

TELEGRAPH AGE

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NEW YORK, JULY 1, 1906.

Whole No. 555.

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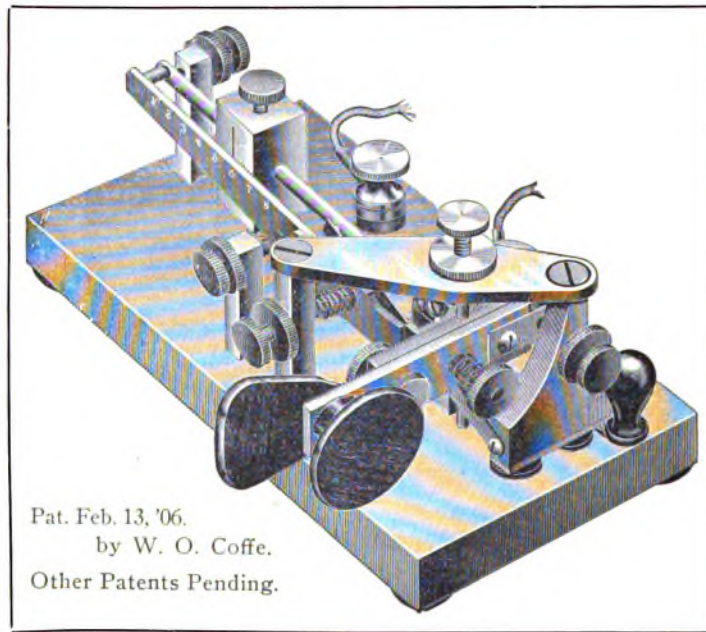
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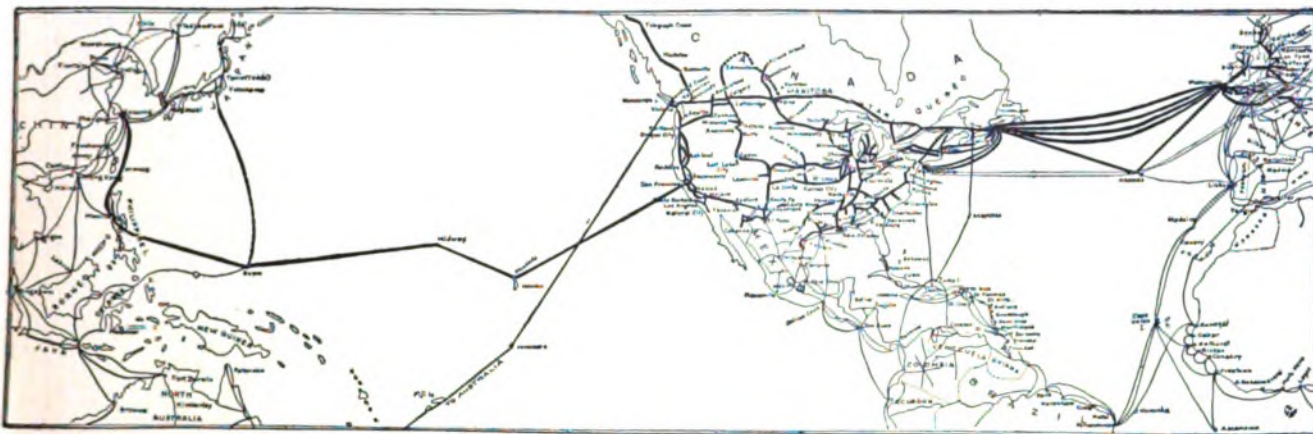
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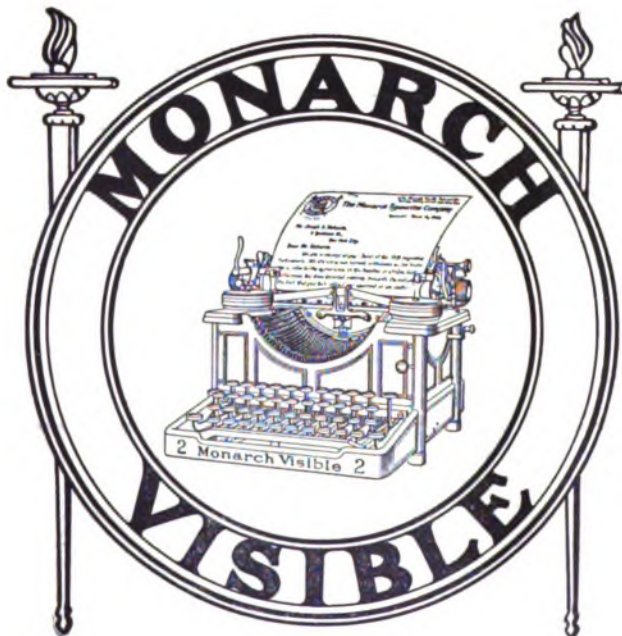
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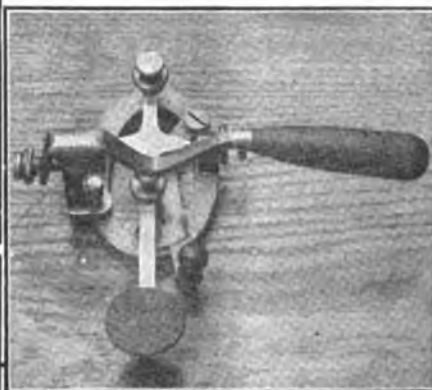
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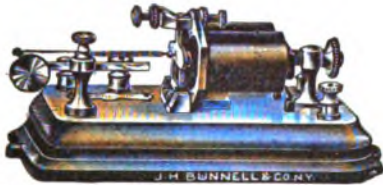
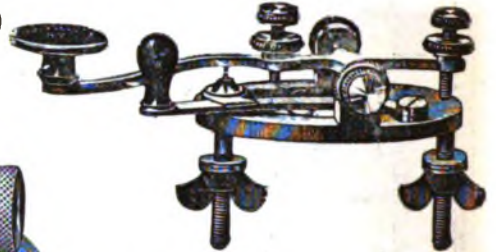
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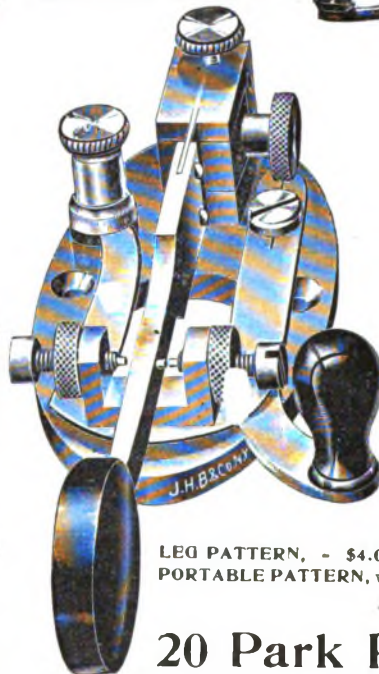
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TELEGRAPH AGE

No. 13.

NEW YORK, JULY 1, 1906.

VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

Induction, Leakage, Crossfire.

BY WILLIS H. JONES.

The question as to whether "induction" is greater in dry weather than in wet weather having been discussed pro and con between a number of quadruplex chiefs, without resulting in any definite decision being reached, this journal has been requested to state the probable facts in the matter.

In the first place we desire to say that the word "induction" is a much misused term among telegraphers generally, and by laymen particularly so. Induction is usually credited with being the source of nearly every foreign and inexplicable disturbing influence noticed in cables and pole-line parallel conductors.

The term induction is probably most frequently misapplied in connection with "leakage" or so-called "crossfire" effects, which latter are particularly noticeable in wet weather. Because of this common error and confusion of terms, the impression is quite general among the uninformed that induction is greater in wet than in dry weather. The fact is, induction proper is decidedly greatest in clear dry weather, as will be apparent after a better understanding of the meaning of the term has been arrived at. The effect in telegraph circuits produced by induction is so similar in many respects to that due to

leakage or crossfire that it is often difficult to readily distinguish one source from the other, yet the two actions both originate and operate in an entirely different manner.

INDUCTION.

One of the fundamental characteristics of active electricity, whether in the guise of polarity, current, or its offspring, magnetic flux, is its tendency to do some kind of work. Thus, for instance, and in line with the subject, it has been found that parallel currents of electricity flowing in separate conductors repel or attract each other, according to direction or polarity. This interaction through intervening space, or work done between different individual currents, results in the development of a separate electromotive force in each current-conveying conductor, other than that due to the generator creating such current, and thus alters the normal volume flowing therein through interference with the duties of the said original or legitimate pressure.

The irregularity, tension constancy, and rapidity of action which takes place during such interaction, cause the armature levers of telegraph instruments to become affected in a similarly inconstant manner and degree. The effect produced by the combined influences thus set in operation against adjacent parallel circuits by current interaction is called "induction."

Induction is always greater in dry than in wet weather for several reasons. First, because there being less escape of current down the poles in dry weather, a greater volume of current remains in the conductors, and interaction is necessarily greater; second, because, in addition to the gain in current volume, the "breaks" in single-line circuits during their operation are cleaner. Hence the degree of alterations in current volume between maximum and minimum values is greater when insulation is best. In wet weather the breaks are never clean, as a considerable portion of the volume flowing still remains in the conductor when a circuit is "open;" third, induction is greater in dry weather because operators as a rule work faster, and inductance always increases when the rate per second of the alterations which create it is accelerated.

The degree of induction developed between adjacent conductors depends upon the volume of current flowing, their proximity to each other, rapidity of action, and the distance between the conductors and the earth.

LEAKAGE—CROSSFIRE.

Leakage, of course, means just what the word

suggests; that is to say, a leakage of current from one conductor into another. In wet weather the principal loss due to this cause is the volume of current which escapes to the earth via the wet poles and other points where the wires provide an unavoidable outlet. In addition to this loss a certain amount of current flows across the wet crossarms from one conductor and enters a companion wire carrying a current of lower potential. In this way the two conductors become "crossed" just as effectively as though they made actual contact, although of course in a less harmful manner, because the water path connecting the conductors is so comparatively poor a conductor that but little current actually flows across the crossarm. But the little that does get through creates exactly the same kind of disturbance in the wire it enters as that produced by induction, but in a much stronger degree. Hence the erroneous impression that induction is greatest in wet weather. Disturbances of this kind are generally called "crossfire" effects.

Crossfire may be almost entirely eliminated by connecting the crossarms with the earth by means of a small wire, but as this method greatly increases the total leakage of all circuits the plan has not met with general approval. The distinction, then, between induction proper and crossfire in telegraph circuits may be summed up as follows: Induction is the effect created in adjacent parallel conductors by means of "secondary" currents developed therein by the interaction through space of the variable currents flowing in the wires. Air being classed as an insulator cannot be claimed as a conducting medium, hence the inductive effect manifested is one produced at a distance without material contact of conductors. Crossfire, on the other hand, is a leakage of current from one circuit into another by means of material contact; water being a poor, but nevertheless recognized, conductor of electricity, constitutes the connecting link.

THE INFLUENCE OF WEATHER ON STATIC.

In response to the invitation of Mr. W. H. Jones in his article published under the above title, under the general head of "Some Points on Electricity," in the issue of June 16, the following letters have been received:

Editor Telegraph Age:

The phenomena spoken of in your issue of June 16, by Mr. Willis H. Jones, is a beautiful illustration of the action which takes place around a wire carrying a conductor. It is the same as the so-called "brush discharge" observed in a dark room from a wire connected with a high tension coil. In the case of Mr. Jones' correspondent the neutral wire, being in all probability grounded, is of the same potential as the earth, the other two wires being of higher potential, there is a constant static discharge which causes the electrified particles of dust to adhere to the wall near by.

This theory has been verified by me more than once on the wires of the automatic fire alarm systems. Tracing the wires attached to the thermostats on the walls and ceilings, I have found that in every case the grounded wire is clean while the wire leading from the battery has the dusty deposit around it. In certain

places where there is much dust flying about this phenomena is very clearly shown, one wire being dusty and the other clean.

Walter M. Petty,
City Electrician.

Rutherford, N. J., June 18.

Editor Telegraph Age:

I note in TELEGRAPH AGE of June 16, pages 263 and 264, under "Some Points on Electricity," requests for an explanation of why some wires collected dust and others did not. I am in accord with the concluding paragraph of that article and I believe the following substantiates the theory:

Some time ago in winter my woolen overcoat hung near a hot stove, and, of course, became thoroughly dry, but also quite dusty. A wisprbrush hung near it, also very dry, and was used to brush off this dust. To get this dust off with this brush was an herculean effort, for it seemed impossible to brush the coat clean.

The winter had almost passed when, on brushing this coat one morning, straws broken from the brush in falling therefrom were noticed not to reach the floor, but even at an angle of 45° lodged on the tail of the coat.

The mystery was at once solved and verified. With hands perfectly dry I detached the straws, held them at a short distance from the coat, and let them drop; they flew horizontally toward and adhered to the coat.

It seems that I had electrified the coat, dust and straws, by brushing the garment. I then wet the brush and as evaporation began at once the electricity was dissipated as fast as generated, and the coat brushed with ease.

B. O. Lenoir,
Captain, Signal Corps.

U. S. Signal Corps Cable Boat, Cyrus W. Field.
Baltimore Harbor, June 19.

[Important articles by Mr. Jones, appearing in back numbers, prior to January 1, 1905, 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.]

Recent Telegraph Patents.

Patent No. 823,176, for electric telegraphy, has been obtained by Isidor Kitsee, of Philadelphia, Pa. A code for telegraphic signals designed to have alternating-current pulsations.

Patent No. 823,206, for a telegraph transmitter, has been awarded to Albert C. Crehore, of Tarrytown, N. Y., and George O. Squier, Washington, D. C. The telegraph transmitter is designed to transmit waves having a sine curve rather than the sharply cut waves which are ordinarily transmitted by automatic devices.

The following patent has expired:

Patent No. 405,211, for quadruplex telegraphy, issued to C. D. Haskins, of Brooklyn, N.Y.

Business Notices.

"Edison Primary Batteries" is the title of a sixteen-page pamphlet describing and listing the Edison caustic potash cell. This battery is distinguished from others of the caustic potash type by having the copper dioxide compressed into briquettes, and this method of construction is justified by a quotation from Prof. Carhart, as follows: "Recognizing the good qualities of copper oxide as a depolarizer, Edison has devised a form of design to meet the objections. The copper oxide is employed in the form of a compressed slab which, with its connecting copper support serves also as the negative plate. In recent cells the device has been resorted to of reducing a superficial film of copper on the oxide before it is sent from the factory."

The Weston Electrical Instrument Company Waverly Park, Newark, N.J., have this year taken their Mr. Caxton Brown into the Newark factory as secretary of the company and sales manager, and in his place have put Mr. Stanley Brown as manager of the New York office. In connection with this office there has been installed a repair department, the purpose of which is to take care of the repairs in the metropolitan district, and particularly to look after emergency calls. This new feature has been very warmly welcomed by the many users of Weston instruments in New York city, and has enabled the manufacturer to insure a higher degree of satisfaction to his customer than ever before. The company are very much pleased with the present instrument outlook, and are exceedingly busy preparing new models for measuring apparatus to meet the wider demands of modern electrical requirements.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

While Colonel R. C. Clowry was in England recently, he was conducted about London by Sir W. H. Preece, who is an old friend and who extended to his visitor every courtesy. The Colonel was also entertained at the Whitehall Club by George von Chauvin.

Mr. George H. Schnabele of General Superintendent Cook's office at Chicago, Ill., was married on June 6 to Miss Bertha M. Koch.

Mr. T. W. Goulding, general superintendent at London, England, has been promoted to the position of European general manager. His headquarters will remain at Gresham House, London.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Among recent visitors to the executive offices were:

Mr. Guy E. Paine, general superintendent, and

S. A. Duncan, assistant general superintendent, Atlanta, Ga., and George W. Ribble, superintendent, Washington, D. C.; S. M. English, general manager of the Postal Telegraph-Cable Company of Texas, Dallas, Tex.

The Cable.

Cables interrupted June 28, 1906:

Venezuela. Jan. 12, 1906

Messages may be mailed from
Curacao or Trinidad.

Pinheiro "via Cayenne" Aug. 13, 1902

Manaos June 23, 1906

There are 233,823 miles of submarine cable laid in the oceans of the world. At this writing the submarine cable system is practically complete. No place ordinarily in touch with the world's cable system is cut off from communication by reason of the interruption of a submarine cable. This is a notable fact and points to the stable value of submarine cable property. Improvement in the quality of the materials used and in the construction of the cables and the increasing knowledge of the ocean floors contribute to this satisfactory condition.

It is stated that cable connection between Jamaica, British West Indies, and its sister colonies, will be one of the important subjects to come up for discussion at the meeting of the Chamber of Commerce in London this month. The representatives of all the British colonies in this hemisphere will use their best endeavors to bring influence to bear on the imperial government to link together all the parts of the empire on this side of the Atlantic by means of an all-British cable. The island of Jamaica already has a direct connection with the mother country, from Jamaica to the Barbados or Trinidad, then and the idea is to carry the present cable lines around the smaller islands, and down to British Guiana. This would give the people of these colonies first-class service, with reduced rates. It is also claimed that an all-British West Indian cable would be of very great strategic value to Great Britain.

The Mexican Telegraph Company reports its balance sheet as of December 31 last, as follows:

Assets.—Plant \$1,855,164, cash \$23,834, construction account \$399,553, Central and South American Telegraph Company stock \$127,386, railroad bonds and other securities \$2,283,810, treasury stock \$87,400, steamship Mexicana \$52,173, spare cable \$51,778, sundry debtors including traffic balances \$288,840, total \$4,169,938.

