of Cherry creek, near the present site of the Larimer street bridge. The city takes its name from Gen. J. W. Denver. Its population in 1900 was 133,859. It is now believed to be over 150,000.

Civilization has rapidly acquired control over the wildness of nature, and the beautiful and flourishing city that has been created in so short a time, comparatively, is an evidence of the energy and grit of the spirit of the American people, particularly of those who have and who are accomplishing so much for the Colorado city.

Mr. Arthur Stringer is the author of "The Wire-Tappers," a novel that has just been issued by Little, Brown & Co., of Boston. The hero, an electrical inventor, and the heroine, a beautiful English girl, become by force of circumstances, associated with a man who attempts by wire-tapping to beat a poolroom. The efforts of the girl to uplift the man she loves and to extricate him and herself from evil associations, make an entertaining story.

Relation of the Telegraph to the Railway.

[Abstracted by the Railway and Marine World from a paper read by B. S. Jenkins, of Winnipeg, Man., general superintendent of telegraphs, Western Lines, Canadian Pacific Railroad, read at Officials' Conference. Field, B. C.]

In connection with the relation of the telegraph to the operating department, the telegraph may be said to constitute the great actuating and vital force in the operation of the railway. The great essentials for successful telegraph service are adequate wire and instrument equipment efficiently maintained and properly utilized. To provide adequate wire and instrument equipment, and to maintain the same efficiently, is the chief service performed by the telegraph for the operating department, but in this connection, I would observe that the telegraph department is directly responsible and accountable for such service only to the extent of the control by the telegraph department of the agencies necessary to secure such service. The agencies beyond the control of the telegraph department are to be found in the operating department itself and in the maintenance of way department, and unless there is active, intelligent co-operation on the part of these departments, the telegraph service cannot be efficient. Particular agencies in the operating department, whose services are indispensable in securing efficient telegraph service, are the train despatchers, agents and operators. Interruptions occur from various causes, fire, flood, lightning, rock, snow and landslides, wind and sleet storms, train accidents, and from interference by workmen along the line by derricks, steam shovels, pile drivers, bridge gangs, etc. The first duty of the circuit managers (wire testers) when such interruptions occur is to provide a wire for the train despatcher. Usually at such times, the train despatcher will bestir himself to give assistance, but very often when he secures a wire he is no longer interested. Despatchers, therefore, should lend every assistance when called upon by circuit managers. In cases where there may be trouble at more than one point covered by a lineman's beat during severe weather, and when night is likely to overtake the lineman before he can cover the ground, despatchers should give orders to trains when at all possible to stop for linemen to make temporary repairs, which usually will only occupy a few minutes, and be the means of restoring communication quickly.

Again, in cases of severe trouble and when no trains may run for hours, a light engine is required and train despatchers should be authorized to act promptly on request of the circuit managers to furnish same. In such case, the telegraph department would become responsible for any unnecessary use of light engines. There are despatchers and despatchers. I have known a despatcher working one of the heaviest train sections, who could find the means, apparently with no delay to train movement, to render such assistance in the recovery of wires. Another despatcher, working a different trick on the same train section, will curtly order the circuit manager off the wire if he endeavors to do business. In some instances despatchers have undertaken to help themselves to wires, or order ground wires on and patches made at offices, without notification to the circuit managers, thus putting in more trouble which the circuit manager has to clear up, in addition to the original trouble. The telegraph department is responsible in this connection and the circuit managers should control the circuits. Agents and operators in many cases fail to do the needful. They fail to answer circuit manager's call for "wire," and when reported to their superintendent for such failure, they excuse themselves to their superintendent on the ground of attention to other work, and nothing is done. In very many cases agents and operators are unable to do switchboard work required by the circuit manager, notwithstanding a leaflet issued over a year ago giving full instructions with diagrams, and notwithstanding the fact that our inspectors are continuously traveling inspecting offices and are available to post agents and operators on any points that may trouble them. With these diagrams and instructions, however, and intelligent operator, if he gives suitable attention to the subject, can qualify in a very short time, and, I think, that such qualification should be made compulsory, and a time limit given within which they must qualify, evidence of such qualification to be a certificate from the inspector of telegraph, that they have been fully tested and found qualified. Telegraph service for the railway, exclusive of service in connection with the movement of trains, is also in the hands of the operating department, except at Montreal, Winnipeg, Calgary and Vancouver, where this work has been transferred to the telegraph department. It, therefore, rests very largely, if not entirely, with the operating department itself to see that this branch of the service is satisfactory.

There is urgent necessity that the use of the wires for railway service business be restricted. Many telegrams sent are entirely unnecessary, and in connection with matters that could be adjusted by train mail. Also many telegrams are sent that could be reduced in length, very often one-half. There is need of a rigorous censorship in this connection. Such censorship should be under the direction of some one in connection with the operating department or railway service, sufficiently familiar with all departments of the service to enable him to act intelligently.

I have now to direct your attention to a branch of the service where efficient service is especially necessary, for the reason that any excuse for defective service is not accepted. I refer to telegraph service rendered by the company direct to the public, usually called "com-

mercial business." Here again is a service which particularly on Western lines is largely, if not entirely, dependent upon the services of agencies controlled by the operating department, with the added difficulty that these agencies are compelled to give preference to telegraph service for the operating department in connection with the movement of trains. In other words, if we have defective service in connection with our own telegraph service, as applied to railway operation, we have increased difficulty in giving a satisfactory service to the public. Seventy-five per cent. of the business handled for the public on Western lines is handled through the railway stations. Defective service connection with the company's own interests is a matter of domestic concern, but service for the public is a very different proposition. The public does not discriminate between departments. The company operates a telegraph system through Canada, from ocean to ocean, connecting at each end with cable service across both oceans, and advertises the fact extensively in its various publications, so that the public have now come to consider that they should obtain better telegraph service along the line of the Canadian Pacific than along any other railway system. The company's transcontinental passengers look upon its telegraph service as a very great convenience, not given by other transcontinental systems which do not control the commercial telegraph service. The reputation of the company, therefore, is at stake in this matter and in the same sense as defective service in connection with freight, passenger, dining, sleeping car or other services would be criticized. I am aware that our superintendents and other operating officers very often are not impressed with the importance of this service because of their knowledge that the revenue at many stations is small in comparison with the freight and passenger receipts, but in the aggregate it affords a very important source of revenue to the company. A joint circular was issued over a year ago by the superintendent of transportation and myself, approved by the second vice-president, defining the duties of despatchers, circuit managers, agents, operators and conductors in connection with telegraph service. These instructions, which have been closely followed up by personal and continued personal supervision by superintendents and inspectors have had a very salutary effect. Since these instructions were issued, there has been a noticeable improvement in the service, but nevertheless agents are disposed to regard commercial service as a side issue, the same as express, and superintendents are not inclined to reprimand agents for neglect of commercial service especially if other station work is properly attended to. There is perhaps a feeling that the importance of public service in connection with telegrams is over-estimated. I wish to say most emphatically that a telegram is an emergent communication, and the company having undertaken a public service must perform such service satisfactorily. I wish to emphasize the importance of superintendents co-operating with the telegraph department to insure that instructions contained in the special circular are strictly observed by all employees handling commercial telegrams.