Liabilities.—Capital stock \$2,000,000, earnings invested in improvements \$31,654, profit from sale of treasury stock \$38,493, sinking fund \$8,940, proposed January dividend \$47,815, sundry creditors including traffic balances \$38,089, surplus \$2,004,948, total \$4,169,938.

The \$1,000,000 of new stock of the Mexican

Telegraph Company which was recently authorized by the stockholders was issued on account of expenditures out of the earnings of the company on plant amounting to \$560,000 and also on account of concessions and contracts valued by the directors at \$440,000. The new stock was distributed on June 1, to the stockholders of record May 8, 1906. It will participate in the dividends to be paid in July.

COMPLETION OF THE COMMERCIAL CABLE TO JAPAN.

Messages between President Roosevelt and the Mikado have been exchanged by the new cable which has just been completed between Guam and Japan. The Commercial Pacific Cable Company now has a complete line of cables from San Francisco to Japan. These messages are as follows:

Washington, D. C., June 25, 1906.

To His Majesty the Emperor of Japan,
Tokio.

I am glad to send to your Majesty over the American cable, which has just been completed between Guam and Japan and thus unites our two countries across the Pacific, a message of sincere good will and the assurance of the earnest wishes of the Government and people of the United States for the welfare and prosperity of your Majesty and your Majesty's Empire.

THEODORE ROOSEVELT.

The Emperor replied as follows:

Tokio, June 26, 1906.

The President,
Washington.

I have just received with great interest and appreciation the kind message sent by you over the cable which has recently been laid between Guam and Japan and which will shortly be open to the public. I am highly gratified to know that the first telegram by this new line which unites our two countries should convey to me the assurances of the friendly sentiments of the Government and people of the United States for myself and my people. I most cordially reciprocate your expressions of good will and good wishes.

MUTSUHITO.

AMERICA AND JAPAN CONNECTED BY CABLE.

The Tokio and Guam offices of the Commercial Pacific Cable Company are in communication by the new cable. Messages between the President of the United States and the Emperor of Japan have been exchanged. The bridging of the Pacific and the encircling of the coast of Eastern Asia by an all-American cable is thus complete.

No American enterprise has appealed so powerfully as this to the statesmen and merchants of Japan, and every stage of its progress has been watched by them with an intensity of interest of which our people have but a faint conception. The original offer to construct a cable from San Francisco to Manila without Government aid or subsidy, was made by Mr. John W. Mackay to the Hon. John Hay, Secretary of State, on August 22, 1901. It was a plain proposition, made by a man of undoubted responsibility and of long experience with submarine cables, to do that which no other private person had ever offered to do, and which the government itself was unwilling to do. It had nevertheless to encounter

opposition in Congress, and it was not until June 11, 1902, that this opposition was finally silenced. Undeterred, however, by possible legislative obstacles, the Commercial Pacific Cable Company ordered the construction of the cable, and on the very day on which the bill was killed which proposed to commit the government of the United States to the work of laying a cable across the Pacific Ocean, it was announced that 1,065 nautical miles of the cable which was to be laid between San Francisco and Honolulu had been manufactured, and that the work of making the cable was proceeding at the rate of twenty-six miles per day.

By the end of June, 1903, the last section of the cable to Manila was landed at Honolulu, and the entire line from San Francisco to the Philippine Islands, a distance of over eight thousand miles, was successfully completed. That is to say, within eighteen months after the signing of the contract, an enterprise was executed which has no parallel in the history of ocean telegraphy. The route followed is unique for its lack of natural stations, and not only traverses the greatest uninhabited waste of water on the globe, but has to deal with ocean depths much greater than any previously encountered. The message which was sent on July 4, 1903, by President Roosevelt around the world, by the completed line of the Commercial Pacific Cable Company and its connecting lines between Europe and Asia, went by the Postal Telegraph Company's land line from Oyster Bay to San Francisco, thence by the Commercial Cable line to Honolulu, Midway, Guam and Manila. From Manila to Hong Kong, the message passed by the cable which Admiral Dewey cut in 1898; from Hong Kong it went to Saigon to Singapore, to Penang, to Madras, to Bombay, to Aden, to Suez, to Alexandria, to Malta, to Gibraltar, to Lisbon to the Azores and thence to Oyster Bay. Between Hong Kong and the Azores, the transit was by foreign cables, and the shortening of transpacific communication, both in respect of interruptions and of actual distance, may be inferred from the devious course which had to be taken by the President's message in its homeward course from Eastern Asia.

After communication with Manila was established, there remained the task of extending the all-American Pacific cable to China. This was completed by April 17 of the present year, and it has been promptly supplemented by the extension of the cable to Japan. Thus, in less than five years since the first communication of Mr. John W. Mackay to the Secretary of State, the greatest single ocean cable enterprise in the world has been brought to a successful termination.

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

Wireless Telegraphy.

At the suggestion of the British Government, the International Wireless Telegraph Conference, which was to have taken place in Berlin this year, has been postponed from June 28 to October 10.

On April 18, at 8.05 a. m., when the United States steamer Chicago was about twenty-five miles from San Diego, Cal., word was received from the De Forest wireless station at that place that an "Earthquake had about demolished San Francisco and fires breaking out," followed by another message confirming the report. These facts were given to the officers, and shortly the ship was proceeding to the scene with all possible haste. Constant touch was maintained with the shore by wireless during the entire trip, and bulletins were kept posted of existing conditions in San Francisco. Long before arrival every preparation was made for landing parties. On account of the chaotic condition that existed, the wireless seemed the only system whose wires were not down. The military and municipal authorities, and the general public realizing this, flooded the vessel with messages, many of which were of considerable importance, as they were bulletins keeping the government authorities in Washington, D. C., informed as to the situation. This busy time lasted about two weeks, during which time the Chicago alone sent and received over 1,000 messages, while the other stations at Mare Island navy yard, Yerba Buena training station and the Farrallone Island were also kept very busy.

The principal points of agreement entered into between the Postmaster-General of England and the Marconi Wireless Telegraph Company and the Marconi International Marine Communication Company, are as follows:

1. During a period of fifteen years from the date of these heads of agreement the Postmaster-General will grant, subject to the conditions hereinafter specified, facilities for the collection, transmission and delivery in the United Kingdom of messages to and from places in Newfoundland and North America exchanged between the United Kingdom and Newfoundland and North America by means of the Marconi wireless telegraph apparatus, such apparatus to be installed at Poldhu, Cornwall, and such other stations in the United Kingdom as shall be agreed upon between the companies and the Postmaster-General, and such facilities to be substantially the same as are granted to the submarine cable companies in relation to similar messages.

Corresponding facilities for messages exchanged between the United Kingdom and other countries or places will be granted during the same period in relation to such countries or places and in relation to such stations in the United Kingdom as may from time to time be agreed upon between the companies and the Postmaster-General.

Provided that (a) the Postmaster-General will not grant any such facilities as are mentioned in this sub-clause, unless he is satisfied that the companies are in a position to transmit and receive with reasonable certainty and reasonable speed the messages for which the facilities are required, and to secure the delivery of outward messages at their destination.

(b) The Postmaster-General will not, except in the case of Italy, which shall be open to consideration, grant such facilities in respect of messages to or from the Continent of Europe.

2. Subject to the conditions hereinafter specified, and subject and without prejudice to the operation of the agreements of September 26, 1901, between the companies and the committee of Lloyd's, the Postmaster-General will, during a period of eight years from the date of these heads of agreement, grant the like facilities for messages exchanged between ships and the several stations in the United Kingdom specified in the schedule hereto (subject to the conditions appearing in such schedule) and such other stations in the United Kingdom as shall from time to time be agreed upon between the companies and the Postmaster-General. Messages exchanged between ships and stations on shore are hereinafter referred to as "ship-and-shore messages."

The agreement further provides that all messages of the British Government shall have priority over all other messages and at half rates. The companies also undertake to work their stations as far as possible so as not to interfere with the working of other stations, and to employ only British operators at the companies' stations in the British dominions. The Government takes the right to prohibit or control the working or, if necessary, to take over the working, of any of the companies' stations in the event of any emergency, subject to the payment of reasonable compensation to the companies under the same conditions as those prescribed in the landing licenses granted to cable companies. The companies undertake to observe in the United Kingdom and on British ships if required the stipulations contained in the protocol of the recent Berlin conference on wireless telegraphy (except Article VI.), or a convention based upon these stipulations. The agreement consists of fifteen clauses, and a schedule which gives a list of the stations to be used for ship and shore communication. These are at Lizard, Rosslare, Crookhaven (or Brow Head), Withernsea, Caister, Niton, Holyhead, North Foreland, and Haven. The last six stations are to be closed if the Admiralty find that working at such stations interferes with Admiralty stations, in which case arrangements will be made for substituted stations or for the transaction of sea telegraphy, and if Lloyd's so desire, maritime signaling by the Admiralty on behalf of the companies at their adjacent stations.

Military Telegraph Under Lincoln.

By Albert B. Chandler.

[Colonel Chandler possesses an extensive fund of reminiscence of the telegraph, the President and of the Cabinet officers of the period during the Civil War, acquired when he served as one of the three cipher operators in the military telegraph service in the War Department at Washington. He is an interesting storyteller, and much of what he has written has already appeared in these columns. In the Sunday Magazine of June 17, Col. Chandler makes a further contribution to the literature of the subject from which we make copious extracts.—Editor.]

For some time after hostilities had begun, the lines and property of the American Telegraph Company in the East, of the Western Union Telegraph Company in the West, and the Southwestern Telegraph Company in a part of that section of the country were availed of by the Government for military purposes without any direct control therefor on the part of the Government. But as the fearful proportions of the Rebellion were disclosed, and the importance of Government control of the quickest means of communication came to be understood, the military telegraph was established as a separate organization, and it was wisely made an arm of the War Department, directly responsible to the Secretary in the field.

It is not my purpose now to recount details of the achievements of this organization, nor to recite even an outline of its history; but it may be interesting to know that it comprised about twelve hundred employes, of whom, as far as I have been able to ascertain, less than one hundred and fifty survive. They were a goodly company of brave and talented spirits. The work they performed and the dangers they encountered, the intelligence and faithfulness they displayed, and the great results which they played an important part in accomplishing, were to my knowledge well understood and keenly appreciated by President Lincoln and Secretary Stanton, who were more familiar with the whole scope of the telegraphers' work than were any other general officers of the Government. Their work was, however, scarcely less appreciated by Generals Grant, Sherman, Thomas, Sheridan, Meade, McClellan, Banks, Butler, and other principal commanders in the field, as shown by their official reports and in their private conversations.

It has sometimes been said of me that I was Lincoln's telegraph operator in the White House. The fact is that no one was his telegraph operator, and no telegraph wires were connected with the White House in his time. I have always considered that I was fortunate in being one of the three cipher operators in military telegraph service in the old War Department building, and to be often with Mr. Lincoln during the time of his greatest burden and anxiety.

My immediate associates were Charles A. Tinker and David Homer Bates. Our duties were equal and co-ordinate in the performance of the important and confidential service that we were called upon to render. Mr. Stanton's secretary used to refer to us as the "Sacred Three." Much of the time I alone occupied the room adjoining the private office of the Secretary of War, Mr. Stanton. This was often spoken of as the President's room, for it was to it that he came nearly every day in his anxiety to learn the latest news of the various armies, and the talks he had there with the telegraph boys and Major Eckert, their superintendent, seemed to afford him genuine diversion. Frequently, too, he had interviews there with the Secretary of War, the Secretary of State and of the Treasury, with the Judge Advocate General in Chief, and the other of the chief officers of the government.

I first saw Mr. Lincoln at Allegheny, Pennsylvania, when he was on his way to Washington to assume the task of reconciling a great nation to itself; for it was even then clear that his administration was to be fraught with difficulties such as had not fallen on any previous President of the United States, although I believe that neither he nor any other citizen of the Republic had then any expectation that so terrible and destructive a war was pending. He was received there with great enthusiasm by the multitude that had gathered to see him, and acknowledged their demonstrations with the homely dignity that was peculiar to him, and without making any speech. As both telegraph operator and railway agent, I was among the few who were privileged to enter the private car in which he and his family were making their journey, and I shall never forget the deep impression which his towering form and his already sad and always kindly face made on me as he took my hand. I had then no expectation of seeing him again during his presidency.

You may like to know, as probably most of you do not, that his composition, in writing, was slow, and apparently somewhat labored, and his writing itself was a comparatively slow process. While writing, as I have often seen him, sitting directly opposite me, and at the same table, he was accustomed to look out of the window between his sentences, scratch his head, usually his right temple, for his sentences in his mind, often moving his lips in actual whisper of the words, and then write them out, rarely erasing, interlining, or correcting; and when he had finished, what simple and perfect diction it was! His style of composition was as peculiar and novel as himself, and always in simple, terse, and clear language. He sometimes read aloud, and in doing so would occasionally purposely mispronounce words and misplace inflection and accent, as if musing as he read.

His keen sense of the ridiculous extended to little things, and he was as perfect a mimic as his large frame would permit. A good example

was this: Albert Johnson, Mr. Stanton's private secretary and personal accountant, was a man of unusually small stature, weighing perhaps a hundred and ten pounds, and his deportment was extremely polite. On one occasion Mr. Lincoln wanted to refer to the Bible, and he asked Johnson to bring it. Johnson danced out of the room to get it; but not finding it quickly, and fearing that the President might become impatient, he ran back to explain that he had not found it yet, but would have it presently. He finally brought it, with an apology for the delay, and, with low repeated bows, retired. After Mr. Lincoln had made the desired use of the book, he ran nimbly into the adjoining room, just as Johnson had done, reappeared, then made his delivery of the book in the same fashion, greatly to his own and our amusement. This may not strike anybody as funny; but the extreme contrast in the size and movements of the two men, and the close imitation of the mimicry, made it decidedly appear so to us, for whose benefit he performed the bit of acting.

The Battle of Drainesville was, I believe, the first engagement of the Army of the Potomac under McClellan, and occurred after weeks of spirited picket firing. It, however, accomplished nothing of practical results, and it seemed that both armies were afraid to make a serious attack. After reading the reports, Mr. Lincoln said it reminded him of two puppy dogs he had seen barking furiously at each other through a paling fence. They kept up the most savage snarling as they ran along until they came to an open gate, when each snapped its jaws at the other, turned quickly around, and ran away. The first news of the battle was to the effect that our forces had whipped the rebels, and among other things had captured fifty Colt's revolvers. Mr. Lincoln read the message aloud, and asked the office messenger who handed it to him if he could tell when those Colt's revolvers would grow to be horse pistols.

On the seventh of the following August, while I was alone in my office, Mr. Lincoln came in, bringing a long message which he had written with his own hand, addressed to Governor Seymour of New York, who, you may remember, was opposed to the war. He sat down at a desk and carefully reviewed it, so that I might see that it was properly transmitted. He explained to me something of the occasion of it, a special messenger having come over from New York with a long argument urging, among other things, that the draft should be suspended until the Supreme Court had decided as to the constitutionality of the draft law; and he told me a funny story about a Boston minister who had been drafted, and the criticism he made upon that method of recruiting the army. This message proved unanswerable, and the draft proceeded as had previously been ordered.

On December 21, 1863, a letter addressed to A. Keith, Halifax, Nova Scotia, who was known

to be a Confederate agent in that city, was intercepted by Postmaster Wakeman of New York city as a suspicious document, and forwarded to the Secretary of War. It was written in cipher made up of five different characters, each representing the letters of the alphabet, and they were so intermingled that the discovery of one of the plans on which the cipher was devised would afford no clue to either of the others. It was referred to several stenographers and experts in correspondence in the War Department building, none of whom made any progress toward its translation. It was finally brought to the three cipher operators in the telegraph office whom I have mentioned. After several hours of close study they made the translation complete. It reported the receipt and forwarding of twelve thousand rifled muskets for the use of the Confederacy, and also disclosed a plan for the seizure of two steamers which were to sail from New York city a few days later. The translation was forwarded to Robert Murray, then United States marshal in New York city. The sailing of the two steamers was postponed, and they were no doubt saved by the discovery of the plot concerning them.

A few days later a second letter to the same address was intercepted, and by means of the key which the first translation had furnished this was quickly translated by the same boys and forwarded to Marshal Murray. This resulted in the arrest of the engraver, the lithographer and printer in New York city and the capture of several millions of rebel bonds and notes of various denominations which they had made, and also the capture of the machinery and dies and paper which were used in their manufacture. By order of the Secretary of War these boys were given twenty-five dollars each as a Christmas present, and their salaries increased by that amount monthly thereafter.

Telegraph Poles of Paper.

Serviceable telegraph poles can, it is said, be constructed of paper. Such poles are made of paper pulp, in which borax, tallow, etc., are mixed in small quantities. The pulp is cast in a mould with a core in the center, and forms a hollow rod of the desired length. The paper poles are said to be lighter and stronger than those of wood, and to be unaffected by the sun, rain, dampness or any of the other causes which shorten the life of a wooden pole.

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General Mention.

Manager Harvey J. Lockrow, of the Western Union Telegraph Company, Newport, R.I., has just taken his third degree in the St. Paul's lodge of Masons.

Mr. J. B. Dillon, chief operator of the Western Union Telegraph Company, Memphis, Tenn., in renewing his subscription, remarks: "Your paper, like fruitcake, gets better with age. As I like the aforesaid fruitcake, so also do I like TELEGRAPH AGE."

"TELEGRAPH AGE is worth its weight in gold. If you desire a first-class telegraphic bracer and expect to reach the top rung in the professional ladder, no one will make a mistake by subscribing for TELEGRAPH AGE," is the testimony of D. L. Graham, Canal-Dover, Ohio.