Nearly 2,000,000 paying telegrams were handled at Western Lines offices in 1905. Between 1900 and 1905, telegraph earnings increased 114 per cent.

Present wire facilities seem adequate, and with additions to be made this year will be fully so. In the construction and maintenance of lines, we are fully abreast of the times. In the electrical branch and in operation, our methods are also up-to-date, our instruments and apparatus generally being of the latest and best type. The old Callaud or gravity battery, which has been a faithful friend of the telegraph, is now being largely displaced by storage battery, both for main batteries and for local batteries where suitable current from power plants is available, and with very beneficial results. The method of conducting wires into stations by means of aerial cable has been largely adopted, over one hundred offices on western lines having been thus equipped.

Mr. J. M. Maddox, assistant superintendent of the American District Telegraph Company, formerly of San Francisco, but now by force of circumstances located at Oakland, where the main office of the company is situated, in being advised that he had over-remitted to TELEGRAPH AGE to the extent of fifty cents on a certain transaction, writes in a letter sparkling all over with manly grit, while philosophically accepting the inevitable: "It is especially gratifying to know that I have a credit of fifty cents, as I think it is about all the cash I had left after the fire; but let us forget the disaster and start over again. I have lost everything I had on earth, but do not want to lose TELEGRAPH AGE. I, like thousands of others, lost every blessed thing I had on earth except the clothes I had on my back, besides about $500 worth of books that I regret more than most anything else, as I had become somewhat of a crank on having good books around me, although I had not as much time to read them as I would have liked; but, thank God, I have got two good hands left and more determination than you could put into a whole train of box cars, and I am going to start over, forgeting the past just as quick as possible."

Recollections of the Early Days of Telegraphy.

BY S. P. SWARTWOUT.

(Taken from the Record of the Telegraphic Historical Society of North America.)

In the year 1847 I became associated with the small corps of operators who were employed by "The Magnetic Telegraph Company," as it was then named, in the office at Jersey City, N. J.

The line extended from Washington, D. C., to New York city (with interruptions by reason of the Delaware and Hudson rivers), and, I believe, was the first telegraph line constructed for commercial purposes.

The office consisted of two rooms in the second story of a building on Montgomery street, located, I think, on the second block west of the Hudson river. The instruments, two in number, were fixed in the front room, which overlooked the street, while the batteries were arranged in the rear room, which was also used as a general storage room for all kinds of articles and fixings belonging to the office.

Of the operators employed there I remember the names of Edwards, Gregory and Glassbeck; the latter also kept the books and the accounts of the office. I was then about nineteen years of age and was employed as assistant operator and copyist. There was another operator, I think, named Parke. The business, of course, was in its infancy and of small amount compared to what it subsequently became. The Morse instruments were used, with clock-work, which carried the strip of paper under the pen or point, which made the indentations standing for the letters of the alphabet. This clock-work was run by a heavy weight, and when it ran down to the floor the operator had to wind it up.

During the session of Congress the telegraphic reports of its proceedings were daily transmitted over the wire to the New York papers, principally the "Herald," "Sun" and "Tribune," and while they were coming we were pretty busy and were kept at work until near midnight in order that the papers could have the latest news. As it was not thought possible then to telegraph over a large river or other body of water, the method in use was to telegraph by wire from Washington to the Philadelphia office, where tne message was re-written and carried across on the ferry by messenger boys to the office on the east bank of the Delaware river; whence it was again transmitted by wire to the Jersey City office, where it was again re-written and carried over the Hudson river on the ferryboat by messenger boys and delivered in New York city; or, if adddessed to some place out of the city, then it was taken to the New York telegraph office and mailed to its destination. So much re-writing of messages and ferrying caused considerable delay, so that the speed of transmitting messages would not compare with the present service; but it was far in advance of the mails and was then thought wonderful.

There were several messenger boys employed at the Jersey City office for carrying messages, at low wages. The hours for business were nominally from 8 a. m. to 6 p.m.; but during the sessions of Congress, the office was run until twelve at night for the reception of the congressional reports. This extra work was done by two operators on alternate nights, one to take the message and one to write it off, and, as the messenger boys were let off duty at 6 o'clock, one of the operators had to carry over the reports to the newspaper offices on the last ferryboat, which then left Jersey City at 12 o'clock midnight, and did not resume the trips again until morning.

The operator who went over with the despatches for the newspapers on the last trip of the ferryboat, was obliged to stay in New York the rest of the night and return in the morning. Many nights have I performed this duty, going up by dark stairways to the pressrooms of the "New York Sun," the "Herald" and the "Tribune" after midnight, and then to a hotel for lodging till morning. We received extra pay for the night work and our hotel expenses were also paid.

The active business manager at that time was Mr. J. M. Clark, who was the secretary and treasurer of the company. His office was, I think, on Front street, on the east side of New York; he being also engaged in the shipping business, and kept the books of the telegraph company in his private office.

Lord Kelvin's Conception of an Atom.

Lord Kelvin, in an article on "Atom with Enormous Energy for Radio-activity," published in the Philadelphia Magazine, puts forward a plan of an atom capable of storing an electrion (or negative electron) with enormous energy for radio-activity. The atom of ponderable matter is supposed to be intrinsically charged in concentric spherical shells, each such layer being uniform in itself, but the density and sign of the distribution varying from layer to layer. A curve, called the work curve, is then plotted, whose ordinates show the work required to bring an electrion from infinity to the point in question. In the curve drawn there are two minima, one just within the radius of the atom and a second at its center. Between these two minima there is one maximum. The curve is, of course, symmetrical about the center of the atom. If, therefore, an electrion be placed at or near the center of the atom, that is, between the two maxima of the work curve, it has stability, but only through a narrow range. If it is taken further away from the center than these maxima, the electric force of the atom upon it will shoot it out of the atom with prodigious velocity, which will be but slightly diminished by the attraction of the whole atom when it gets outside.

The Advent of the Edison Automatic at Omaha.

BY DR. L. M. RHEEM.

In looking back through the years, other things come to my memory beside names and faces. One of these things on which I have never had an opportunity offered to adequately voice my opinion was the Edison automatic which drifted into our office at Omaha, Neb., during the closing years of the Atlantic and Pacific Telegraph Company. You have undoubtedly heard of the metaphorical cuckoo, which has been so often used in giving a concise description of anything possessing particular points of excellence. I use the word advisedly when I say that this automatic was a cuckoo of the purest breed. In fact, I believe that it was the original cuckoo.

Our advance information of the contraption was that its rate of speed was fifteen hundred words per minute; that it did not require an operator to work it; that after providing yourself with a girl or boy of immature years, whose business it would be to perforate the messages and press on a paper strip, the salary of said boy or girl being not to exceed thirty dollars per month, you were to go out into the highways and byways gunning for the services of a gentleman "low in the forehead and strong in the back," who was the possessor of a clear eye and a steady hand, whose duty would be to feed the aforesaid paper strip into the transmitter of the machine and turn the crank for the sum of forty dollars per month, which we were told was the amount paid in Buffalo. We also heard other things too numerous to mention. Reasoning deductively we figured that the operating expense could be cut about seventy-five per cent. Before the arrival of the "wonder" things looked blue for my force, the individual members of which spent a great deal of time figuring out a sort of a pyrotechnical finish for a long and useful career. While there was nothing said about the abolition of managers a vein of uneasiness occasionally made its appearance in the thoughts of that official, although he continued to look wise and prosperous.

At last the great day came when the basiliskan destroyer of honest labor arrived in town in company with Dan Sweet, the expert who was to set it up, a young Englishman whose name has escaped me, but who could spend more time in finding the point of a joke than anyone I ever met, who was to be the perforator, and a sleet storm that prostrated the wire for three days, making up the first really big four.

We all took a deep interest in the instruments and in seeing Dan juggle them into position for business. The perforating machine was a sort of a hybrid typewriter, as noiseless and easy running as a rock crusher. The apparatus required a bichromate of potash battery, the solution for which had to be mixed in a large crock. A good mixer usually got a plentiful portion of the juice on his clothing. The instruments mounted looked imposing, resembling nothing that had ever been seen west of the Missouri. The synchronizing arrangement was a wonderful thing, being located on the sella turcica of the operator's sphenoid bone about three millimeters back of the pineal gland, which some authors contend is the seat of fancy. Taking it "by and large," it was, as I said before, a cuckoo.

On the evening of the day on which Dan completed his onerous labors, the lines came up, and the Bos'n piped all hands on deck for rough work. You talk about a saturnalia of coincidental circumstancialities; we had it that night of the long ago. We had perforated all our business and, as the rule was that all eastbound messages had preference, A. B. Hilliker sat in to "send" to Chicago. As the thing had been billed to send 1,500 words a minute, Hilliker took a guess and cranked it for all he knew how. When he finished sending all the business the "Ch" man said "Wt dd u sa?" Hilliker sent him the bunch again a couple of times and we were "clear."

Then "Ch" started to send to us. As the operator there had had practice we got his business in better time. The stuff was sent backward and was received on wet paper, the chemical action of the current bringing the signals out in a beautiful blue color.

We had a large force of copyists as in addition to the regular force of the office, Mr. J. J. Dickey, Mr. L. H. Korty, and the day force from the Union Pacific office had come around to "help out." In addition to the force of copyists we had invited a large number of "prominent citizens" in to see the action of the great invention that spelled ruin for the great Western Union monopoly. These visitors had to be told that a dot and a dash was "A," a dash and three dots was "B," and so on down the alphabet, and that a cable addressed to Pigtail, San Fran., did not mean that that was the right name of the addressee, but that it was a registered address which was secured in such and such a way; that a message reading "Somnolex abdicient parallax simplexity" was what was called a code message and that each word meant a whole lot of words, and so on, and so on.

Each copyist had extemporized a place to handle his reel of business, and when it was served to him he sat down and began to copy. You would just get a good start when you would turn round to ask your neighbor's opinion on a certain combination; while the conference was in progress, one of the visitors would knock your box over and go traipsing off down the room with a string of green paper around each ankle. But the visitors were without exception very polite; they always said "Oh!" when you called their attention to the fact that they had a "death" message on their person to which they had no color of right. When we finally got the wreck cleared we sorted out all the messages that sound-

ed reasonable, and then had Chicago send the rest by plain Morse.

It was not long after this that we got the animal tamed so that we could drive it single or double, and once in a while we would do some really good work with it. The ridiculous combinations that it used to perpetrate, however, were sometimes so numerous that they ceased to be funny.

The Old Time Telegraphers' and United States Military Telegraph Corps.

At a meeting held recently at Washington, D. C., by the joint executive committee of the Old Time Telegraphers' and Historical Association and the United States Military Telegraph Corps, a programme was determined upon in part providing for the entertainment of members at the next annual reunion which occurs at the capital city on the 9th, 10th and 11th of October next. Headquarters will be established at the Arlington Hotel, a fine hostelry which faces Lafayette Square, just opposite the Whitehouse. The location is an exceptionally pleasant one, and will doubtless be much appreciated by the visiting telegraphers. When it is said that a special reception will be tendered the telegraphers by President Roosevelt, an inkling of the attractiveness of the meeting may be judged. The reception will occur at the White House at noon on October 10. It is proposed also to hold an evening reception at the Corcoran Art Gallery, when those in attendance will have an opportunity of inspecting the noted works of art there on view. Besides this there will be a concert by the famous Marine Band at the navy yard; a dinner at Cabin John's Bridge; an exhibition of cavalry drills and exercises at Fort Myer, near Arlington, a trip to Mount Vernon and an evening at Chase's Opera House. If this be the skeleton of the plan of entertainment already provided for, the full programme, when completed, will offer to the telegraphers exceedingly attractive features well calculated to promote their pleasure. The officers of the Old Time Telegraphers are: William H. Young, Western Union Telegraph Company, Washington, president; George W. Ribble, superintendent Postal Telegraph-Cable Company, Washington; Charles P. Adams, superintendent of telegraph, Southern Railway, Washington, and J. B. Yeakle, superintendent of fire telegraphs, Baltimore, vice-presidents; John Brant, secretary and treasurer, 195 Broadway, New York. The executive committee comprise the following: John C. Barclay and Charles C. Adams, New York; Urias J. Fry, Milwaukee; George H. Corse, Ogden, Utah; Henry F. Taff, P. V. De Graw, George C. Maynard, Ernest W. Emery and Jesse H. Robinson, Washington.

The officers of the Society of the United States Military Telegraph Corps are: Col. William B. Wilson, Philadelphia, president; W. L. Ives, New York, vice-president, and J. E. Pettit, Chicago, secretary and treasurer. The executive committee is made up as follows: E. Rosewater, Omaha, Neb.; A. H. Bliss, Chicago; Col. A. B. Chandler, New York; W. R. Plum, Chicago; George C. Maynard, Washington; R. B. Hoover, Amsterdam, N. Y.; M. H. Kerner, New York; J. D. Cruise, Kansas City, Mo., and John Wintrup, Philadelphia.

The Increasing Demand for Copper.