A bill has been introduced in the House by Congressman W. W. Smith, which provides that every telegraph company shall show plainly on every telegram delivered the time of day at which the telegram was handed in at the company's office at the place from whence it came.

A very peculiar incident occurred in a telegraph office the other day. The manager received a postal card from an operator in another office saying: "Please answer on No. 6; have been calling you three days on a rush message." As a matter of fact, the operator was calling on a wire which was not cut in the office he wished to reach.

Mr. W. G. Peebles, assistant superintendent, Western Union Telegraph Company, Jacksonville, Fla., in a recent communication, has this to say: "I always have one dollar and a half per year for TELEGRAPH AGE and you will please, therefore, consider this letter as standing to keep the paper coming. I consider it the best of its kind, and need it in my business."

The twentieth anniversary of the founding of the Order of Railroad Telegraphers, was celebrated June 9 at Cedar Rapids, Iowa. President H. B. Perham, Past President and Founder of the Organization A. D. Thurston, Past President D. A. Ramsey, Grand Secretary and Treasurer L. W. Quick and other prominent workers of the order were present and delivered addresses at meetings held both in the afternoon and evening.

Chess by cable is a familiar game, but a telegraphic billiard match played by men three hundred miles apart is a novelty. The table was marked in squares, like a checkerboard, small enough to place the balls accurately. At the end of each play the exact position of the three balls would be telegraphed the other, and the balls on the second table placed in precisely the same position as they were left on the first. It required four days to play off the game, as no special wire was used. Had arrangements been made for direct communication, the game could have been concluded in little more than the usual time.

The army signal office will soon purchase a large number of new reels. The corps has adopted a new reel for taking up the buzzer wire used in field telegraphy. This is a device which is worn on the breast of the carrier to whom it is secured by means of straps passing over the back. The reel is geared and the wire can be quickly collected on the spool, which is turned by hand as the bearer walks or runs along. When a spool is filled, of course, it is replaced by an empty one, which is filled in turn. This taking-up reel is supplemented by a holder to be carried in the hand and containing a laden spool from which the buzzer wire is paid out. The new taking-up reel, of which a large number will be purchased for use in the field, will shortly be subjected to practical test, probably by Captain Charles de F. Chandler of the signal corps, with a view to formulating instructions as to its use.

Resignations and Appointments.

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

Mr. Frank Hughes, manager for four years of the Houston, Tex., office, resigned on June 15, because of poor health. He was presented by the office force with a handsome three-link chain, symbolic of the Odd Fellows association, of which organization he was a member. Mr. Hughes has been succeeded by Mr. C. W. Gribble, a man of fine record, whose service of twenty-five years or more in the Western Union employ has gained for him an excellent reputation. He was manager for a long time of the office at Texarkana, Ark.

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

Mr. Charles F. Fordham, manager at Oswego, N. Y., has resigned to become manager of the Ontario-Bell Telephone Company.

Municipal Electricians.

A new police telegraph system, the apparatus being manufactured by the Gamewell Fire Alarm Telegraph Company, is being installed in Atlanta, Ga., under the direction of M. J. Wright, electrician of the police telegraph, that city.

It will be remembered that the dates fixed for the convention of the International Association of Municipal Electricians at New Haven, Conn., are August 15, 16 and 17. The meeting will be an interesting one and will doubtless attract a full attendance of members. Later we shall publish the programme of the proposed proceedings.

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The authority to publish this fine work by TELEGRAPH AGE, exclusively, was granted by Mr. William H. Baker, vice-president and general manager of the company, the stipulation being that the price shall be restricted to but fifty cents a copy.

This is done primarily in order that the employees of the Postal company may enjoy the benefit of a low charge, for to them the book may be said to be practically indispensable; the price, however, will be the same to all purchasers alike.

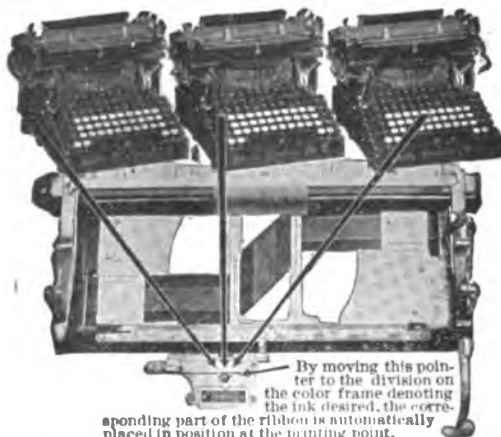
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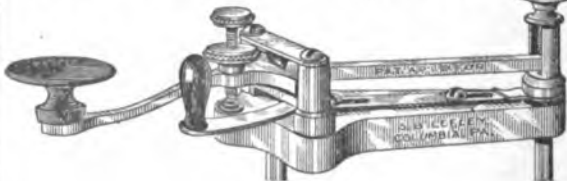
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NEW YORK, JULY 1, 1906.

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

The San Francisco Grand Jury and the Telegraph Companies.

Amid the feeling of sympathy expressed for San Francisco, and in the face of an unbounded generosity with which that unfortunate city has been treated because of the overwhelming disaster which recently overtook it, there comes a harsh and discordant note at once so untruthful, so ungrateful, so offensive and ill-advised both in thought and in expression, as to create a feeling of intense hostility in the minds of all right-thinking people. It is sounded by the grand jury of that town, which charges the telegraph companies with practising fraud and deception in handling messages confided to their care, inasmuch as telegrams were accepted for transmission when prompt delivery of the same was impossible.

The situation is vigorously discussed elsewhere in this issue by Col. Robert C. Clowry, president and general manager of the Western Union Telegraph Company, and Mr. William H. Baker, vice-president and general manager of the Postal Telegraph-Cable Company, also has a communication on the subject.

It should not be forgotten that the calamity that overwhelmed San Francisco likewise brought corresponding ruin to the telegraph, not only in the stricken city itself but also in the country surrounding it. Every interest went down in a common destruction before the awful visitation of April 18. Yet in the jury's presentation this fact evidently received no consideration. It was expected, apparently, that of all the agencies centering in San Francisco and making for the good of the city, the telegraph companies should alone be able to withstand earthquake shock and consuming fire and that its services should remain unimpaired.

The attitude assumed by this extraordinary grand jury and the complaining tone adopted because of the alleged failure of the telegraph interests to contribute to the relief fund, will strike the ordinary observer as being supremely contemptible. In formulating its statement, no account was taken or credit given by the jury for telegrams, telegraph money orders, etc., sent from many thousands of offices, besides European cable despatches, all of which, if in any way identified with the relief work of San Francisco, were transmitted absolutely without charge. Here, then, was a gift, the value and magnitude of which few can estimate, tendered promptly and freely under circumstances that went far to ameliorate conditions in the devastated town. It, as it was charged, messages were accepted by the telegraph companies under conditions precluding their prompt delivery, it was because the business was forced upon them despite the protest that delays in delivery were inevitable, as every sane person knew must be the case. As common carriers absolute refusal to receive messages could not be maintained when acceptance was insisted upon.

As a matter of fact the telegraph companies rendered remarkably good service under existing conditions, and set an example of public spirit and unselfishness at a time that "tried men's souls," that should have won manly and generous acknowledgment rather than censure.

In the face of unparalleled difficulties, yet acting with a promptness and a tireless energy that knew no respite, the telegraph people quickly marshaled vast reserve forces of men and material, hurriedly summoned, and were soon in a position to restore outside communication, which had been absolutely destroyed—a Godsend, indeed, to the stricken town at that time.

After all that the telegraph companies did for San Francisco in its hour of sudden desolation, it comes with bad grace, to say the least, marked with a spirit of what looks like peevish fault-finding, for a grand jury to take upon itself the

responsibility of offering an insult instead of the right hand of fellowship. Col. Clowry's indignant words denouncing the act as one of wickedness, clearly fit the case.

Not alone are the charges made against the telegraph companies wicked, but they are also so palpably unreasonable that their rejection by the country at large is already being made manifest and the action of San Francisco's grand jury severely rebuked.

John Gavey on Submarine Telegraphy.

At a banquet recently given in London by the Eastern and Associated Telegraph companies, at which the prominent telegraph and cable men of England were present, Mr. John Gavey, the engineer-in-chief of the telegraphs of Great Britain, in proposing the toast of submarine telegraphy, had this to say:

"In this country we have every reason to be proud of the origin and progress of submarine telegraphy, which was initiated in England, the first submarine cable having been laid from our shores. Since that time every effort had been made to extend the range of submarine telegraphic communication to all parts of the world, and at the present time Great Britain occupies the position of having made and laid with its own capital the vast proportion of all the submarine cables of the world. Among the assets of the submarine cable companies was a fleet of repairing vessels, which would form a respectable fleet for a moderate sized state, but with a difference. The fleet, if owned by a state, would be intended for war and for the destruction of life, while the vessels of the great telegraph companies were concerned in securing telegraph communication throughout the world and the promotion of the happiness and comfort of mankind. I might mention a subject which was doubtless of interest to them—namely, the prospects of submarine telegraphy when confronted with wireless telegraphy. For me to express a very definite opinion would be in the nature of a prophecy. What was said when gas was first introduced as to the extinction of the tallow candle industry, and when the electric light came along as to the extinction of the gas industry, might be said in regard to the prospects of submarine telegraphy when confronted with wireless telegraphy. But the use of candles became greater than ever, the gas companies' shares were still excellent investments, which proved that there was in each case room for both. This could be said in the case of submarine telegraphy and wireless telegraphy. The new system should serve to supplement and assist the old."

The Old Telegraph Trail in British Columbia.

The story of the project by the Western Union Telegraph Company during the sixties, when it was thought that the successful laying of the Atlantic cable would never be realized, to build an overland telegraph line connecting this coun-

try with Asia and Europe, crossing the intervening water by the way of Behring Strait, has been told in these columns. The old "telegraph trail" in British Columbia, along which this line was to proceed, traces of which still exist, and which at various points may be observed quite distinctly, followed up the course of the Fraser river as far as Quesnel.

On the line from Quesnel northward, says the Vancouver Province, things were left as they stood; the line, as far as constructed, was never used, and gradually fell; and to-day only occasional poles remain standing, while miles of wire have been trodden into the ground by pack animals, and can be seen sticking out of the mud at intervals, still perfectly sound and not at all rusted. The greater part of the wire has, however, been taken by the Indians for various uses. With it their houses are tied together; they made it into nails, fish spears, traps, etc., and even constructed most ingenious suspension bridges with it.

It is interesting to note that the present Dominion Government telegraph line to the Yukon follows the old line as far as the latter went, utilizing the old right-of-way cutting, but having, of course, to replace the poles and wire. The old telegraph trail has ever since been the main thoroughfare through this northern interior, and from it other trails branch off to various districts.

There can be little doubt but that the explorations caused by this telegraph enterprise had an influence on the territory investigated, indirect perhaps, but none the less effective and lasting. For it is a noteworthy fact that the negotiations for the purchase of Alaska from Russia by the United States were begun in 1866, just about the time when the reports of these surveys would reach the United States, and that these negotiations emanated from Washington.

The Telharmonium.

Several months ago reference was made in these columns to the ingenious instrument of Dr. Thaddeus Cahill, of Holyoke, Mass., by which, it was claimed, music may be transmitted over telegraph and telephone wires for distances practically without limit. The apparatus, it appears, has been brought to New York, where it will be set up with the object of making regular demonstrations of the system. A hall has been secured at a central point in the theatre district on upper Broadway, and in the early fall telharmonic concerts will be given for the general public. The plant is being so arranged that the auditors can also be spectators and see the music-making machinery in operation, and the distribution of the music by wire to distant points in the city will also be illustrated.

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

The Telegraph Companies Refute the Action of the San Francisco Grand Jury.

The grand jury in San Francisco having adopted a report on June 14 to the effect that the Western Union Telegraph Company had accepted messages without sending them by wire, at the time of the great disaster, but that instead had mailed the same to their destination, etc., drew from Col. Robert C. Clowry, president and general manager of the Western Union Telegraph Company, an indignant protest.

"The report is not only unfair, but absurd," said Colonel Clowry. "Why, we did all we possibly could, and instead of making money lost a large amount, although we will never be able to tell how much. We are charged with making a million dollars by sending messages at the time of the disaster. It should be that we lost that much. We took every message that was sent with the distinct understanding that it was subject to indefinite delay."

Colonel Clowry told of the extreme difficulty of finding people to whom messages had been sent. He said that there was no postoffice, as there was at Baltimore, the banks were closed and there was no place to post lists of those for whom messages were waiting. Finally, he said lists were posted as high as the room at Oakland and the ferryhouse at San Francisco, and that was the only means of letting people know.

"What about the charges that the companies mailed messages?" was asked.

Colonel Clowry replied to this question by saying:

"Of course we mailed messages. We always do in a crisis of this sort. That's nothing new. Whenever there is trouble and we can't get our messages through we telegraph to the nearest point we can reach and then either mail or send special messengers with the messages. There is never a time on this continent that our lines are not down somewhere. Suppose a storm destroys our lines in Iowa. There will be a big accumulation of messages in Chicago, with no possibility of forwarding them under thirty-six hours. Then we would send a special messenger by train to the nearest station beyond the break and telegraph from there."

Colonel Clowry explained just what the companies did at San Francisco. He said that they forwarded all messages by wire to the nearest points likely to reach any one. He said they did not use the ordinary mails, but special messengers. In some cases copies of the messages were sent to the postoffices where the companies thought it would be the best chance of finding people. Much the same thing was done at Galveston, Baltimore and other disasters, he said.

"Our operators out there," he continued, "worked night and day until they collapsed. When they got messages they sent them, frequently by mail, to the place they thought was most likely to reach the receiver. Wasn't that

a natural thing to do? Remember, all of these messages were forced on us, and we couldn't help taking them."

"Could you as common carriers refuse to send any messages?" was asked.

"No," was the reply, "we must accept them when people insist, as we are common carriers. But we accepted every message for weeks subject to indefinite delay. That was as plain to the senders as A, B, C. We are bound to forward all such messages just as fast as we can."

Colonel Clowry talked at length regarding the services rendered by the companies.

"They accuse us of not giving any contribution to 'Frisco," he began. "Why, we gave everything we had—every message of relief was sent free. You know, we served the newspapers of this country for two weeks with all the news we could get free of cost. There were 23,000 points where news bulletins were sent throughout the country free of cost. We forwarded all messages dealing with the relief free absolutely, and all relief societies and private individuals sent messages free. We telegraphed orders for money but handled no actual money, that would have been too great a risk. They complain about this lack of contribution. I wonder how much all this was worth to the people of the stricken city?"

"I cannot help thinking," continued Colonel Clowry, "that this charge by the twelve men of the grand jury is an outrage. It is worse—it is wicked. I want to state that our company did more to assist the people of San Francisco at the time of the disaster than any other company or organization in the United States."

Referring to the action of the San Francisco grand jury, the following statement was made by Mr. William H. Baker, vice-president and general manager of the Postal Telegraph-Cable Company:

"All I can say is that we maintained our service in the main office in San Francisco until we were driven out by the fire when we began to receive messages at Oakland. Martial law was established over San Francisco on the day of the fire, and no one was permitted to pass within the lines, so that it was impossible for a number of days to make any attempt to effect delivery of telegrams in San Francisco, even if it would have been possible to have located the persons to whom the telegrams were addressed. Everyone knows that to attempt to locate any one in San Francisco on the day of the earthquake and for many days thereafter was like unto looking for a needle in a haystack. However, we made every practical attempt to make deliveries and sent many messages across the bay from Oakland when there was a possibility of finding in San Francisco the persons to whom the messages were addressed. Most of these persons called at our Oakland office for their telegrams because they also had been driven out by the fire.

"On account of the great and unusual volume of business, particularly in messages inquiring for friends and relatives, the telegraph facilities to Oakland were totally inadequate to promptly carry the business offered, and consequently there was delay in the transmission of messages, which was absolutely unavoidable for the reasons stated. In all instances, however, messages were accepted at all of our offices for transmission to San Francisco and other California points, subject to indefinite delay and at the risk of the senders. In other words, the person handing in a message for San Francisco or other California points was always told that we did not know when we could get it through. This was the best we could do.

"I would mention also that most of the messages referred to were personal ones in regard to the safety of friends and relatives, and the persons sending them would have had a grievance against us if we had refused to do the best we could to get them through. We accordingly did the best we could, although the expense to us was very large, probably larger than the revenue we received."

Dead Letter Business.

For a number of years the postoffice department has endeavored to impress upon the public the importance of exercising care in writing addresses on letters, etc., sent through the mails. While this campaign of education has been effective in a measure, the fact that more than eleven million pieces of undelivered matter were handled in the division of dead letters during the year 1905 indicates that there is still considerable carelessness in this respect.

Fourth Assistant Postmaster General P. V. DeGraw, the well-known old-time telegrapher, who because of his telegraph and newspaper training, appreciating that much remains to be accomplished in reducing the number of "dead" letters to a minimum, recently obtained authority from Postmaster General Cortelyou to adopt a plan of procedure which it is believed will materially aid in solving the problem and thereby benefit the general public and relieve the department. The plan contemplates enclosing with each letter forwarded to addressee or returned to writer from the division of dead letters, a card containing a model form of address for mail matter as well as brief instructions in connection with the writing of addresses. If the following instructions are observed letters will not go astray:

"Use ink in addressing letters or other mail matter.

"Write plainly the name of the person addressed, street and number, postoffice and state.

"Place your name and address in the upper left-hand corner of the envelope."

More than eleven million pieces of mail matter were sent to the division of dead letters last year, a large proportion of which could not be

delivered because of carelessness in writing addresses.

The division of dead letters has passed the period of expectancy, and the work accomplished during the month of April indicates that within a brief period the additional facilities given to the division by Postmaster General Cortelyou will cause it to rank as one of the most prominent in the postoffice department.

Upwards of half a million letters were on hand unopened at the beginning of the calendar year, and there has been a daily receipt of upwards of twenty thousand letters since that time. The fact that the work is now up-to-date proves the character of service which is being rendered.

The April report of Superintendent Young to the fourth assistant postmaster general shows that 667,100 letters were received and opened during April, 8,960 of which contained money to the amount of \$5,592.24.

During April, 1905, 637,400 letters were received; 641,600 opened, and 7,600 carried over unopened.

During the month of April 114,857 dead letters were returned to writers, as against 106,398 for the month of March.

Twenty-two per cent. of letters received by this division were returned during the month of April, as against sixteen per cent. for the month of March. It is estimated that not more than thirty-five per cent. of the class of letters received can be returned. These figures, however, vary somewhat, as on April 30 thirty-one per cent. of the letters received were returned.

English Underground Telegraphs.

The underground telegraph cable system between London and Glasgow appears to be nearly complete. The actual length of line is only 409.5 miles, but the total mileage of wire exceeds that of any similar line. Over 37,700 miles of wire have been laid. The route followed by the cable is from London to Birmingham, then through Stafford, Warrington, Preston, Kendal, Carlisle, Beattock and Glasgow. The conduit consists of cast-iron pipes, each nine feet long, not including the socket, and having a nominal internal diameter of three inches. The average diameter is three and one-eighth inches. The line is divided into sections about 150 yards long between Birmingham and Carlisle, and 220 yards between Carlisle and Glasgow. The pipe is laid on an average not more than fourteen inches below the surface of a footway and not more than two feet below the surface of a roadway. At intervals of five miles the cable conductors are led into connection boxes fitted in pillar test boxes. These boxes provide facilities for making all ordinary electrical tests, also for air-driving the cable in case the insulation becomes defective. The cable line from London to Birmingham is 117 miles long and contains seventy-six conductors, each weighing 150 pounds per mile.

You can't afford to be without TELEGRAPH AGE.

The Twenty-fifth Annual Convention of the Association of Railway Telegraph Superintendents.

The twenty-fifth, or "silver," anniversary convention of the Association of Railway Telegraph Superintendents, met at "The Adams," Denver, Col., on Wednesday, June 20. The gathering was called to order by the president of the association, Mr. E. E. Torrey, superintendent of telegraph of the Mobile and Ohio Railroad Company, Jackson, Tenn. He extended a cordial greeting to the members present; congratulated them on the large attendance, and prophesied a most prosperous meeting. He introduced Mr. H. A. Lindley, city attorney of Denver, who, in the absence of the mayor, warmly welcomed the members to the city.

Mr. P. W. Drew, secretary of the association, responded to the address of welcome in behalf of the members.

Then followed the election of new active members. These were:

J. L. Davis, superintendent of telegraph of the Chicago and Eastern Illinois Railroad, Chicago; C. L. Lathrop, superintendent of telegraph of the Pittsburg, Shawmut and Northern Railroad, Angelica, N.Y.; F. H. Van Etten, superintendent of telegraph of the Southern Indiana Railway, Chicago; G. W. Dailey, superintendent of telegraph of the Chicago and Northwestern Railway, Chicago; G. A. Cellar, superintendent of telegraph of the Pennsylvania lines west of Pittsburg, Pittsburg, Pa.; J. G. Jennings, superintendent of telegraph of the Chicago, Rock Island and Pacific Railway, Chicago; I. T. Dyer, superintendent of telegraph of the San Pedro, Los Angeles and Salt Lake Railroad, Los Angeles; A. S. Foote, general foreman of the Southern Pacific Company, Houston, Tex.

The associate members elected were:

H. P. Clausen, of the Telephone Review Publishing Company, Chicago; Alexander Henderson, American Circular Loom Company, Chelsea, Mass.; N. R. Fill, American Telephone and Telegraph Company, New York; W. B. Glardon, National Telegraph Company, Rochester, N.Y., and Edwin R. Gill, United States Electric Company, New York.

Telegrams and letters of regret were read from George M. Dugan, of Tip Top, Ky.; C. F. Annett, of New Haven, Conn.; George L. Lang, of Chattanooga, Tenn.; Belvidere Brooks, L. S. Wells, A. B. Taylor and F. G. Sherman, of New York; C. M. Lewis, of Reading, Pa., and I. N. Miller, of Cincinnati, Ohio. The names of George M. Dugan and Charles F. Annett were transferred from the active to the honorary list of members because of their retirement from the railroad service.

The Western Union Telegraph Company, through its assistant superintendent, S. E. Leonard, and the Postal Telegraph-Cable Company, through its superintendent, W. C. Black, extended the usual free franking privileges to members

of the association in using their respective lines. The Colorado Telephone Company also extended the courtesies of its local and long-distance service.

The printed minutes of the previous convention having been distributed, their reading was dispensed with, after which the report of the treasurer, Mr. P. W. Drew, was read. It showed the association to be in an excellent condition, both numerically and financially, the cash balance in bank amounting to \$70.

President Torrey appointed Charles Selden, of Baltimore, and E. P. Griffith, of New York, a committee to frame suitable resolutions on the death of William S. Logue, one of the oldest associate members of the association.

V. T. Kissinger of the Chicago, Burlington and Quincy Railway Company, Lincoln, Neb., chairman of the Committee on Topics, stated that the committee had received from members a number of contributed papers of value to the railway telegraph service.

Charles Selden, of the Baltimore and Ohio Railroad Company, Baltimore, Md., opened the actual business of the convention by reading his paper on train order rules.

U. J. Fry, of the Chicago, Milwaukee and St. Paul Railway, Milwaukee, Wis., who was unable to be present, sent a letter treating on the subject of composite circuits. The communication contained much information of a valuable character, over which there was considerable discussion of a timely and interesting nature. Mr. Fry stated that the new instruments for this class of service furnished by the American Telephone and Telegraph Company were rendering excellent results.

R. L. Logan, of the Kansas City Southern Railway, Kansas City, Mo., another member of the committee on composite circuits, of which U. J. Fry is the chairman, spoke at some length, elaborating on the value of portable telephone apparatus at "blind sidings." The Howler type of apparatus appeared to give the very best results, he said, the instruments never seemingly getting out of adjustment so far as his experience had gone.

Mr. F. H. Van Etten, of the Southern Indiana Railway, Chicago, spoke of his experience with the Howler apparatus on his composite circuits, and stated that they were found very efficient for the service required of them.

W. J. Camp of the Canadian Pacific Railway, Montreal, remarked that he was experimenting at the present time on his lines with the old style of American Telephone and Telegraph composite instruments and with telegraphone apparatus manufactured at Rochester, N. Y., by the National Telegraphone Company, and he would be glad later on to give the association the benefit of the results of his investigation.

F. F. Fowle, of the American Telephone and Telegraph Company, Chicago, spoke on the advantages of the new Howler type of instrument,

which he said was quite efficient, judging them from a commercial standpoint.

W. F. Williams, of the Seaboard Air Line, Portsmouth, Va., informed the convention that he had several sets of this form of apparatus in use on his lines, and all were giving excellent satisfaction. Several sets were used as often as from thirty to forty times a day, and the few dry cells required to operate this composite service were renewed about every three months.

P. W. Drew, of the Wisconsin Central Railway, Milwaukee, Wis., declared that no doubt the consumption of battery on this class of service was occasioned by users leaving the receiver off of the hook, a statement which was verified by telephone engineers who were in attendance.

B. A. Kaiser, of the American Telephone and Telegraph Company, New York, called attention to the fact that his company had an experimental composite circuit in the hall of the convention extending over a hundred miles along one of the railroads for the purpose of demonstrating the efficiency of their latest type of composite apparatus.

E. P. Griffith, of the Erie Railway, New York, said that the many composite circuits on his road had worked successfully for over two years, and that his longest circuit thus equipped was eighty-two miles in length.

The discussion was brought to a close by Secretary Drew reading a letter from H. S. Balliet, secretary of the Railway Signal Association, New York, thanking him for the privilege of using in the printed proceedings of the Signal Association, the papers on this subject, written by F. F. Fowle and read at the Chattanooga convention last year. This, Mr. Drew said, was given merely as evidence to show the importance of and interest attaching to this subject.

In the afternoon W. W. Ryder, superintendent of telegraph of the Burlington system, read a paper on "Increasing Railway Telegraph Facilities." He dealt with the question of economy of arranging the telegraph systems for a big railway and illustrated his points by means of a large map which he had prepared especially for the occasion.

Frank F. Fowle, of the American Telephone and Telegraph Company, Chicago, discussed the question of "The Traffic of Railway Communications," showing the method of arriving at the facilities required for telegraph and telephone communication by the big railway systems.

H. C. Hope, of the Chicago, St. Paul, Minneapolis and Omaha Railway, St. Paul, Minn., in discussing Mr. Fowle's paper stated that he considered heavy copper wires the most desirable and economical on account of strength to withstand the weight of ice during sleet storms.

G. A. Cellar of the Pennsylvania lines west of Pittsburg, Pittsburg, Pa., criticised Mr. Fowle's deductions and gave his experience in dealing with this class of work.

W. B. Glardon, of the National Telegraph Company, Rochester, N. Y., stated that composite circuits had been expected by many to render as good service as metallic circuits, which was impossible. He went on to relate how many telegraphones there were in use on various railroads and concluded by saying that his company was prepared to furnish an efficient composite system at any time. This latter statement was made in reply to a declaration by H. C. Hope to the effect that he had afforded ample facilities at all times to demonstrate the utility of composite and similar systems, but up to the present time the results were not entirely satisfactory.

P. W. Drew, in reply to Mr. Fowle's statement relative to the railroad mail statistics, said that the railway mail service was of too great a volume to count.

H. O. Rugh, of Sandwich, Ill., remarked that he had equipped many of the roads with his system, which included the installation of apparatus on trains.

B. F. Frobes of the Oregon Short Line, Salt Lake City, Utah, said that the Rugh system was in use on his road and was giving satisfactory results, the instruments are of simple construction and do not get out of order.

H. C. Hope stated that his experiments with this class of apparatus convinced him that they would not work on circuits containing underground or cables.

At the conclusion of this discussion the convention adjourned for the day.

The second day's session was called to order at 9 A. M. on Thursday, June 21. President Torrey in the chair. The convention went into executive session, which lasted until 10.30 A. M., when the doors were thrown open to the public.

After a telegram of regret had been read from Mr. C. S. Rhoads of the "Big Four," Indianapolis, Ind., John L. Davis of the Chicago and Eastern Indiana, Chicago, addressed the convention at some length on the desirability of formulating uniform rules and regulations governing the telegraph department of railroads so far as it was possible, in order to secure uniformity in this direction. He suggested that a committee be appointed to carry out the ideas of the members in this particular, and when the work had been completed to lay the results before the American Railway Association for its approval, and to put the same into effect on every road represented in that body. W. W. Ryder, of the Chicago, Burlington and Quincy, Chicago, and G. C. Kinsman, of the Wabash, Decatur, Ills., pointed out that a similar committee had been appointed years ago by the association, and the conclusions of its work had been referred to the American Railway Association where it still slumbers. After further discussion on the subject of defining the duties and jurisdiction of a railway telegraph superintendent the convention expressed its approval of making another attempt to bring about the legislation desired, and a committee to carry forward the work will be appointed later.

The committee on pole line construction, through its chairman, E. P. Griffith, of New York, reported progress. Some discussion of the subject followed and was participated in by P. W. Drew, of Milwaukee, G. C. Kinsman, of Decatur, Ill., and W. J. Camp, of Montreal, all of whom declared that the present standard of line construction was better and more satisfactory than at any previous time. Formerly twenty-eight to thirty-five poles to the mile were considered sufficient. Modern construction called for from forty to fifty poles to the mile, with the result that a more efficient and permanent service is secured.

E. Parsons of the Illinois Central, Chicago, read a paper on overhead crossings. It transpired in the lengthy discussion that followed that it was the small companies that insisted upon crossing railroads with their wires without due regard to the use of safety devices. The laws of Michigan, Kansas and Ohio regulating the crossing of railroads were ample to protect them, but in many states the legislatures are entirely indifferent regarding the subject.

W. P. McFarlane, of Omaha; W. J. Camp, of Montreal; P. W. Drew, of Milwaukee, and E. A. Chenery, of St. Louis, took part in the discussion which brought to the attention of the convention some valuable legislative work that had been accomplished in the United States and Canada, governing the crossing of railroads by foreign telephone, electric light and power circuits.

The convention then voted on the place and time of holding the next meeting with the result that Atlantic City, N. J., was selected as the place and June 19, 1907, as the date.

In the election of officers that followed, E. A. Chenery, of the Missouri Pacific Railway System, St. Louis, Mo., was elected president of the association, being advanced from the position of vice-president; E. P. Griffith, of the Erie Railroad, New York, was chosen vice-president, and P. W. Drew, of the Wisconsin Central Railway, Milwaukee, Wis., was re-elected secretary and treasurer for the twenty-fourth consecutive term.

On Mr. Chenery's assuming the position as presiding officer, relieving E. E. Torrey, the first act of the convention was to unanimously elect "Old Farmer" Lawton, night manager of the Western Union Telegraph Company of Denver, Colo., an honorary member of the association.

Secretary Drew called the attention of the members to the unusually good exhibits made by the associate members, and he hoped that the displays made by these supply people would result profitably to all interests concerned.

After the usual resolutions of thanks for courtesies extended to the members of the association, on motion of W. W. Ryder, of Chicago, the convention adjourned sine die.

Among those present were:

Baltimore, Md.—Charles Selden.

Chicago, Ill.—John L. Davis, wife and son; F. F. Fowle and wife; A. G. Francis, wife and two sons;

W. E. Harkness, wife and daughter; W. J. Holton, wife and daughter; J. G. Jennings, J. C. Kelsey, E. Parsons, wife and daughter; W. W. Ryder, wife and two sons; F. S. Spaford and wife; F. H. Van Etten, and E. W. Vogel and wife.

Cleveland, O.—W. O. Coffe and Jay G. Mitchell.

Decatur, Ill.—G. C. Kinsman, wife and daughter.

Denver, Colo.—S. R. Beatty, W. C. Black, F. W. Brunton, Alfred Connor, J. S. Evans and wife; A. A. Gargan, W. B. Gardon and wife, S. E. Leonard, H. A. Lindsley, W. G. Matthews and wife; E. E. McClintock, J. Munday, "Old Farmer" Lawton, C. A. Parker and wife; Claude A. Poff, David Reed, wife and daughter; Howard T. Vaile and John M. Walker.

Houston, Tex.—Percy Hewett and A. S. Foote.

Jackson, Tenn.—E. E. Torrey.

Jersey City, N. J.—E. P. Griffith, wife and son.

Kansas City, Mo.—R. L. Logan, wife and daughter, and Val B. Minturn.

Lincoln, Neb.—V. T. Kissinger, wife and mother.

Los Angeles, Cal.—I. T. Dyer and F. A. Morley.

Memphis, Tenn.—B. Weeks.

Milwaukee, Wis.—P. W. Drew, W. S. Burnett and G. L. Pavy.

Minneapolis, Minn.—R. B. Martin.

Montreal, Que.—W. J. Camp.

New York.—G. W. Conkling, B. A. Kaiser and wife; John B. Taltavall and wife, and R. E. Butrick.

Omaha, Neb.—W. P. McFarlane, C. B. Horton, wife and son, and J. R. McDonald and wife.

Pittsburg, Pa.—George A. Cellar.

Portland, Ore.—E. A. Klippel and wife.

Portsmouth, Va.—W. F. Williams, wife and daughter.

Richmond, Va.—J. S. Stevens.

Roanoke, Va.—W. C. Walstrum.

Salt Lake City, Utah.—B. F. Frobes and wife.

Sandwich, Ill.—H. O. Rugh and wife.

Sedalia, Mo.—S. K. Bullard.

St. Louis, Mo.—E. A. Chenery, wife and daughter; H. C. Sprague and wife; Norris R. Fill, F. E. Bentley and Charles W. Hammond.

St. Paul, Minn.—H. C. Hope and daughter, and O. C. Greene.

Wilmington, N. C.—W. P. Cline, wife and daughter.

The entertainment of the delegates was in the hands of a committee consisting of C. A. Parker, of the Moffatt railroad; J. Munday of the Colorado and Southern Railway; E. E. McClintock of the Colorado Fuel and Iron Company, and J. M. Walker of the Denver and Rio Grande Railroad. These gentlemen, besides being aided by their wives, were further assisted by J. W. Brunton and wife; "Old Farmer" Lawton and his son, Denver Lawton; H. T. Vaile, D. Reed, wife and daughter; F. M. Duncan, S. E. Leonard, W. C. Black and C. H. Pond, all of Denver; and C. B. Horton and wife, of Omaha. Besides these many members of the Denver city press took part in entertaining the visitors, and devoted considerable newspaper space in chronicling the events of the convention.

The Board of Trade and the Traction Company of Denver furnished the "Seeing Denver" trolley cars on Wednesday and Thursday, June 20 and 21. On Thursday the ladies enjoyed a trip over the famous Georgetown Loop. On Friday a visit was made to Cripple Creek, the greatest mining camp in the world, members going as the guests of the Colorado and Southern Railway and the Cripple Creek Short Line Railroad. The picturesque mountain scenery along this route is unsurpassed for its beauty.