The increasing demand for copper, due to its extraordinary use in the electrical industries, is dealt with in a recent report to the Department of Commerce and Labor, at Washington. The price for this metal, remarks the Electrical Review, recently attained the highest point since 1888, $418.51 per ton. The average price for the last five years was $301.72. The world's annual production is now estimated to be 700,000 tons. The production for 1905 was 100,000 tons greater than the average for the last five years. The average yearly increase in production before this time has been 7.48 per cent., and practically all of the important increase has taken place on this continent. The output in the United States for 1905 was 397,909 tons. Mexico produced 60,000 tons, and has doubled her output since 1900. It is estimated, by taking the average increase given above, that the demand for copper by 1910 will be 875,000 tons, and unless some substitute is found for this metal the yearly demand will be 1,500,000 tons by 1920.

The only metal which has been brought forward as a serious competitor for electrical purposes is aluminum, and up to the present time the relative prices of the two metals have not brought aluminum into very wide use. The increasing price of copper should, however, lead to the greater use of aluminum, provided, of course, that the increased demand for this metal does not raise the price. As yet, aluminum has been used only for transmission lines where the larger size as compared with copper, which is necessary to give the same conductivity, is not a disadvantage. For certain classes of work there is no metal which is likely to replace the latter. Although the increase in the demand for copper is sending the price up, there does not seem to be much danger that the producing companies will not meet these demands, for some time at least. Improvements recently made at the large Montana works have greatly increased their productive capacity, and the aluminum works also could probably put out a great deal more metal if it were demanded.

Personal Experiences of Telegraphers at San Francisco at the Time of the Earthquake and Fire.

J. W. Whiteley, of the Western Union Telegraph Company, San Francisco, has this story to tell:

The morning of April 18 I was on duty in the Western Union building, at the corner of Pine and Montgomery streets. I had just completed taking signals from Reno at 5.11 or thereabouts, and desiring to go over to the Los Angeles wire and take signals from that place, I had just risen from my chair for the purpose when the earthquake occurred. This was a new shake to me; it seemed distinctly different from the shakes I used to receive from my mother several years ago. Glancing at the dynamos I thought they were in some kind of trouble, not being familiar with the peculiar antics they were performing, due to the violent vibration. At this moment the ceiling fell on the chair I had just vacated. Then followed a general upheaval of the room. the clock fell from the wall and the office was swayed by a peculiar rocking motion. I observed Mr. Lowery, our all-night chief operator, and Mr. Melville, the cable operator, dodging debris, and Mr. Lowery said to me, "I guess that's one." We none of us had to "guess" what the trouble was, its real meaning was intuitive. Mr. Lowery was optimistic in his view of the earthquake, and thought it would soon be over, but this shake was a record breaker, and to our excited minds it seemed to have no end. I didn't get a chance to "break" either, for I knew the sender wouldn't let me break. But to save my head from possible breakage, from contact with falling mortar, I thrust it as far out of one of the windows as possible. When the building stopped shaking there came a vigorous call from Oakland wanting to know how serious the situation was in San Francisco. I had time only to answer, when the whole set of wires went out of commission. I then made an inspection of the building, and was inclined to believe that the trouble was all over, so went back to the operating room. At this instant another shock came, and I thought that's "30," I will close the shop right now. I saw the wrecked condition of the receiving office down stairs, so I consulted Mr. Lowery as to my protecting the room until Mr. O'Brien, our manager, came. I hadn't been there long when people came thick and fast to send messages to their Eastern friends informing them that they were still on earth. I had a rough house for three hours taking in messages and talking all the time. I told the customers that everything would be accepted subject to serious delay, but my personal opinion was that we could get the business off some way later on. I told them, first come, first served, and you ought to have seen them trying to get to me. I held the crowd until Mr. O'Brien arrived, when I turned the whole business over to him, as I had had enough for one day, having worked from midnight telegraphing and wrestling with earthquakes, besides having acting as counter clerk for three hours. I turned my business over, together with all cash, to Mr. O'Brien, and then left for home, but on my way out another shake happened and the crowd pushed ahead of me out through the door. Arriving outside I observed a man coming across the street who actually dropped in a fit of apoplexy, and died in a few minutes without being able to receive help from any source, due to the excitement. I then went through the town and saw the fires and finally heard that Mr. Jeffs had a telegraph office at Oakland. I managed to get through the lines by the assistance of a lieutenant of the regular army, who got me to the ferry, via Dupont street and Broadway, arriving at West Oakland about 9 p.m., where I worked all night.

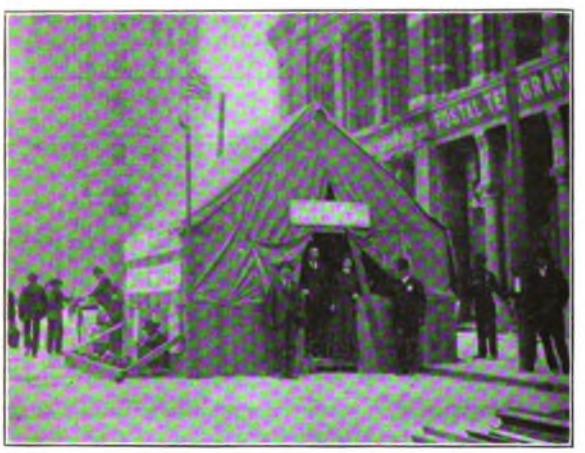
I have been asked often was I scared. Frankly, I don't know, for I have been too busy ever since working for the best telegraph company in the world, and who have treated me better than I ever was treated during my twenty years' experience as a telegraph operator.

Mr. A. J. Esken, of the Postal Telegraph-Cable Company, San Francisco, writing under date of May 29, says:

I reached the office about 6.30 a. m. on the morning of the great disaster, April 18. Chief Operator Arnberger had just rigged up some gravity batteries, and in a few minutes we had three single wires going to Chicago and one to Los Angeles. These wires were manned by J. A. Welker, Frank Seaman, Izzy Elberg and myself. Before we were ordered out of the building, at 11.15 a. m., I managed to send about five thousand words of press matter, which, no doubt, was the first authentic and reliable story of the terrible state of affairs prevailing in San Francisco at that time to reach the outside world. The other boys did equally well on personal telegrams and some press matter. While we were working there, we had several severe shakes, which brought down plaster and brick all around us. About 10.30 a.m. we had an unusually heavy shock. Everybody made a rush for the street. In jumping up I knocked my chair over, and the noise of its fall accelerated the speed of those who had already started. It was a long way to the street, so I just stood up close beside one of the large supporting pillars that reached from the floor to the ceiling, thinking that if the building was coming down I might stand a better show there than anywhere else. However, nothing more than a few more bricks and some mortar fell through the skylights, so I was back to the instrument again before the rest of the boys returned. And thus we worked until we were ordered out of the building. To the east of us the fire was only half a block distant—right in our own block. To the west, the "Call" building was burning, which was just one block away.