On Saturday, June 23, the entire delegation with friends, altogether numbering 160 persons, accepted the invitation of the Moffatt road for a trip to the Continental Divide, the same being under the direction of Superintendent C. A. Parker and wife. The trip occupied the entire day, and was one of rare enjoyment. The party reached the summit station of Corona, situated at an altitude of 11,700 feet above tidewater, at 1 P.M. Luncheon was served on arrival by the Colorado Telephone Company. Notwithstanding the fact that the weather was warm in Denver when the train pulled out of that city, it soon began the ascension of mountains covered with perpetual snow, and the temperature fell steadily under the influence of the upward climb. The snow encountered varied in depth of from three to thirty feet. A heavy snow storm prevailed, almost reaching blizzard proportions, a novel experience, indeed, for the majority of the excursionists. Many photographs of this wildly picturesque scene were taken, with the immense snow-banks forming a background. Most of the delegates took occasion to send telegrams from the little telegraph office located at this high elevation to their friends, advising them of the weather conditions prevailing in June. It was fortunate that present among the delegates was Mr. George W. Conkling, of New York, who has the reputation of being one of the finest telegraphers in the country. He rendered valuable assistance in clearing up the business which had piled in so unexpectedly upon the regular operator, Henry W. Plum, formerly of Chicago, an old-time telegrapher and a member of the United States Military Telegraph Corps during the Civil War. Every member of the party seemed to be exhilarated by their stay in the mountains, and as a result the return trip was made memorable by the impromptu entertainment provided by the president of the association, Mr. E. A. Chenery of St. Louis. He saw to it that no one escaped contributing his share to the enjoyment of the occasion; stories, songs and recitations or speeches were freely offered and were most amusing. On the return of the excursionists to Denver resolutions of thanks were unanimously adopted to the effect that the trip up the Moffatt road was one that would always be remembered by those who were fortunate enough to share in its enjoyments.

On Sunday, June 24, the delegates who remained over for the purpose, visited Colorado

Springs, Manitou, Garden of the Gods, and then ascended to the top of Pike's Peak, more than 14,000 feet high. On their return to Denver in the evening, the delegates departed for their homes.

EXHIBITS AND EXHIBITORS.

An exhibit of composite and private line telephones was made by the Western Electric Company of Chicago and New York, Mr. W. E. Harkness, of the Chicago house, being in charge. Samples of the latest railway composite telephones and of the wall, desk and portable Howler types were shown in actual operation upon a quadruplex circuit of the Chicago, Burlington and Quincy Railway Company, between Denver and McCook, a distance of 255 miles, excellent service both as to transmission and signaling being secured.

The Gill Telegraph Selector, manufactured by the United States Electric Company, 95 William street, New York, was also included in the display. The company was represented by Mr. Edwin R. Gill, who is the inventor of the device and who is said to be the originator of selective telegraphic signaling. It was said by the inventor that the device has been adopted by the Western Union Telegraph Company for use in its service, as well as by a number of the large railway systems.

The American Telephone and Telegraph Company was represented at the convention by R. E. Butrick and B. A. Kaiser, of New York; F. F. Fowle and A. G. Francis, of Chicago; N. R. Fill, of St. Louis; George L. Pavy, of Milwaukee; F. A. Morley, of Los Angeles; V. B. Minturn, of Kansas City, and John R. McDonald, of Omaha.

W. S. Burnett, of the Morse Code Signal Company, of Milwaukee, had an excellent exhibit of his system shown in actual operation. The devices included a complete railroad set consisting of a combined telegraph sounder, selective feature and a continuous ringing drop, all in one instrument controlling a set of signaling buzzers for operators in the various stations along railroad circuits. This system is now in actual operation on the Seaboard Air Line and the Buffalo and Susquehanna Railroad, and apparatus are being manufactured for other railroads throughout the country.

George W. Conkling, general manager of the Delany Telegraphic Transmitter Company, of New York, was among the exhibitors. The devices shown by him consisted of entirely new and novel ideas in electric and mechanical automatic dot-making telegraph keys. These instruments are intended to improve the quality of the Morse signals, which of necessity improves the telegraph service generally and makes transmission vastly easier for the individual telegrapher.

Mr. W. O. Coffe of the Mecograph Company, Cleveland, O., had this useful transmitter, of which he is the inventor, on exhibition, and explained its merits to the members of the association. Several thousand mecographs are now, it is said, in use in railroad and commercial telegraph offices in the United States, Canada and Mexico.

The National Telegraph Company, of Rochester, N.Y., had on view their latest type of composite instruments and their portable Howler for use in connection with composite telephone sets. Samples of their standard condenser and loud transmitter were also shown. The exhibit was in charge of Mr. W. B. Glardon, assistant general manager and engineer of the company.

The North Electric Company, of Cleveland, O., made a display of their line of magneto telephone equipment, switchboard equipment and linemen's portable compact test sets. Samples of complete magneto switchboards for small exchanges were also shown. The exhibit was in charge of Mr. J. G. Mitchell.

The Sandwich Electric Company, Sandwich, Ill., placed on view sets of what is known as the Sandwich Telegraph. This is a device that provides for a talking circuit on an ordinary telegraph line without interfering with the Morse signals. The telegraph is also applicable to quadruplex circuit without interference, and many of the telegraph superintendents present at the convention testified to the efficiency of the system.

Probably the most important use of the telegraph for railway service is the equipping of trains with the apparatus, thus enabling those in charge to hold communication with distant offices from any point along the road. Mr. H. O. Rugh, general manager of the company, was in charge of this interesting exhibit.

An artistic little brochure, illustrative of the city of Denver, was distributed at the convention by J. H. Bunnell and Company, of New York, the well-known manufacturers of telegraph instruments and other electrical goods. No one could carry away a better pictured reminiscence of the activities and beauty of the city, as portrayed in views of its busy streets, residential neighborhoods and fine public buildings, than is given in the volume referred to.

The Railroad Supply Company of Chicago was, as usual, represented by their signal engineer, Mr. E. W. Vogel, and also by Mr. F. C. Webb, the company's local representative in Denver, Colo. The company made no exhibit this year except their new lightning arrester, the invention of Mr. Vogel, which is now being put on the market in two styles, namely, mounted on slate base in one or more units, and an enclosed pattern for outside use for attaching direct to lines where the insulated wires extending from the outside lines into the building commence. These lightning arresters are built upon the choke coil principle, which is supplemented by an induction coil. All parts are made heavy and especially designed for railroad use. It is claimed that this arrester will positively stop all damage to instruments and that it never opens grounds or deranges the line. The arrester is furnished without fuses, as the same are positively not required.

A Decade of Wireless Telegraphy.

Wireless telegraphy is now ten years old. On June 2, 1896, there was filed in the British Patent Office a provisional specification "for improvements in transmitting electrical impulses and signals and in apparatus therefor," by one Guglielmo Marconi, residing at No. 71 Hereford Road, Bayswater, England.

At the time this patent was applied for the art of transmitting messages without wires was wholly unknown, in so far as its practice and utilization were concerned, and the drawings and description of the improvements cited gave neither the layman nor scientist an inkling that the arrangement was one of the most important since those first brought out in the allied classes of telegraphy and telephony, or that the young inventor was destined to take rank with Morse and Bell as a genius who had materially advanced civilization by devising a new means for the transmission of intelligence.

Exactly a decade has elapsed since the filing of that memorable patent, and the great and far-reaching progress made in the art in the brief period past is well known. There are, however, some salient features that have been brought out in the development of the new telegraphy that are not so well known, and to these attention may be appropriately called at this particular time.

After the first successful trials were made across the Bristol Channel between Lavernoch and Flat Holm, a distance of 3.3 miles, by Marconi, and during these notable tests, in which he became cognizant of the great value of using high aerial wires and earthed terminals, the feasibility of telegraphing through space without wires by the Hertzian wave method could no longer be doubted, and all other schemes for producing similar results were abandoned.

Notwithstanding the favorable issue of the experiments, there was yet much to be done before the system could be made commercially practicable, and the young inventor labored zealously to extend the limitations that hemmed it in on all sides. Nor was he alone now in the great work that confronted him, for numerous investigators on both sides of the Atlantic became imbued with the possibilities the new art offered. To increase the range of signaling was the first and most important step, and after that, the desirability of securing selectivity, so that a number of messages could be sent in the same field of force without suffering extinction.

Marconi was perhaps the most persistent experimenter in the bridging of greater distances, while very early in the development of the new telegraphy Lodge turned his attention to the production of a selective system by means of electrical resonance. The former succeeded so well in his task, that from three miles in 1897 he was enabled to send and receive signals three thousand miles in 1904; while the latter, although he failed to evolve a commercially selective apparatus, led the way for the timing of the sending and receiving circuits individually and synchronizing them collectively.

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

The work of Lodge and his successors has resulted in the beautiful compound open and closed oscillators and resonators, both close and loose coupled, that give, in the refined apparatus we have at the present time, the highest efficiency of operation with the least expenditure of initial energy.

Another important feature of recent date is the utilization of auto-detectors in connection with telephone receivers as receptors for the translation of incoming electric waves into the alphabetic code of dots and dashes. This adjunct may be attributed to American ingenuity, and was a difficult but well-taken step leading toward the goals of accuracy, rapidity, and simplicity, for it eliminates virtually all of the difficult adjustments found in the coherer and Morse register receptors, permitting a very great increase in the speed of reception, and greatly reduces the number of essential parts of the equipment. De Forest was probably the first in the commercial field to use the auto-detector and telephone receiver, while Fessenden has conferred a lasting benefit upon science and humanity by his ingenious detector, the liquid barretter, an instrument that in its sensibility, its ruggedness, and its simplicity is second only to the telephone receiver of Bell.

With these improvements, chiefly made within the past five years, wireless telegraphy is all that the most exacting critic could hope for, if we except selectivity, and in this especial branch of the work there is yet unlimited opportunity for the wireless inventor to exercise his ingenuity.

So much for the physical advances made during the past decade, in transmitting messages without wires. Its usefulness as a commercial factor has been universally recognized, and not only has the mercantile marine service been very largely equipped, but the different governments are fully alive to its possibilities in time of peace and war. Not only have the ships of the world's navies and strategic shore stations been equipped with some make of apparatus, but the armies of various countries have used it overland with considerable success.

Overland wireless telegraphy has been tried out commercially within the past few years; and while it is practical from the viewpoint of operation, the interference between stations leaves it a poor competitor of the wire system. It has competed more successfully with the shorter cables, and elaborate experiments are now being conducted by Prof. Fessenden and Dr. De Forest, working independently in the effort to establish permanently transatlantic cableless telegraphy. Should the results prove practicable, it is extremely doubtful if they will in any way affect the cable companies, as is popularly supposed.

The wireless patent situation has been aired in the United States courts to some extent, and it would seem from the decisions handed down that the claims of Marconi in his original patent of

ten years ago, i. e., "a receiver having a sensitive tube or other sensitive form of imperfect contact capable of being restored with certainty and regularity to its normal condition," will be upheld during the life of the patent. As a matter of fact, the electrolytic detector or barretter of Fessenden comes under this claim, although this question has not been answered by process of law.

The present indications are that there will be no litigation between the Marconi and Fessenden interests; and in so far as the United States is concerned, there is reason to believe that of the several companies now making and selling apparatus, many will be driven entirely out of the business, one or two will be allied with the Marconi company, and the fittest only will survive, forming a parallel with the interesting case of the Bell telephone of thirty years ago. If this should prove true, it will show not only the value of fundamental patents, but that which is of equal importance, namely, to have the claims so drawn as to properly cover both methods and apparatus.—Scientific American.

Directed Wireless Telegraph Messages.

The transmission and reception of two or more wireless telegraph messages simultaneously in the same zone of action, or selectively, as it is called, is a problem second only in its abstruseness to the telephonic relay, that scientific will-o'-the-wisp over which inventors have struggled ever since Bell devised his apparatus to send and receive articulate speech over wires.

Many solutions, electrical, mechanical, and electro-mechanical, have been provided to secure selectivity, but at the end of a decade of wireless telegraphy it seems that all the labor expended in this direction has been virtually in vain, in so far as the coveted goal is concerned, though through the researches in electrical resonance excellent results have been achieved in tuning and syntonization, which important factors are largely accountable for the present degree of advancement in long-distance wireless signaling.

Since it is sometimes more convenient to enter a window than to go through a door, many inventors have ceased trying, at least for the time, to discover the "open sesame" of selectivity, and have confined their efforts to the easier task of directing, within certain limits, the wireless waves. Artom, of Italy, was the first to evolve such an arrangement and attain favorable results; this he did by means of circularly polarized electrical radiations, which he produced without resorting to reflection grids, as is necessary in the case of light waves.

Much simpler than this Italian physicist's method is one recently made public by Marconi, while the experiments of the latter indicate that a wider range of usefulness will be given the previously inflexible wireless transmitter and recep-

tor than has yet been known. Briefly, the scheme is this: When one end of an insulated horizontal wire (the other end of which is free) is connected to one side of a spark gap of an induction coil, and the other side of the gap is earthed, the electric waves emitted by the wire will reach a maximum in the vertical plane of the horizontal wire, and proceed principally from the end connected to the spark gap, the radiation being imperceptible in any other direction approximating 100 degrees from that in which the maximum effect takes place.

Similarly, if an insulated conductor is laid on the ground or placed a short distance above it, and the end nearest the sending station is connected to one side of an electric wave detector, the other side of which is earthed—leaving the opposite terminal of the wire free—the maximum effect will be evident only when the receiving and transmitting wires are in alignment with each other.—Scientific American.

The Railroad.

The Grand Trunk Pacific Railway, the northernmost and the longest transcontinental line of railroad ever projected on this Continent, and which is now being constructed across Canada, originated in the mind of Charles M. Hays, its president. Mr. Hays, who is also the second vice-president and general manager of the Grand Trunk Railway System, is, like Sir William C. Van Horne, who built the Canadian Pacific Railway, a native of the United States. Both came from Illinois and both in early life were telegraph operators.

The announcement was made June 13 that the Grand Trunk Pacific Railway Company of Canada, will establish and operate a new telegraph system in connection with the proposed transcontinental railway now in course of construction. The new telegraph company has been incorporated by parliament with a capital of five million dollars, and permission will be asked by the company to carry on a public telegraph business throughout the Dominion. As stated some time ago, the Grand Trunk Pacific Railway Company will doubtless later install a long-distance telephone service over its entire system.

Mr. A. T. Hardin, who has been appointed assistant general manager of the New York Central and Hudson River Railroad, on all lines east of Buffalo, except the Boston and Albany, began in the railroad service as a telegraph operator. Subsequently he went to college. He is thirty-eight years of age. Mr. P. E. Crowley, who has been made general superintendent of what is known as the Western district, and Mr. C. F. Smith, who has been promoted to be general superintendent of the Eastern district, also began life as telegraphers. Mr. Crowley is forty-two years old, and Mr. Smith thirty-three.

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Obituary.

DEATH OF GEORGE F. FAGAN.

In the death of George F. Fagan, chief clerk in the general manager's office of the Postal Telegraph-Cable Company, New York, on June 24, that company loses a highly valued and capable employee. Had he lived until September 8, he would have been fifty years of age. Illness compelled him to leave his desk on April 20, to which he never returned, sinking slowly, yet with a cheerful resignation, under a disease that from the first marked him as its own. Mr. Fagan possessed a pleasing personality, quiet in manner, yet alert to the duties of his position, the full details of which he held in a firm and intelligent grasp. He had been in the telegraph service all his life, and had an extended knowledge of its requirements. His place brought him in contact with many, so that he became widely acquainted with telegraph people throughout the country. He was held in high esteem by a large circle of friends. It may be said of him that his faithfulness and loyalty were never questioned. His devotion to duty was a marked characteristic of the man. He is survived by a widow, two daughters, one of whom was lately married, and by a young son.

Mr. Fagan was born in New York city September 8, 1856, and began his telegraphic career as a messenger boy for the Atlantic and Pacific Telegraph Company at Broadway and Thirty-fourth street, New York, in 1872. He soon after found employment with the Western Union Telegraph Company, where he filled successively a number of clerical positions, finally becoming private secretary to Charles A. Tinker, then the general superintendent. He entered the Postal employ in December, 1899, taking the position that he afterwards held during life. Mr. Fagan was a Mason, for fifteen years past the secretary of Anglo-Saxon Lodge, F. and A. M. He was also a member of the Telegraphers' Mutual Benefit Association, Gold and Stock Life Insurance Association, Old Time Telegraphers' and Historical Association, and other telegraph organizations. He was the first secretary of the Magnetic Club. The funeral was held at his late residence, 346 Chauncey street, Brooklyn, on Tuesday evening, June 26, at which there was a large attendance of his late associates, the brethren of his lodge and a number of the executive officers of the Postal and Western Union telegraph companies. Immediately after the religious funeral service the impressive ceremonies of the Masonic order were conducted by the officers of the Anglo-Saxon lodge.

Mr. W. E. Herring, manager of the Postal Telegraph-Cable Company of Texas, at San Antonio, Tex., in renewing his subscription writes: "The valuable and interesting articles published in TELEGRAPH AGE are too numerous for me to mention. I cannot see how a person interested in the telegraph or telephone business can afford not to be a subscriber."

Delayed Telegraph Messages.

(From the Central Law Journal, St. Louis.)

The great number of instances in which telegraph messages are delayed without one particle of excuse makes the question one of great interest. It is true that the great weight of authority is against allowing damages for the mental suffering caused by such delays, on the ground that such an element is too uncertain for proper measurement. Yet the fact that such delays do cause in many people very great agony of mind is certain at least to those who have been prevented from reaching the sick beds and death beds of those who are dear to them. Here is a great wrong permitted to go unpunished because of some judicial opinion to the effect that the element is too uncertain to permit of measurement, and yet the law gives a jury a right to measure physical pain and suffering as an element of damage. We have a rule of law which is made to prevent wrongs where one party mixes his goods wrongfully with another's in such a way as to be unable to distinguish his from the other. The law will compel the party committing the wrong to undergo the uncertainty of the confusion brought about by his misconduct even to the extent of surrendering the whole even though his may have been the most and by reason of this aiding of the remedy against the wrong-doer the law is made effective to prevent wrongs.