While sitting at my instrument, working by candle light, the reporters were passing in and out. Part of the time I had copy (I am speaking for myself—I was too busy to know what the other three operators were doing); at other times I was sending from dictation, and sometimes I had to fill in from my own experience and memory. Taking everything into consideration, I believe those were the busiest hours of my life.

Our office was a total wreck. There were four skylights in the ceiling, and tons upon tons of bricks, mortar and stone had fallen from the top of the ten-story Union Trust building adjoining, right down into the operating room, crushing our heavy tables as if they had been



THE FIRST POSTAL OFFICE IN SAN FRANCISCO TO OPEN FOR BUSINESS AFTER THE GREAT DISASTER OF APRIL 18.

The figures are: Vice-President E. C. Bradley at the right; General Superintendent L. W. Storror at the left; Miss A. D. Keenan and T. S. Cunningham at the threshold of the tent. The first message sent from this office was on April 25.

made of paper. Amid such surroundings was where we had to work, and during the time we were there we had at least half a dozen additional shakes that simply made one's hair stand on end. Of course, the big shock at 5.13 put us all on "queer street," and, naturally, it wouldn't take much more to stampede the crowd. However, to me it seemed that we were there to do the work required of us and we did it. There was no flinching from any one, but along toward the last I noticed that there was quite a thinning out among the people who had been standing around. Finally I ran out of copy, and when I glanced up and looked around there was no one in sight but Mr. Seaman. Just then Mr. Arnberger came running in and told us to get out, that the building was going. We grabbed our typewriters and left without further ceremony.

The service was immediately taken up by our Oakland office, and the wires manned, with scarcely a moment's interruption, after we were forced to abandon the San Francisco office. Under the supervision of Electrician W. C. Swain, all of our dynamos and other valuable equipment were saved, and later installed in the Oakland office. When we reached the sidewalk in our exit from the building, we beheld a scene that was simply appalling. From Kearney street west, including the "Call" Building, as far as the eye could reach, and from four or five doors east of our office clear to the ferry, was one mass of flame. It was a sight that no one can ever forget. On the Friday afternoon following, while still in the neighborhood, I was ordered by a soldier to go up on the fire line and help carry a hose that had been run up from a fire-boat in the bay. It was hard and hot work, but it meant instant death to disobey orders then. Everybody, including "Father," was working. That night I was called upon to do patrol duty. It was sort of a citizens' patrol. We were supposed to see that no one had a light of any sort in his house. This precaution, of course, was to prevent the possibility of fire starting in the unburned district.

On Saturday I reached Oakland, where I found the office simply swamped with business, and everybody working to his or her full capacity. No one even thought of stopping a moment, unless some one was there to take one's place the instant it was vacated. Everybody that applied was put to work, but still there seemed to be no rest for anyone employed. On April 26, Mr. C. R. Worman and R. A. Ditch arrived here from Chicago, and on May 1 Messrs. C. R. James, J. F. Seaman, R. A. Wilson, J. R. Eberhart, W. B. Scoffin, all of Chicago, and Mr. E. B. Boyden, of Kansas City, were added to the force, having been sent here by General Superintendent E. J. Nally, of Chicago, to help us out. You may be sure we were glad to see them. They have all since returned to their respective homes, except Mr. Wormer and Mr. Boyden, who have decided to remain here permanently.

So far as our business is concerned, we are down to the normal again. We have several offices already established in San Francisco, and will have more soon, the most important of which will be located in the ferry building. This will practically be the main office until such time as more permanent quarters can be secured.

The following were sufferers by fire and earthquake, and the losses range from fifty to two thousand dollars each: Wm. W. McCandlish, J. D. Saxe, A. J. Phillips, David St. Charles, Charles House, George B. Abbott, J. L. Irish, Frank W. Seaman, Frank Howard, C. F. Orr, A. J. McAlister, Miss Powell, Charles Greenslade and myself.

There was no way for us to save our furniture, etc.; the best we could do was to take what clothing could be carried in our grips and suit cases. It was impossible to hire a wagon after the first day of the fire, unless one was a millionaire.

On May 27 the Commercial Telegraphers' Union of America distributed more than two thousand dollars, which had been donated by outside

locals of that organization, to their San Francisco brethren who had been rendered homeless by the earthquake and fire.

San Francisco reminds me of a big ant hill that has been kicked over. The ants run around like wild until they see what damage has been done, then they all pitch in and help build it up again. That is what the people of San Francisco are doing now.

It was remarkable with what fortitude men stood by and saw their property go up in smoke. It is my private opinion, however, that the majority of the people were so thankful to be alive after the earthquake that the mere burning of the town had no terrors for them. My own feeling will bear me out in this respect.

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.]

ST. LOUIS, WESTERN UNION.

The wife of Larry N. Boone, ex-chief operator, died at her home, Webster Grove, Mo., June 2.

Mr. Joseph E. Dunlap, chief clerk of the operating department, was married to Miss Ora Love on June 6.

A company composed of operators, terming themselves "The Magnetics," gave a trolley party May 18. Among those present were: Messrs. B. A. Levin, Joseph E. Dunlap, J. J. McCruden, Worth Rogers, Paul Rainey, A. J. Gorosky; and Misses Ora Love, Evaline Deming, Laura McKnight, Irene Stenson, Agnes Hickey and Ethel Platt.

A lawn party will be given at the residence of Mr. Joseph E. Barry by the telegraphers of this office, on Saturday, June 16, at which refreshments will be served and a musical programme rendered.

Mr. J. J. Lane and F. E. Godfrey have returned from their vacation.

The Western Union Baseball Club recently defeated the Postal Telegraph-Cable Company in three straight games.

This office has now erected a telephone private exchange which is connected with nearly every department, Miss B. Fischer operating same.

Miss Cherry Maginnis is doing the stenographic work for the Missouri District Telegraph Company delivery department.

Mr. B. F. Ragsdale, our Chicago bonus man, also Arnold Mackler, the record-breaking man who works bonus, left here to work in New York.

PHILADELPHIA, POSTAL.

The sympathy of everyone in the office goes out to Joe Beasley, who is mourning the loss of his mother.

Mr. Len. Greiner, manager of the Drexel Building office, after enduring a long season of inconvenience due to lack of sufficient help, has had his working staff completed. Mr. Edmund Miller, a former Postal branch-office man, has been appointed to assist Mr. Greiner.

R. C. Meeredy, of the Commercial Exchange office, is enjoying the comforts of a "cottage by the sea." He will have his home in Atlantic City for the summer season.

PHILADELPHIA, WESTERN UNION.

S. S. Peck and Miss Chrystie Dennis, both well known here, were quietly married about a month ago. So well was the secret kept that it has but just recently leaked out.

A game of baseball between operators of this office and the linemen was played recently, the latter being victorious by a score of 15 to 3. The outdoor life of the linemen was greatly in their favor, notwithstanding that our key pounders were the most expert, but they could not stand the pace. The day after the poor operators looked like boiled lobsters on account of the sun exposure, while the linemen showed no signs of it at all. Moral: Be a lineman and enjoy a long life.

Recent arrivals are: Messrs. Dabney, Potts, McLaughlin, Behan, Kramer and Snyder. Departures: Messrs. Seeley and H. Carr, the latter returning to his home in Sumter, S.C.

Mr. Kalmey, who looked after the Western Union business at the Evening Telegraph, has been added to the staff of that paper. Charles Unruh succeeds Mr. Kalmey.

NEW YORK, WESTERN UNION.

Announcements are out for the wedding of Chief S. S. Ferris and Miss Huss, of Harlem.

Miss Clara Ayers, who has been working a leased wire, at the Cotton Exchange, has returned to this office.

Miss Alice Lemaire, has resigned and accepted a position with the Long Island Railroad.

Miss Agnes Sullivan has returned to this office, having resigned an outside assignment.

Mr. A. A. Offutt, of the Eastern division has resumed duty, having fully recovered from his recent illness.

Mr. Joseph Dion has returned from California, after a very pleasant trip in the southern portion of the Golden State.

The Rev. John S. Willis, formerly of this department, was ordained to the priesthood at St. Joseph's Cathedral, Buffalo, N. Y., on Saturday, June 9, and celebrated his first mass at St. Joseph's Church, Brooklyn, N. Y., on Sunday,

June 10, many of his friends in the telegraph profession being present. Father Willis has been assigned to a parish in Erie, Penn.

Mr. Robert H. Smith, of the Eastern division, who is an expert photographer, secured a beautiful picture of the Morse statue, in Central Park, on Memorial Day. On the reverse side of the photograph is an article from Telegraph Age, likewise an original poem by Mr. Marion H. Kerner. The pictures were presented to members of the Morse Club.

Mr. E. C. Watkins, of this office, Master Civic Lodge, F. and A. M., was presented, June 7, with a handsome testimonial, as a token of esteem.

The annual fishing excursion of the Western Union employees will take place June 17. The company has kindly placed their sea-going tug, Western Union, at the disposal of their employees for the occasion.

The wedding of Miss Mabel Irene Jones, daughter of Mr. Willis H. Jones, and Mr. Albert H. Cleveland, of Woodbridge, N. J., occurred at the home of the bride's parents, Hasbrouck Heights, N. J., on June 2.

The Missouri Pacific Baseball Club, commonly called the "Mops," and representative of 195 Broadway, has been reorganized for the season of 1906 under the management of Joseph W. Connolly, of the Western Union treasurer's office, and Daniel J. Gallagher, assistant manager of the Missouri Pacific Railway Company. Franklin J. Scherrer, who successfully managed the team last season, declined a re-election, owing to pressure of business. The other officers of the team are: William A. Hamilton, treasurer; Geo. W. Bastedo, financial secretary, and Chas. Conlon, secretary. The club has leased the Paramount Field, at Metropolitan and Morgan avenues, Brooklyn, and are now meeting the leading semi-professional clubs, not yet having suffered a defeat. Out of town teams wishing to book the "Mops" away from home should address Jos. W. Connolly, P. O. Box 1798, New York.

Mr. P. J. Casey, manager of the Twenty-third street district, has again assumed the management of the company's interests for the season at West End, Long Branch, N.J. Mr. Martin Durivan, a chief operator in the New York main office, has been assigned to his accustomed place for the summer in the Long Branch office as chief operator.

The general harmony and good fellowship prevailing at the Central Cable office is shown by the staff getting together and arranging to have an outing to some seaside resort this summer. Already there are over fifty persons who have subscribed toward defraying the expenses. A very enjoyable time is looked forward to.

Manager B. H. Reynolds, of the Central Cable office, has started a school of instruction for those desiring to fully equip themselves for every branch of telegraph engineering, and already several have entered the preliminary studies. The student who finally passes the most successful examination will be presented with a scholarship in one of the largest schools in the country.

NEW YORK, POSTAL.

Operator R. F. Stewart has been promoted to the position of assistant traffic chief in the western division.

Arrivals: Eugene Reilly, Jacob Mandel, Mr. and Mrs. E. M. Wood, Elias Weinstock, J. W. Anderson, Miss G. Firns, F. W. Dougherty, N. I. Taylor, George Perkins, Jacob Brandenberg, H. B. Bingham, Samuel Schuman, Thomas Murray and A. Freedman.

The death is announced of the wife of J. F. Carr.

Departures: C. Osterburg, A. Shannon, G. M. Farrel, V. C. Frost, H. A. Goodwin, J. A. McDermott, W. Parker and A. V. Schermerhorn; J. P. Karens to health department, New York, as an inspector; D. W. Cusack has been appointed observer in the marine department, and stationed at City Island; Margaret Grey, to Asbury Park.

D. C. Murphy went away for an indefinite leave of absence on June 15. R. I. McOver resigned on the 11th, and William Parker on the 8th of June.

On June 10 a party from this office who, with a number of friends, went sailing on Long Island Sound, met with a serious mishap. After a day of pleasure, a severe storm arose and the frail yacht in which the party were embarked, while on their homeward trip, was struck by the heavy seas and became unmanageable. The entire party, however, effected their escape by means of the life boats, and made a landing at Whitestone, L. I. Later the yacht was beached. Those from this office among the excursionists were: Robert Stuart, P. O. Purcell, M. M. Melville, Albert Ward, John Smith, Arthur Duffy, Sebastian Rogerio, George Weiser and L. M. Harding.

OTHER NEW YORK ITEMS.

The New York local of the Commercial Telegraphers' Union of America during the summer season will hold its monthly meetings at Borough Park Club House, Forty-ninth street, Brooklyn, N.Y.

The office of Mr. John Brant, secretary of the Old Time Telegraphers' and Historical Association, has been permanently located on the second floor of the No. 8 Dey street section of the building.

Mr. S. J. Small, president of the Commercial Telegraphers' Union of America, was a recent New York visitor.

The International Telegraph Tournament at Boston.

The arrangements for the telegraphic tournament to be held in Boston on June 29 have reached that stage where it is now possible to announce the different classes, and a part of the prizes. As the affair is one of charity, pure and simple, and not for personal or corporate gain, the committee has received loyal support from the generous friends of the profession, and the first prizes already contributed have a high intrinsic value. To these will be added liberal second prizes, and if funds permit there will also be cash prizes.

It is found that nearly all contestants expect cash prizes, arguing that their expenses are so great that they are compelled to look in that direction. As an offset of this, the committee is able to make an important announcement. Through the generosity of a friend of the operators, the committee agrees to furnish to every bona fide entrant, when endorsed by his manager that he is competent to compete in a speed contest, free railroad transportation to Boston and return. Besides this, arrangements have been made with the managers of the Quincy House for a greatly reduced rate for contestants and visitors to Boston and the tournament.