The great telegraph companies of the country have grown rich in the returns from the public which they serve; the service is a great and beneficial one, it is true, and deserves to be well paid, but the public has a right to demand the best service which may be rendered within reasonable limits. It is not unreasonable to demand that telegrams which announce the illness of near relatives or friends should be delivered with the greatest possible promptness and that a failure to do so should be met with a policy of the law which will tend to prevent the wrong of it. It is morally certain that in those states where the law recognizes the pain and suffering caused by such delays in question as an element of damages there are fewer delays than in those jurisdictions which do not. The law is a rule of civil conduct prescribed by the highest power of the state not only to command what is right but to prohibit what is wrong. Now it is a fair question to ask, and one worthy the serious consideration of every one, which of these jurisdictions is making it possible to best prevent a kind of a wrong which it is a burning shame to permit to go unpunished?

Why mental suffering may not be expected to follow certain wrongful acts which might give rise to them as certainly as that physical pain should follow wrongful acts which result in bodily injury, is indeed difficult to understand when we consider how many uncertain elements are

permitted to enter into the policy of the law in order to prevent wrongs. When parties enter into contracts which are to run a period of years, and one of them wrongfully refuses to be further bound by its terms, the conditions existing on the day of the breach are taken into consideration in order to estimate the profits for the future, which the injured party might have made by a faithful performance of it. There might be shown to be many elements of uncertainty in the future of the contract, but the policy of the law to prevent wrongs leaves them out of consideration. It would seem in those cases which do not recognize the mental suffering which results from a wrongful delay in delivering a telegram to a mother, a husband or a father, or any one who ought to be informed and had a right to the prompt delivery, that the element of the law which is intended to prevent wrongs was left out of consideration. It would naturally occur to any one that a husband or wife or mother might be greatly shocked to know that a wife, husband or child had been very ill for a day and that a telegram should have been delivered a day sooner, but for the negligence of the agents of the company.

In the recent case of *Hamrick v. Western Union Telegraph Company* (N. C.) 52 S. E. Rep. 252, the court reiterated the doctrine previously laid down in that state that in such cases damages may be recovered. It is also worthy of note in this regard that the supreme court of North Carolina has one of the strongest supreme benches of the country, the opinions of which are most worthy of confidence and respect. Alabama, Texas and Kentucky are in line with North Carolina, and we predict that this doctrine will become the law generally. Any one who has witnessed the agony of a mother resulting from a delay in a telegram informing her of the serious illness of a child at a long distance from her, would hardly fail to see the wisdom of the policy of the law which regards such suffering as a proper element of damages, for which there should be a recovery. There is good reason why the mental suffering in the case of delayed telegrams, at least, should be compensated in damages separate and apart from the proof of other injuries for which damages might be allowed arising out of the same matter.

[Mental anguish is a form of suffering pitiful in the extreme, a condition of mind well calculated to arouse and enlist human sympathy. Even when caused by a delayed telegram it is no less so. But because this is true no warrant exists why vilification of the telegraph companies should follow, and assertions made that frequent delays in the delivery of telegrams such as those announcing sickness, death, etc., was a common, contributory cause for this state of mental suffering, are not borne out by the facts. Why should it be that a holdup of telegrams of this

character should prevail to the extent alleged as against other messages treating on every phase of human interest and activity?

As a rule, positive as to be almost without exception, telegrams do not suffer delay at the hands of the companies under ordinary conditions; rare omissions in prompt delivery may usually be traced to unavoidable causes, such as the breaking down of wires, etc., and the Central Law Journal of St. Louis is in error when it attempts to formulate charges of this character so manifestly untrue in fact. The telegraph companies make it a point to get off messages as quickly as possible after they are filed, the unwritten law being to "Keep the hooks clear." As a matter of fact, we should hear less about the mental anguish law if it were not "worked" by unprincipled persons to an extent of which few outside of the telegraph have any conception. It may surprise our legal contemporary to learn that messages are frequently sent with no other purpose in view than to pave the way for the senders to bring suits against the telegraph companies for damages.—Editor.]

The Summer Outing of the Magnetic Club.

In spite of lowering skies which brought occasioned heavy showers of rain, thus rendering out-of-door sports wholly out of the question and consequently disarranging that part of the programme which the athletes of the Magnetic Club had confidently counted upon in which to show their prowess, the members of this famous organization, which celebrated its nineteenth annual outing at Cove Hotel, Staten Island, on Tuesday, June 19, nevertheless had a good time. Although the steamer Western Union made its two accustomed trips to convey voyagers across the bay to Staten Island, and did its duty with manifest readiness and despatch, fewer were present, perhaps, than usual, for rain always acts as a deterrent, and some of those who did show up looked "dem'd damp and moist," as Mr. Mantalini might have said. Yet on the whole, with time occupied indoors, where everything was snug and comfortable, by games at bowling, where prodigious scores were rapidly run up by "ten strikes" and "spares;" cards, bagatelle, etc., the afternoon wore quickly and pleasantly away.

Dinner was served at seven o'clock, with Marston R. Cockey, the first vice-president of the club, presiding. Agreeable music was furnished by four musicians, and a humorist added piquancy to the scene. As the various prizes that had been provided could not be regularly awarded, as no contests had taken place, they were disposed of by lot, the drawing, conducted by Frederick Pearce and Frank J. Scherrer, taking place immediately following the dinner. Much fun was had during the proceedings.

The gentlemen who donated the prizes were: Colonel R. C. Clowry, Clarence H. Mackay, William H. Baker, H. L. Shippy, John C. Barclay, George Clapperton, J. B. Van Every,

F. W. Jones, J. J. Ghegan, Foote, Pierson and Company, B. M. Downs, Frederick Pearce, F. M. Ferrin, C. C. Adams, William Marshall, George H. Usher, James Kempster, Theo. L. Cuyler, Jr., M. H. Kerner, Schulte Tobacco Company, through C. P. Bruch.

Among those present were:

J. F. Ahearn, T. A. Brooks, E. B. Bruch, M. R. Cockey, J. W. Condon, J. Connor, J. W. Connolly, John Costelloe, Theo. L. Cuyler, Jr., F. E. Donohoe, B. M. Downs, L. F. Dowling, Lewis Dresdner, W. A. Ebert, W. A. Egan, William Finn, T. E. Fleming, R. E. Fagan, J. W. Gibbons, W. Gibbons, G. W. Hickey, Charles Jacobson, Alex. Klein, C. A. Kilfoyle, W. A. Kamp, George H. Kellar, H. G. Kitt, H. C. Landres, G. W. McAnceeny, J. F. McGuire, W. B. McCurdy, T. J. McDonald, F. E. McKiernan, G. H. Messner, Gerard Marshall, G. L. Marshall, R. B. Marr, D. W. Meek, F. J. Miller, F. D. Murphy, R. J. Murphy, F. J. Nurnberg, M. J. O'Leary, Captain Olmstead, C. F. Pearce, Fred Pearce, H. L. Patterson, A. E. Price, C. Adams-Randall, J. H. Schaber, F. J. Scherrer, E. R. Suydam, H. F. Van Every, J. West.

Western Union's Quarterly Statement.

The Western Union Telegraph Company reports for the quarter ended June 30 as follows, the figures for this year being partly estimated, while those for last year were actual:

	1906 (est.)	1905 (act.)	Changes.
Net earnings	\$1,750,000	\$1,701,007	Inc. \$48,993
Int. on bonds	331,300	331,300	
Balance	\$1,418,700	\$1,369,707	Inc. \$48,993
Dividend	1,217,022	1,217,021	Inc. 1
Surplus	\$201,678	\$152,686	Inc. \$48,992
Prev. surplus	16,659,191	15,821,523	Inc. 837,668
Total surplus	\$16,860,869	\$15,974,219	Inc. \$886,660

The company's fiscal year ends with June 30. We are, therefore, able to present a comparison with the last two fiscal years, the figures for the current year being partly estimated, while those for the previous year are actual:

	1906 (est.)	1905 (act.)	Changes.
Net earnings	\$7,079,948	\$7,188,065	Dec. \$108,117
Int. on bonds	1,325,200	1,227,200	Inc. 98,000
Balance	\$5,754,748	\$5,960,865	Dec. \$206,117
Dividends	4,868,088	4,868,083	Inc. 5
Surplus	\$886,660	\$1,092,782	Dec. \$206,122
Prev. surplus	15,974,209	14,881,427	Inc. 1,092,782
Total surplus	\$16,860,869	\$15,974,209	Inc. \$886,660

The Western Union Telegraph Company has declared the regular quarterly dividend of 1½%, payable July 16. Books closed June 20 and will reopen July 2.

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

The Adams-Randall Telephone Transmitter.

The Adams-Randall device of a telephone transmitter appears to be attracting considerable attention among railroad people, for in a number of instances it has made on workable long-distance telephone circuits surprisingly audible speech, even a whispering voice, it is said, being heard at a distance of 1,000 miles. In this connection the several reports printed herewith respecting this transmitter, will prove interesting to railroad telegraph superintendents, who naturally are on the lookout to secure the most efficient telephone service for their respective systems.

Mr. J. C. Barclay, assistant general manager of the Western Union Telegraph Company, New York, writing under date of August 24, 1905, says:

The following is a copy of Mr. William Finn's report on your recent demonstration of a composite telegraph-telephone circuit, on one of our New York-Albany wires:

"The trials were mainly conducted over a Morse circuit between New York and Oswego, N. Y., repeated at Albany, the telephone apparatus being installed at the latter point and at 195 Broadway.

"The wire between New York and Albany—147 miles long and measuring about 750 ohms—runs through a 200-conductor underground cable as far as John and Pearl streets, through a 19-conductor aerial cable strung under the elevated railroad for a distance of 8½ miles, then passes through a 60-conductor cable under the Harlem river, and out over a pole line carrying from 20 to 35 working wires until it reaches the Hudson river at Albany, where it is submerged for about three-quarters of a mile before entering our main office in that city.

"The first attempts to talk over this circuit were not successful, owing to the interference arising from induction, which was so strong as to be audible all over the room in which the experiments were made.

"By use of shunts, and by otherwise diminishing the sensibility of the receiver, the inductive effects could, however, be so far modified as to admit of ordinary conversation being carried on with greater or less facility; but it was not until a more powerful transmitter was constructed that the results obtained could be regarded as in any way suitable for practical purposes.

"With the new transmitter, which enabled the receiver to be still further desensitized, and correspondingly less susceptible to the inductive disturbances, the intensity of the sound waves was greatly increased, and though lacking in timbre or quality, the articulation was surprisingly good considering the character of the circuit and the tremendous disquieting influence from neighboring simplex, duplex and quadruplex circuits to which it was subjected.

"The 'calling' apparatus—devised on the buzzer principle—met the requirements most perfectly, and without in the slightest degree affecting the working of the Morse instruments."

C. E. Freeman, professor of electrical engineering of the Armour Institute of Technology, Chicago, in writing to Mr. Marshall, of the Adams-Randall Company, under date of January 29, 1906, has this to say:

I have had the pleasure of talking to Mr. Randall and others at Weehawken, New Jersey, from the office of Mr. W. C. Brown, of the Lake Shore Road, Chicago, by means of the Adams-Randall transmitter. As to the quality of the transmission, I would say that it was all that could be desired. While I had an opportunity to compare it with the action of the Bell set, I neglected to do so, owing to my interest at the time in the Adams-Randall device. Judging, however, from the repeated requests for repetition by those who were using the Bell, and the absence of

these requests by the same persons using the Adams-Randall transmitter, I judge that the Adams-Randall was giving better service under the conditions of operation, which, I understand, were practically identical for the two.

G. W. Wilder, professor of telephone engineering of the Armour Institute of Technology, Chicago, in a letter also addressed to Mr. Marshall, of the Adams-Randall Company, on January 29, 1906, makes the following statement:

In regard to your recent tests between Chicago and New York over the lines of the Lake Shore and New York Central Railroad, I would say that I witnessed many of them with great pleasure, and can say that they were indeed remarkable. In the office at the La Salle street station, Chicago, the circuit was so arranged that by turning a simple switch one could connect a Bell telephone to the line wires or the Adams-Randall instrument. The tests that I witnessed were carried on over the line using these instruments alternately, and in every case during all these tests, which extended over several days, I found the transmission through the Randall instrument superior both in volume and articulation to that produced by the Bell instrument. As near as I could estimate the Randall instrument was at least four times better than the Bell. I remember two or three instances in which speech was obtained over the line through the Bell instrument with great difficulty, repetition being constant and unsatisfactory. At the same time the Randall instrument talked up clearly and distinctly. I also remember one particularly bad day when the disturbing noises on the line were so great as to render speech impossible over the Bell, that the Randall instruments were a success commercially. At no time during all of these tests did I find a Randall instrument unable to transmit speech in an entirely satisfactory way.

On several of the days during which the above tests were made, the transmission through the Bell instruments was good, and would be considered entirely commercial. On these days I noticed that the articulation was much clearer and more perfect through the Randall instrument than through the Bell. In fact, this was always true, although one would not expect a difference when speech is transmitted well over each. The quality of the tones was so clear and distinct that I never had to ask the party at the other end to repeat his sentences, while with the Bell instrument at least fifty per cent. of the conversation was repeated, even on the best days. I also noticed that others had this same difficulty.

Mr. Edison and the Discovery of Cobalt.

Mr. Edison, who has been investigating the mineral resources of North Carolina, remarks that he has discovered deposits of cobalt in several counties of that State, of fine quality and available for storage battery purposes. Mr. Edison is reported to have said: "My discovery means a revolution in the electrical world. I can reduce the cost of city traffic 55 per cent. When I can equip an automobile with the cobalt system the storage battery weight will be one-half, and then prices will be reduced so as to place electric within the reach of everybody. I am confident that what I have found will enable me to create a new vehicle, propelled by cobalt batteries."

Cobalt, in limited supply, has been hitherto imported from France and Australia.

No up-to-date telegrapher can afford to be without TELEGRAPH AGE. It furnishes him with information essential to his welfare. Send for a sample copy.

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 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.

On June 15, Mr. I. D. Maize of this office rounded out a half century as an operator, most of the time being spent with this company. He seems likely to spend a good many more years with us, for he is a fine operator still and not afraid of work, doing several hundred messages every day on the second New York quadruplex. In the tournament held here several years ago he won the championship in the old-timers' receiving contest.

A fine No. 2 Smith-Premier typewriter, the property of the late Miss Ida Hussey, was raffled off recently, the lucky winner being Denny Coyle.

Harry Emanuel and Harvey, better known as Swifty, Williams, are paired for the Boston tournament. They will do bonus work. R. C. Murray, Jr., and C. B. Wood will be in attendance, the former acting as one of the judges.

O. M. Pennyacker, a life-long resident of Norristown, Pa., has moved to this city.

Elmer Beidelman has returned to this office after an absence of about five years.

A good deal of sympathy has been felt for Mr. H. Wobensmith, chief of the clerical department. Twin sons were born to him several weeks ago, an event that was followed first by the death of one and then by that of the other. In the meantime Mrs. Wobensmith was critically ill, but at last accounts her condition had improved materially.

NEW YORK, WESTERN UNION.

Mr. George F. McCammon, son of T. A. McCammon, chief operator, was married recently to Miss Hazel Starr, of Denver, Col., where the McCammon's resided before coming to New York.

Mr. Joseph Knittle, formerly of this department, is seriously ill, having suffered his second stroke of paralysis.

Mr. Dennis F. Sullivan of the Eastern division is on the sick list.

Mr. J. F. King of the all-night force, has resumed duty after several weeks' absence, due to an attack of rheumatism.

Mr. James J. Grace, assistant western wire chief, has resigned and returned to Chicago, the

change made necessary because of the illness of his wife.

Charles S. Pike has been acting as traffic chief of the city line department, during the past two weeks on account of the absence of Mrs. May.

Mr. "Ardy" Gillman, who had charge of the Western Union fishing excursion recently, is explaining scientifically to all his friends why he failed to catch any fish during the trip.

Mr. Frank D. Giles, assistant chief operator, and Mr. E. T. Burrill, general traffic chief, have lately become grandfathers.

Messrs. A. Wohlrabe and W. H. Mayer have been assigned to leased circuits.

As usual a goodly number of representative telegraphers were on hand to dispose of the Western Union business at New London, Conn., during the Yale-Harvard races. Mr. R. J. Murphy was in charge, assisted by J. Rosenbaum; W. L. Wingate, J. S. Moffatt, F. R. Bishop, J. A. Walsh, J. F. Kerrigan and F. W. Gribbon.

The following operators have been transferred to summer offices: Miss G. Jones, Miss Jennie Powell, Miss Clara Ayres, Miss Glase, Miss K. Mahoney, Miss B. Goodson, Miss S. Oakes and Mrs. Levinson; Mr. C. A. Harvey and Mr. S. J. Murray.

Mr. E. J. Brannagan has been transferred to Brooklyn.

NEW YORK, POSTAL.

The following have been assigned to branch offices: A. M. Cervanter, Violet Develin, M. Gray and Hilda Olsen; O. Conly has gone to a summer office, and J. Hutton has been transferred to the bookkeeping department.

The resignations are: D. Dillon, N. Dolan, C. Hanson, J. Wells, A. Berggren, J. H. Blasdell, N. Crawford, C. Cramer, E. Hemman, F. McNeil, T. Murray, Tilly Palmer, G. O. Heath, R. J. McIver, A. Morris, J. N. Reilly.

OTHER NEW YORK ITEMS.

Assessment No. 450 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of Charles D. Livermore, at Portland, Me.; William P. Frost, at Hartford, Conn.; James C. Wilson, at Indianapolis, Ind.; James F. Malone, at New Haven, Conn.; and William H. Hill, at Brooklyn, N.Y.

The word "Aerogram," to designate a message sent by means of wireless telegraphy, is approved by a contemporary. It says: "Aerogram is well formed from the Greek words meaning 'air' and 'to write,' and admirably designates 'writing through the air.' It is easily pronounced, concise and to the point, and is appropriately analogous to the word 'telegram.' 'Aerogram' should come into universal use. Educated persons appreciate a well-formed word. If the editors of daily papers made 'aerogram' an office rule, the public would soon adopt it."

Submarine Cables.

A paper on "Submarine Cables" was read by Mr. W. Smith at a meeting of the Birmingham and District Electric Club on April 21. For electric light and power conductors under the sea, the author recommended vulcanized rubber insulation. Telegraph cables, he explained, on the other hand, are almost universally insulated with gutta-percha, and cables made at the present time differ but little from those made in the early days of ocean telegraphy. The conductor, insulated with gutta-percha, is taped, then protected by some fibrous material, sheathed with galvanized iron or steel wires and finally finished off with a serving of yarn and tape. The author mentioned the various grades of armoring, the deep-sea, intermediate and shore-end, with overall diameters of about one inch upward. As a protection from the ravages of certain small marine animals, he said, powdered silica is often mixed with the compound applied when serving the cables, and as a further protection a wrapping of brass tape is sometimes applied. He next mentioned the All-British Pacific cable, opened to the public in December, 1902, of which the section between Fanning Island and Vancouver is the greatest length yet laid in one piece—about 4,000 geographical miles. This particular portion of the cable is made in a rather different manner to the remainder; the conductor consists of five strands, the four outer being closed around the central wire in such a manner that while retaining the advantages of a strand, there is almost as much copper as in a solid conductor of equal diameter. Thus, without much loss in conductance, the capacity is considerably reduced. Various forms of light, that is, of low specific gravity, cables had been employed, he continued, but apparently with little success. In order to keep down the weight it had been suggested to protect submarine cables with a layer of aluminum tape, but it was doubtful whether this would be satisfactory, considering the rapid action of chlorine on aluminum. He next referred briefly to "loading" telephone cables with inductance. It did not appear feasible to use an alloy for the conductor, he said, as alloys had a higher resistance than their constituents when taken separately. If inductance coils were introduced, iron must be very carefully employed or sounds were not clearly transmitted. Any such apparatus, although comparatively easy to attach to underground lines, would, he thought, be difficult to use in the case of a submarine cable lying in a depth of some 3,000 fathoms. Air spacing (which, he stated incidentally, did not appear to have been a success on some underground lines) could hardly be suggested for deep-sea cables. As well as transmitting the sound, some means were required to rectify the tendency of the sound wave to distortion; not only was it necessary to have amplitude, clear articulation was also required.—London Electrician.

From the Telegraph Key to \$40,000,000.

Through the proposed incorporation of a \$40,000,000 business house, which will be effected soon, Wall street has had called to its attention the meteoric rise of a man who fifteen years ago was a telegraph operator. He is Richard W. Sears, of Sears, Roebuck & Co., of Chicago, the greatest retail house in the West. He is to be head of the new company.

Goldman, Sachs & Co. and Lehman & Co., bankers, of New York, have formed a syndicate to finance the new concern, which will have \$10,000,000 preferred stock and \$30,000,000 common.

Representatives of the banking houses named said that plans have been practically completed for launching the industrial enterprise and that \$10,000,000 of preferred stock would be acquired by the Wall street bankers. The story of the growth of the enterprise under the direction of Richard W. Sears, they said, was like a page from the "Arabian Nights." Eleven years ago the firm had a capital of \$150,000. In a few days a charter will be taken out in New Jersey by the same firm for a \$40,000,000 corporation. Last year the firm earned net \$3,000,000. It is asserted that now its business is \$5,000,000 a month. All this is done by mail and for cash in advance of shipment.

Friends of Richard W. Sears, the head of the firm, stated that he began the mail order business while he was employed as a telegraph operator on the Northern Pacific. In his spare moments he sold watches and firearms to his fellow employees on the railroad. The success of the scheme prompted him to go to Chicago, where he opened a store devoted wholly to mail order business. The firm was assisted by Moses Newborg, now a Wall street banker and broker, and it started with a capital of \$150,000. One of Mr. Newborg's partners at that time, Julius Rosenwald, is now associated with Mr. Sears. Mr. Roebuck has retired.

In the eleven years the business has grown by leaps and bounds. It now employs 8,000 clerks and has 6,000,000 customers. There are eighteen railroads which enter its plant and 100 cars are shipped daily. It gives no credit and money must be sent in advance.

Credit is given in banking quarters to the remarkable genius of Mr. Sears, who has directed the entire business. He is not yet forty-five years of age. The enterprise built up within the last few years now comprises a small city, with its own police force, schools, hospitals, etc.

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

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

Important Subjects Treated in Back Numbers.

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

Adjustment of Relays and Sounders.....Oct. 1, 1902
 Alternating Current Transformer for Quadruplex, W. H. Jones, Mch. 1-16, 1904
 American Cable Across the Pacific.....July 16, 1903
 Alaskan Telegraphs.....Jan. 1-16, Feb. 1, 1905
 Atmosphere and Earth Electrical Conditions, E. C. Walker, Dec. 16, 1904
 Aurora Borealis, The.....Nov. 16, Dec. 16, 1903
 Autoplex, The.....Feb. 1, 1903
 Barclay Combination Quadruplex Rheostat.....July 1, 1903
 Barclay's Direct Repeating Relay for Multiplex Circuits, July 16, 1902
 Barclay Printing Telegraph System, W. H. Jones.....May 16, 1905
 Barclay's Repeating Relay, Main Line Relay and Box Relay, Jan. 1, 1903
 Barclay Typewriting Telegraph System.....Jan. 16, 1904
 British Patent Office Rules.....Apr. 16, 1906
 British System of Timing Messages.....Dec. 1, 1902
 Buckingham Long Distance Page Printing Telegraph.....Sept. 1, 1902
 Burry Page Printing Telegraph.....Apr. 1, 1903
 Cables and Russo-Japanese War.....Apr. 1, 1904
 Cable Station in Mid-Pacific, Our, Dr. Martin Crook.....Feb. 16, 1905
 Central Cable Office, New York.....June 1, 1903
 Central Telegraph Office, London.....Oct. 16, 1904; May 1, 1905
 C. K. Jones' Automatic Telegraph Circuit Protector and Signaling Machine.....June 16, 1903
 Collins Overland Telegraph.....May 16, 1903
 Composite Circuits—Report Com. Assn. Ry. Tel. Supts., Sept. 1, 1904
 Composite Teleg. and Telep. on Canadian Pacific Ry.....Mch. 1, 1904
 Composite Telephone Lines.....Mch. 1, 1905
 Crehore-Squire Automatic Telegraph System.....May 16, 1902
 Definitions of Electrical Terms, Mch. 16, Apl. 1-16, June 1, July 1-16, 1904
 Delany's, P. B., Automatic Telegraph System.....Mch. 16, 1903
 Delany's, P. B., New System of Rapid Telegraphy.....Apr. 16, 1904
 Direct Polar Relay Repeater of the Postal Telegraph-Cable Company.....Oct. 16, 1903
 Earth Currents.....May 1, 1903
 Engraving of Clarence H. Mackay.....Nov. 16, 1902
 Engraving of Col. Robert C. Clowry.....Apr. 16, 1902
 Engraving of the Late John W. Mackay.....Aug. 1, 1902
 Field's, S. D., Amplifier.....Nov. 1-16, 1904
 Field's, S. D., Quadruplex.....May 1-16, 1904
 Flow of Electricity in the Earth.....Dec. 16, 1903
 Ghegan's Automatic Repeater.....June 1, Dec. 1, 1903
 Ghegan's, J. J., Multiplex System.....Aug. 1, 1904
 Gray Submarine Signaling Apparatus.....Jan. 1, 1904
 Hand vs. Machine Telegraphy.....Sept. 16, 1902
 Hard Drawn Copper Wire, F. W. Jones.....Nov. 1, 1903
 Harmonic Telegraph, Prof. F. Lori.....Mch. 16, 1905
 Improvements of Robertson Quadruplex.....Feb. 1, 1903
 K. R. Law as Applied to Quadruplex Circuits.....Jan. 1, 1904
 Lefey Telegraph Key.....Jan. 1, 1904
 Life of Storage Batteries.....July 1, 1903
 Low Resistance Relays.....Oct. 1-16, Nov. 1, Dec. 16, 1902; Jan. 1, 1904
 Midway Islands Cable Station.....July 1, 1904
 New York Fire Alarm Telegraphs.....Aug. 16, 1903
 Passing of the Quadruplex.....Aug. 1, 1903
 Phillips' System of High Speed Telegraphy, J. W. Larish, Nov. 1, 1904
 Pollak-Virag System.....Mch. 1, 1903
 Possibilities of Telephoning Over Tracks to a Moving Train, Mch. 1, 1904
 Postal Telegraph-Cable Company, History of (with portraits of officials).....Feb. 1, 1904
 Postal Telegraph-Cable Company Rules Governing Construction and Repair of Telegraph Lines.....Apr. 1-16, May 1-16, 1904
 Printing Telegraph Systems, Modern High Speed, J. C. Barclay, Nov. 1, 1904
 Printing Telegraph Systems, Story of.....Jan. 1, 1903
 Progress of Telegraphy During Last Thirty Years, W. Mayer, Jr., Mch. 16, 1904
 Progress in Fire Alarm Telegraphy.....Jan. 1, 1903
 Proper Adjustment of Telegraph Apparatus.....Aug. 16, Sept. 1, 1904
 Protection of Telegraph or Telephone Lines When in Hazardous Proximity to High Speed Lines.....June 1, 1904
 Random Recollections of 145 Broadway, W. P. Phillips.....Feb. 1, 1905
 Rapid Telegraphy, P. B. Delany.....Nov. 16, Dec. 1, 1904
 Recent Improvements in Telegraphy, J. C. Barclay.....Feb. 1, 1905
 Reminiscences of New York Telegraphers a Quarter of a Century Ago.....Jan. 1-16, Feb. 16, Mch. 1, 1905
Repeaters:
 Atkinson.....Feb. 16, 1902
 Half-Milliken.....Feb. 16, 1902
 Horton.....Mch. 1, 1902
 Defective Loop.....Mch. 1, 1902
 Double Loop.....Mch. 16, 1902
 Lewis-McIntosh.....Sept. 16, 1906
 Milliken.....Jan. 16, 1902
 Neilson.....Feb. 1, 1902
 Welny-Phillips.....Feb. 1, 1902
 Wood Double Loop.....Mch. 16, 1903
 Rowland Multiplex Printing Telegraph System.....Sept. 16, 1903
 Scott-Phelps-Barclay-Page Self-Winding Ticker.....Oct. 1, 1903

Simultaneous Telegraphy and Telephony.....Aug. 16, 1903
 Skirrow Switchboard.....Nov. 1, 1903
 Specifications in Construction of 25-foot Pole Line, American Telephone and Telegraph Company.....Feb. 16, Mch. 1-16, 1904
 Stevens' Wheatstone Transmitter.....July 16, 1902
 Stick Telephone, J. C. Barclay.....June 16, 1904
 Stock Tickers, C. L. Healy.....Mch. 1-16, 1905
 Storage Batteries.....May 1-16, June 1-16, July 1, 1902
 Submarine Sound Telegraphy.....Mch. 1, 1904
 Sullivan Outgoing Signal Recorder.....Mch. 1, 1905
 Switchboard Practice at Intermediate Stations.....Dec. 16, 1904
 Ago, Jos. Hollos.....Feb. 16, 1905
 Teletography.....Aug. 1, Dec. 1, 1904
 Telegraph Alphabets.....Jan. 1, 1904
 Telegraph and Weather Service.....Nov. 1, 1902
 Telegraphic Bookkeeping, Jan. 16, Feb. 1, Mch. 16, Apl. 1-16, May 16, July 16, Aug. 1, Sept. 16, Oct. 1, 1903
 Telegraph Operator in Railroad Service, J. B. Taltavall, July 1, 1904
 Telegraphs in New England, W. P. Phillips.....Apr. 16, May 1-16, 1904
 Telegraphy, The.....June 16, 1902; Mch. 1, 1903
 Telephone and Telegraph Bureau, U. S., Washington, D. C., May 1, 1903
 Telephone in Railway Service.....July 16, 1902; Jan. 1, 1903
 Telephony and Telegraphy at Internat'l Electrical Cong.....Oct. 16, 1904
 Testing Device, Useful and Simple.....Jan. 1, 1904
 Transmitting Typewriter Wire Connections.....Feb. 16, 1904
 Twentieth Anniversary Number.....Jan. 1, 1903
 Twenty Years of Standard Time, W. F. Allen.....Feb. 1, 1904
 Typewriting Telegraphs, L. S. Wells.....Aug. 1, 1904
 Typo-Telegraph (Dr. Cardwell), F. J. Swift.....June 1, 1905
 United States and British Telephones and Post Offices, F. W. Jones.....Apr. 1, 1904
 Use of Modern Telephone as Applied to Railroads.....Jan. 16, 1905
 Vibratory Telegraph.....Aug. 16, 1903
 Washington as a News Centre.....Nov. 16, 1904
 Western Union Telegraph Company, History of (with portraits of officials).....Jan. 16, 1904
 What Constitutes a First-Class Operator.....Oct. 1, 1904
 What Constitutes a First-Class Chief Operator.....Nov. 1, 1904
 What Constitutes a First-Class Manager.....Nov. 16, 1904
 What Constitutes a First-Class Superintendent.....Dec. 1, 1904
 What Constitutes a First-Class R. R. Operator.....Dec. 16, 1904
 Wheatstone Automatic Duplex.....Apr. 1, 1902
 When is a Storage Battery Fully Charged.....Aug. 16, 1904
 Wind Pressure on Telegraph Structures, F. W. Jones.....Dec. 16, 1903
 Wire Tables—How to Remember Them, C. F. Scott.....Apr. 16, 1906
 Wireless Telegraphy at Sea.....Mch. 1, 1904
 Yetman Transmitter (Description and Engraving).....Aug. 1, 1903

Books on the Submarine Cable.

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

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

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Some Valuable Telegraph Books.

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

POCKET EDITION OF DIAGRAMS.

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

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

Always a desirable purchase to the student in his profession, it is specially recommended at this time as a peculiarly appropriate gift for the holiday time among telegraph people.

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

PHILLIPS CODE.

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

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

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

The price of the book is \$1 per copy.

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

Of this fine publication, becoming more and more valuable as time passes, we have but a few copies left. The original price was \$5. In order to readily dispose of these remaining volumes, and place them where they rightfully

belong, in the hands of every telegrapher who failed to secure a copy at the higher original price, we have cut the figure to \$1 a volume. On receipt of this amount the book will be sent to any address, express charges to be paid by the purchaser. At this low rate, a sum below the cost of binding the book, no telegrapher who desires to own a copy should fail to obtain one at this time, for this "bargain" price will probably never be repeated.

"The Quadruplex," by William Maver, Jr., and M. M. Davis, still holds its own as a work of authority in its treatment of its subject. A clear analysis of that system of telegraphy is afforded and telegraphers have constant need of the book. There are 128 pages in the volume and 63 illustrations; price, \$1.50.

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

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

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

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

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

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

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

Marvelous Work of a Stone Deaf Operator.

A curious and no less interesting case of recovery from a condition of absolute deafness of a telegraph operator is noted at Portland, Me. Five or six years ago the hearing of Peter A. Foley began to fail, when suddenly about a year ago it left him utterly. His sense of feeling, however, had not deserted him, and adapting himself to changed conditions, practice gradually enabled him to read the message by the sense of feeling alone. Although not able to use the typewriter, his "copper plate" penmanship stood him in good stead. Unable to hear a word of conversation or a click from the telegraph sounder, Mr. Foley successfully worked one of the busiest lines in the Western Union office, the New York wire, reading the messages absolutely and entirely by the sense of touch. His left forefinger was placed lightly on the sounder, and by this medium he became able to write down the messages as accurately and as rapidly as any operator in the office. The call for the Portland office is the letter P, five dots, and Mr. Foley could tell by looking at his sounder when he was being called.

So proficient had he become that he could read slow sounding by simply watching the sounder, although he seldom did this, for he found that his sense of touch restored to him the profession which it seemed almost inevitable that he must abandon a year ago. Although the regular operator at the end of the New York wire knew of the Portland man's misfortune and doubtless favored him sometimes when sending strange or unusual words, Mr. Foley really required no more consideration than any operator, for he read the fastest transmitting without the slightest difficulty, and his record of mistakes in a year was probably as small as that of any other operator in the Western Union office.

Strange to relate, a few days ago, Mr. Foley's hearing was as suddenly restored to him as it was taken away.

Rats Seemed to Know When Current was on.

A curious scientific problem has arisen through the efforts of employees of the Western Union Telegraph Company in a Southern city to electrocute rats.

Several days ago an ingenious telegraph operator conceived an idea of arranging a rat trap in the shape of live wires, baited with cheese and other delicacies supposed to be most tempting to that weird pest, the gray house rat, several of which make their appearance in the operating room of the telegraph office every night.