The plans for entertaining visiting friends are being handled by a special committee. On Thursday night, June 28, there will be a banquet at the Quincy House in their honor. On Saturday, the day following the tournament, on invitation of Mayor John F. Fitzgerald, the visitors will be taken on an extended trip around Boston harbor and Massachusetts bay on the city's steamer, the "Cormorant."

LIST OF EVENTS.

Carnegie International Trophy for the Championship of the World.—First, second and third winners in the team match, broker and press classes, will be credited with five, three and one points, respectively, and the competitors winning the greatest number of points will be presented with the Carnegie cup, valued at $250.

Railroad Operators.—Open only to operators who have been in actual railroad work for the past two years or more. Each entry must be endorsed by the division operator or superintendent under whom the entrant was employed.

Class A.—Sending 20 ordinary railroad messages. First prize—Latest model typewriter, donated by the Smith Premier Typewriter Company; second prize to be announced later.

Class B.—Receiving 20 ordinary railroad messages on typewriter. First prize—Latest model typewriter, donated by the Remington Typewriter Company; second prize to be announced later.

Broker class.—Open event; sending regular brokerage and financial business ten minutes.

First prize.—Solid silver punch bowl, valued at $150, donated by the Boston News Bureau; second prize to be announced later.

Team Match.—Open event for teams of two men; sending and receiving twenty-five regular commercial messages. Decision to be made on speed and general appearance of receiver's work. Postal Telegraph-Cable Company rules as to "style" to govern this contest. Sample of "style" in the "General Rules" mentioned herewith.

Two first prizes—Handsome solid silver cups to sender and receiver.

Two second prizes—Solid silver cups to sender and receiver.

Cups donated by Clarence H. Mackay, president of the Postal Telegraph-Cable Company.

Press work; open event.

Class A.—Sending 350 words press matter, straight. First prize—$100 in gold, donated by the Boston Herald; second prize to be announced later.

Class B.—Receiving 350 words press matter, straight. First prize—Chest of solid silver, value $150; donated by Charles H. Taylor, the Boston Globe; second prize to be announced later.

Class C.—Receiving 500 words press matter, code. First prize, $100; donated by the Boston American; second prize to be announced later.

RULES FOR GOVERNMENT OF CONTESTS.

No contestant will be allowed in the main auditorium during the time a class in which he is an entrant is in progress. This rule is made necessary because it is deemed unfair for any operator to be within sight or hearing of copy with which he is to compete before he has handled the same. Each contestant must remain in one of the two rooms set apart for their use, and must be ready to take his place in competition instantly, when called. Any contestant detected violating this rule will be disqualified from competing in the particular event in question.

The entrance fee for each class will be $2, and must accompany the entry. Entries close on Friday, June 22.

In the "team match" the Postal Telegraph-Cable Company rules to govern. The following copy is the Postal "style" of "received" messages, and all copy will be judged by this standard:

a21B z 21 3p.
Boston, Mass., June 29, 1906.

Mr. C. F. Adams,
Chicago, Ill.

This paid telegram is "Postal" standard copy. The upper or lower case may be used as desired in the top line.

Henry Holden.

It will be noted in this copy that the word "paid" is not used and will not be sent. When the telegram is "collect" the word may be sent "col." but the receiver must spell it out in full.

The office call "B" will be used on all messages in the "team match," and must follow the message number, that is, "a21B." This will not

be sent but must appear on all "received" copy. The circuit number "a" will precede the message number. Upper or lower case may be used on this entire line at discretion of receiver.

A facsimile of Postal "style" will be mailed with each entry blank.

All messages in the afternoon contests will be timed "3 p;" in the evening "9 p."

In the press and broker sending classes: Sending—Accuracy in the formation of characters, and speed, will determine the winners in this class. Press receiving—In both "straight" and "code" classes, a comparison of "received copy" with original will determine the winners.

Recent Telegraph Patents.

A patent, No. 821,733, for a telegraph pole, has been secured by Duncan W. Peck, of Syracuse, N. Y. A form of hollow metallic pole with swinging arm for the conductor is specified.

A patent, No. 821,623, for storage-battery-filling apparatus, has been granted to Thomas A. Edison, of Llewellyn Park, N.J. An apparatus for filling metallic storage-battery pans is described.

A patent, No. 820,977, for electric telegraphy, has been taken out by Isidor Kitsee, of Philadelphia, Pa. A receiving device comprises a polarized relay connected to the line and ground, respectively. A normally closed local circuit embodying an electromagnet is provided with a resistance, a shunt around the resistance and means at the relay to open and close the shunt.

A patent, No. 821,506, for electric telegraphy, has been obtained by Isidor Kitsee, of Philadelphia, Pa. In a system of telegraphy are two sources of current, one of higher electromotive force than the other, the sources oppositely connected to each other, and means to shunt the source of higher electromotive force, the shunt embracing a transmitting key and a resistance.

A patent, No. 821,043, for a telegraphic transmitting device, has been issued to Isidor Kitsee, of Philadelphia, Pa. A transmitting device to be used with submarine telegraphy, the object being to obtain alternating impulses by an ordinary form of transmitting key. A local sounder controls an escapement of a clock train mechanism which serves to produce the desired signals.

A patent, No. 820,652, for a telegraphic system, has been awarded to Jacob W. Lattig, West Bethlehem, and Charles L. Goodrum, Philadelphia, Pa., and Edward E. Clement, Washington, D. C. A system of telegraphic communication adapted to railway work embodies a continuous conductor which is kept in touch with the train apparatus by a traveling contact. Occupants of the train are enabled by the apparatus to talk over the telephonic circuit while the train is in motion.

A patent, No. 821,624, for a gas separator for storage batteries, has been obtained by Thomas A. Edison, of Llewellyn Park, N.J. The process of removing soluble impurities from alkaline storage batteries employing conducting receptacles of an insoluble metal consists in connecting the depolarizing mass as a cathode in circuit with the conducting receptacle in an alkaline solution, in passing a reverse current between the two to heat the solution and generate hydrogen gas in the active mass, and in finally pouring off the solution.

A patent, No. 821,741, for telegraphy, has been issued to Michael I. Pupin, of New York. Combined with a main line are means for throwing several electromotive forces of different frequencies onto the main line through transformers having cores which form closed magnetic circuits and having a large magnetic leakage, selective parts connected to the main line, and means for tuning each selective part to respond to one of the electromotive forces thrown upon the main line.

The following patent has expired: Patent No. 404,165, for a telegraph system, held by John Burry, New York.

General Mention.

"It's money well invested," is what Mr. E. A. Chenery, superintendent of telegraph of the Missouri Pacific Railroad, St. Louis, Mo., regards a subscription to TELEGRAPH AGE.

The messenger boys in one of the offices in Syracuse, N. Y., went on strike recently because the company would not pay them off on Saturday instead of on Monday, the regular day of monthly payments happening to fall on Sunday.

Mr. W. H. Stansell, manager of the Postal Telegraph-Cable Company, Charlottesville, Va., has this to say regarding his professional paper: "I note my subscription has expired. Enclosed find check for which please renew. I must have TELEGRAPH AGE in order to keep myself posted on my calling."

The Magnetic Club will celebrate its regular summer outing at Cove Hotel, West New Brighton, Livingston station, Staten Island, on Tuesday, June 19. These meetings have become such an established feature in the annual plan of entertainment provided by the club, and furnish such a delightful means of open-air social recreation, that members and their friends look forward to its recurrence with much pleasure. As usual, the cable steamer "Western Union," belonging to the Western Union Telegraph Company, will be placed at the disposal of the club and will make two trips for the conveyance of members to the grounds, one at 1.45 and the other at 3.45 on the afternoon of the 19th inst., starting from the foot of Cortlandt street. Dinner will be served at seven o'clock. The programme of entertainment will include a game of baseball and other outdoor sports of an athletic character, at which prizes will be awarded.

Death of the Doyen of the English Cables and Telegraphs.

In the death of W. S. Andrews, which occurred in England on May 8, the telegraph and cable interests of that country has lost another of its pioneers. He was seventy-four years of age and began his telegraphic career in 1848. He had taken an extremely active part in the development of telegraph enterprises up to 1902, when he resigned the chairmanship of the Western Telegraph Company, retaining, however, his directorship of that company and the Platino-Brazilian and River Plate Telegraph companies until 1904. It was, however, with the management of the Indo-European Telegraph Company that Mr. Andrews was so closely associated from its earliest days until his retirement from the board last year. He has been responsible for many inventions, some of which have been patented and have met with considerable success. He was regarded as the doyen of telegraphy in England, and there is no man living who can point to more varied and interesting work in connection with this subject. The first serious work of Mr. Andrews' business career was of a literary character. A constant student in the engineering branch of telegraphy, he commenced in the early fifties by accepting the post of acting engineer to the Submarine Telegraph Company. This position he retained for eight years and then took charge of the repairing ship attached to submarine telegraph work for the Danish Government, and other work of similar character. During this period he was London secretary to the British and Irish Magnetic Telegraph Company, and gave assistance in extending telegraph communication with the continent, and particularly simplifying charges. In the fifties both the cables belonging to the Submarine Telegraph Company were broken, and these repairs were effected by Mr. Andrews. This was considered at the time a feat of some magnitude. Mr. Andrews joined the United Kingdom Telegraph Company in 1860 as manager and secretary, later on taking up the duties of electrician and engineer. When the British Electric Telegraph Company went into liquidation on its amalgamation with the British and Irish Telegraph Company, Mr. Andrews was appointed official liquidator and occupied that position for three years. At the date of the transfer of the telegraph to the Government in 1870 the ownership of the telegraphs was in the hands of three companies, the Electric Telegraph Company, the British and Irish Company, and the United Kingdom Company, plus one or two smaller and less important undertakings. The terms which were discussed by the postoffice representatives were formulated by Mr. Andrews, were accepted and were finally embodied in the bill without material alteration, and speedily became law. In 1870, after the transfer of the home telegraphs to the Government, Mr. Andrews joined the Indo-European Telegraph Company as manager and secretary, and later (in 1884), in recognition of his services, he was appointed managing director with a seat on the board. In its early days the Indo company found a difficulty in earning sufficient revenue to cover expenses, and it was Mr. Andrews' work to bring about a reduction of various out-payments made to the government in connection with land lines in England. These and other negotiations with the object of reducing the standing charges proved successful, and the Indo-European Company became a thoroughly sound and regular dividend-earning concern. In the subject of the protection of submarine telegraph cables from careless and wanton damage, Mr. Andrews has taken a lively interest, and as representative of the Indo-European and other companies at the International Telegraph Conferences which have been held from time to time in the chief capitals of the world he has, in association with other distinguished representatives of British submarine telegraph cable enterprise, shared in protecting successfully the interests of the companies. After thirty years of active service Mr. Andrews retired at the end of 1899 from the post of managing director of the Indo-European Company. His latest work in that position was to procure an extension of the company's Russian and Persian concessions for a further period of twenty years. In 1887 he was elected a director of the Western and Brazilian Telegraph Company, and in 1888 became chairman of the company. In 1898 the amalgamation of the Western and Brazilian Company and the Brazilian Submarine Company took place, and and Mr. Andrews became chairman of the combined undertaking registered as the Western Telegraph Company, a position he retained until his resignation in 1902. Mr. Andrews joined the West India and Panama Company in 1874, and became its chairman on the death of Mr. Earle in 1897. In 1895 the Amazon Telegraph Company was established, and Mr. Andrews was elected chairman. Mr. Andrews received recognition from the Persian Government in connection with his management of the Indo-European Company's service, by the Shah having conferred upon him the distinction of a Grand Officer of the Second Class of the Lion and the Sun.

The bill for the state supervision of telephone and telegraph companies in Massachusetts has received the signature of the governor, and the members of the state highway commission are to take on themselves the duties of supervising the telephone and telegraph business of that state, and are to each receive $1,500 a year additional salary for that work.

New Western Union Equipment at Ashland, Ore.

The Western Union Telegraph Company recently moved their repeater office at Ashland, Oregon, into new and spacious quarters, the change being made on April 15, by Electrician H. S. Converse, of San Francisco, and General Foreman Eckleshaw, of Seattle. The office is handsomely furnished with new tables, switchboards and all modern apparatus, and large plate glass windows furnish excellent light. Six sets of quadruplex, four polar duplexes, single repeaters and several half-sets complete the equipment. The 3,500 cells of gravity battery are shortly to be replaced by a storage battery plant. This office is the most southerly of the Seattle district, of which Mr. R. T. Reid, of that city, is superintendent. Three copper wires north and three south, as well as two duplex wires, two way wires, and four Southern Pacific Railroad division and message wires for Sacramento and Roseburg districts are either repeatered or provided with battery from this point. A large and well-lighted battery room on the ground floor is a feature of this new office, which is easily the best housed of any repeater station on the Pacific Coast. The office is in charge of Geo. G. Eubanks, days; Geo. F. Wilson, nights; the battery man being G. H. Hedberg.

Municipal Electricians.

Members of the International Association of Municipal Electricians are looking forward with a good deal of interest to the forthcoming convention of that body at New Haven, Conn., for a fine programme governing the affair is to be carried out. The names of the papers to be read were printed in the issue of May 1. The social side of the meeting will not lack in attractiveness, and as the Nutmeg City is delightful for situation on Long Island Sound, with beautiful scenery on the land sides, there is no doubt that the visiting electricians will have a good time. The dates fixed for the convention are August 15, 16 and 17.

One of the night American District Telegraph operators, who has charge of the burglar department of that company in a city not very distant from New York, had his house robbed during the day while he was asleep.