A piece of board, about a foot wide and a foot and a half long, was secured and to this were fastened several uncovered wires, carrying a current, when charged, of about 160 volts. These wires, about one-half inch apart, covered the board, to which a supply wire was run from the battery room.

Before turning on the current, those making

the experiment placed broken bits of biscuit all over the board, which bait was promptly removed by the rats. Later the current was turned on and the trap rebaited. But not a rat would go on the trap. The sly little animals approached it, then halted and finally scampered off without coming in contact with the wires.

After that the experiment was tried time and again, with and without current. When there was no current the rats would carry away the food, but as soon as the current was turned on they edged around the dangerous board very carefully and cautiously.

Now the question has arisen as to how the rats knew when the wires were charged, and as yet no one has given a conclusive answer.

Another Old Timer Heard From.

Mr. H. P. Bull, of Albion, Neb., who has read, and with evident pleasure, Dr. L. M. Rheem's recent contributions of a reminiscent character respecting the telegraph fraternity as it existed at Omaha thirty years ago, is moved to write to the doctor as follows:

"I was interested in reading your article in TELEGRAPH AGE. I worked with Clif. Mayne at Brookville, Kan., years ago. Two years ago I had a letter from him. He was then interested in quicksilver mines at Joplin, Mo., and I think he is there yet. I also worked with H. A. Bogardus, better known as "Bogy," at Rochester, N.Y., "before the war." He was new at the business then. I taught and made an operator out of Frank B. Knight, in 1862. He was my messenger boy at Geneva, N. Y. I went West and became an agent of the Union Pacific Railway, a position I held for eleven years. While I am older now and a little shaky, I nevertheless can shake the telegraph key a little yet, although I have been without the influence of its spell for a number of years. I was working in the War Department at Washington just before Mr. Edward Rosewater, now editor of the Omaha Bee, left there. Afterwards I followed General Sheridan's corps as field operator in Virginia. I like to hear of the old timers, and your articles have stirred my memory, hence the liberty I take in writing to you."

Changes and Additions in the National Electrical Code.

The April (1906) supplement to the National Electrical Code embodies the changes and additions made to the code as adopted at the December meeting of the Underwriters' National Electric Association. The rules are for use under the rules and requirements of the National Board of Fire Underwriters in the installation of electric wiring and apparatus. The code is, of course, of much importance to engineers, electricians and architects, and in the last semi-annual revision a number of important changes were made under the headings of "Generators," "Grounding Low-

potential Circuits," "Wires," "Switches, Cut-outs, Circuit-breakers, etc.," "Fixtures," "Sockets," "Slowburning Weather-proof Wire," "Flexible Cord," "Flexible Tubing" and "Signaling Systems."

The supplement also contains a list of the manufacturers of the various products which have been approved by the Underwriters' Laboratories, Chicago.

Personal.

"Old Farmer" Lawton, night manager of the Western Union Telegraph Company, at Denver Col., who became by unanimous vote of the convention of Railway Telegraph Superintendents, lately assembled in that city, an associate member of the association, was presented with a miniature telegraph key by a couple of his New York friends, who took advantage of the occasion to tender the little instrument. E. P. Griffith, superintendent of telegraph of the Erie Railroad, and J. B. Taltavall, Editor of TELEGRAPH AGE, figured in the affair, accompanying the gift with a written resolution, expressive of the esteem in which the "Old Farmer" is held in telegraphic circles in New York. The key is a highly-finished production, perfect in its mechanism, and is one of those distributed as a souvenir on the occasion of the banquet tendered to the Old Time Telegraphers' and Historical Association at the Waldorf-Astoria, at its memor-

able meeting in New York in August, 1905.

Mr. E. Payson Porter, of the operating department of the Western Union Telegraph Company, New York, has obtained a leave of absence for the summer, and will pass his entire vacation at his home at Asbury Park, N. J.

Mr. W. Y. Nolley, for the past four years manager of the Postal Telegraph-Cable Company of Texas, at Dallas, Texas, has resigned, to go into business for himself. He has been succeeded by Mr. W. L. Jones, for three years manager of the same interests at Fort Worth, Texas, the management of the latter office being filled by J. W. Gilliam, transferred from Fort Smith, Ark.

Recent New York Visitors.

Mr. H. H. Hall, manager of the Postal Telegraph-Cable Company at Ashtabula, Ohio, who has been spending several weeks visiting his married daughter in Brooklyn.

Sample copies of TELEGRAPH AGE will be sent free to all intending subscribers. Send your name and address.

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Wanted—The address of W. T. Backus and J. P. McCarthy, who were operators in the Oil City, Pa., office of the Western Union Telegraph Company in 1869-70. Address F. A. Stumm, 147 East 21st street, New York.

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

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"This book belongs with the best class of popular scientific literature. While it is strictly elementary, in the sense that it begins with the elements, it nevertheless gives a very comprehensive survey of the entire field of telephone apparatus and construction. * * * In order that the book may be fully comprehended by the beginner the discussion of the telephone proper is preceded by an admirable chapter on the theory of sound and another on the fundamental principles of electricity. While not a 'primer,' the book is thus one which anyone can read if he has enough interest in the subject to try."—American Machinist.

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Further information may be obtained through George R. Brown, secretary Board of Trade, Little Rock, Ark.

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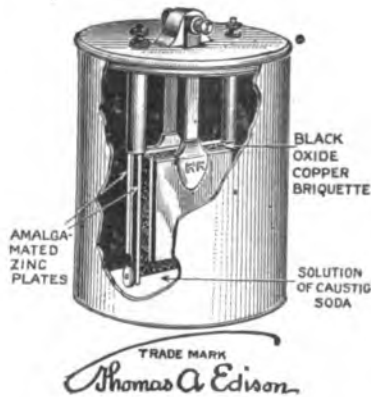
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	<hr/>
Zinc consumed - - - - -	1.450
Zinc consumption calculated from ampere hours - - - - -	1.444
Lost by local action - - - - -	6

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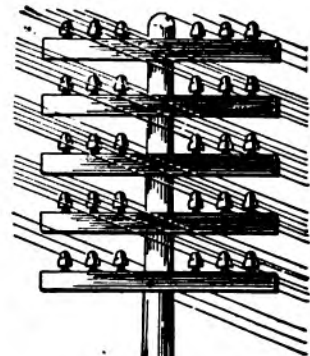
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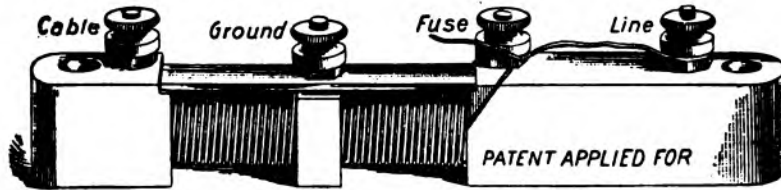
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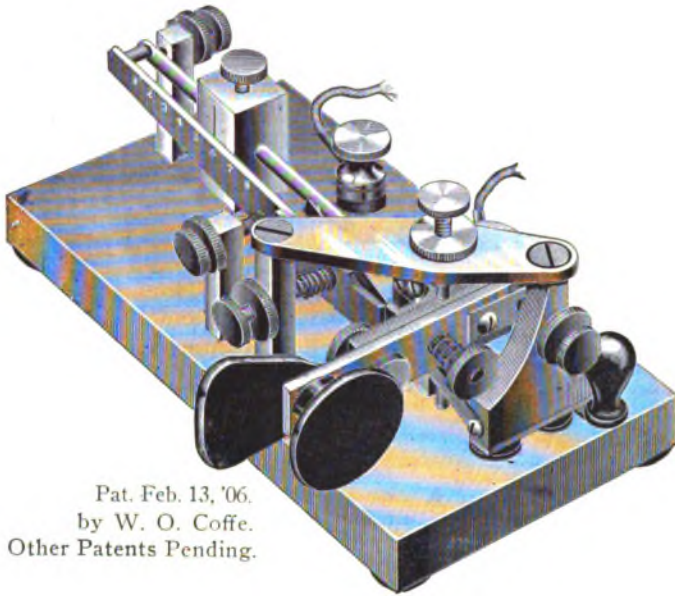
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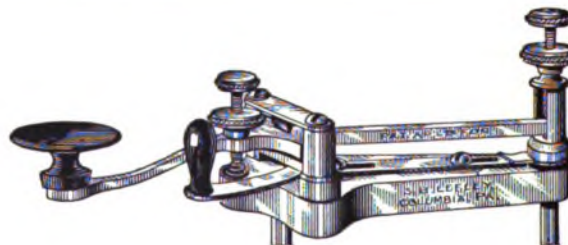
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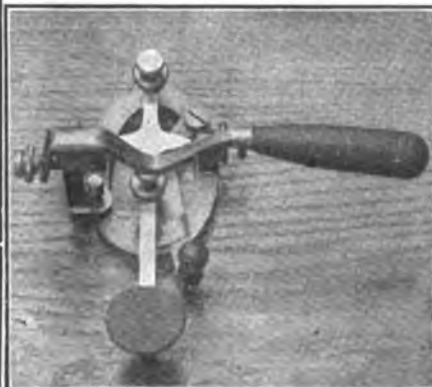
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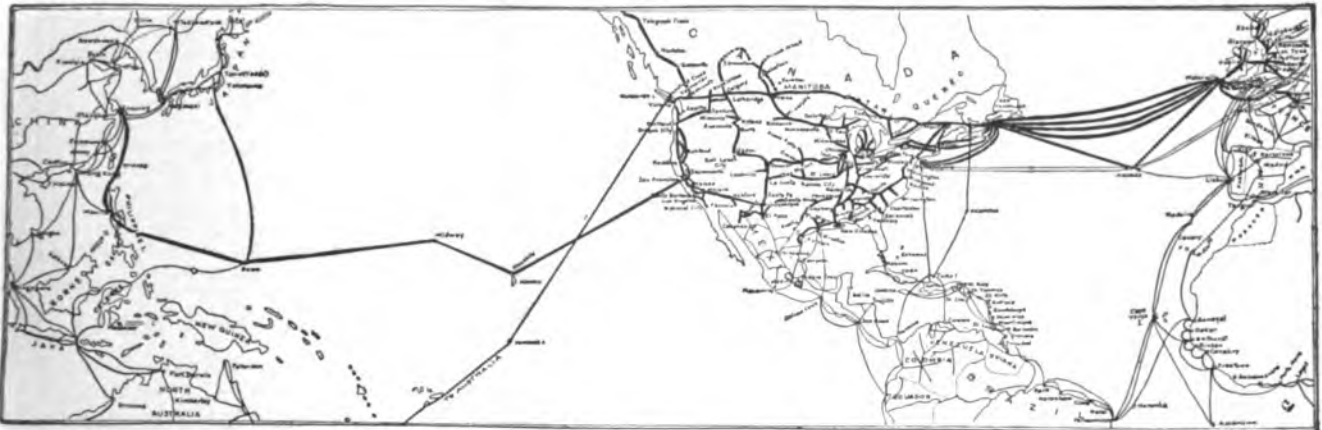
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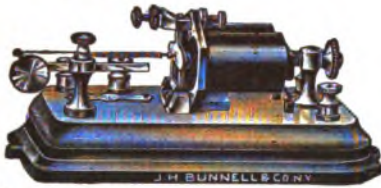
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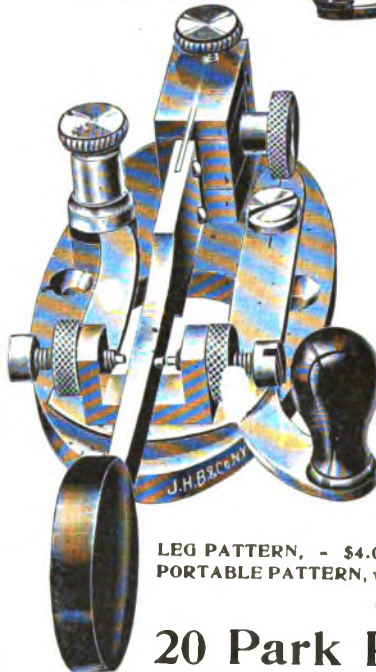
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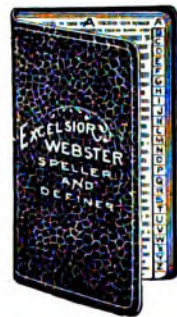
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No. 14.

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SOME POINTS ON ELECTRICITY.

In Three Parts—Part I.

The Loopswitch and Loopswitch Testing.

BY WILLIS H. JONES.

When the great advantages derived through the possibilities of a modern loopswitch and its equipment is considered, the wonder is that early telegraph service could have been even reasonably satisfactory without one. On the other hand, however, the present greater exactions of the public is no doubt due to the ample facilities offered by means of this device and the patrons' knowledge that better service may now be demanded.

As the loopswitch is to be found in large telegraph centers only, there are obviously many who have never seen one and whose knowledge of its use is therefore somewhat limited. For the benefit of all such the following description may be of interest:

The term "loopswitch" is not intended to indicate that this board is made up of loops, or for the purpose of making loop connections only, although the great number of loops proper ending in wedge and cord placed in the board no doubt originally suggested the title.

The modern loopswitch contains not only branch office and newspaper loops, but a great number of repeaters of all kinds, "run overs," intermediate batteries, batteries for testing pur-

poses, connections with the "time clock," office legs, and extensions to the private offices of the various officials of the company. All of these accessories are available when called for, and may be distributed to any main line switchboard or section thereof, or to any multiplex set in the operating department by means of the various extension devices illustrated in the accompanying cut, which appears in "Pocket Edition of Diagrams."

The loopswitch board itself is made up of a great many springjacks arranged side by side in rows, one above another. Each springjack, except those connected with battery and otherwise assigned, is connected with two conductors which end in wedges, as shown by the figures 2 and 3. The wedge end and cord are located in the various main line switchboards throughout the operating department for insertion in the main line circuits as desired. By means of these extensions any loop located in the loopswitch may be extended to any main line switchboard by merely inserting the wedge terminal of such loop in the numbered springjack at the loopswitch which corresponds with the number of the cord and wedge terminating in the main line board.

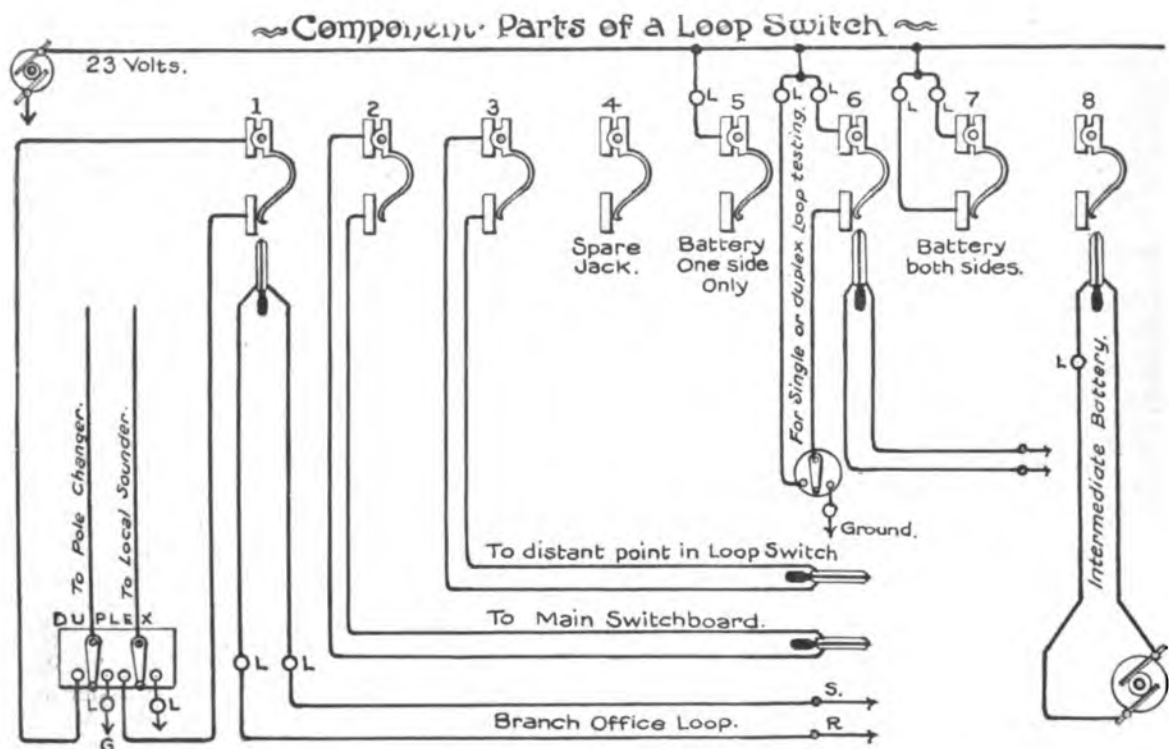
A similar springjack cord and wedge combination, all contained in the loopswitch board, is called a "flip," and is used for the purpose of extending loops from one part of the switch to another, when the loop cord itself will not reach the springjack in which the wedge is to be inserted. One springjack and two conductors are connected with the local three-point switch of each duplex, and to each side of every quadruplex apparatus in the office, as shown by the figure 1. When no loop is assigned to such apparatus the current flows through the resistance lamp joined to the right hand disk, which resistance is made equal to that of the loops. When a loop is inserted in the wedge at the loopswitch, as shown by the figure 1, the multiplex switch lever is shifted from the lamp disk to the one on the left, thereby causing the same volume of current to flow through the branch office loop to the earth at that terminal. Behind the loopswitch board are as many lamp sockets as there are conductors to branch offices. In these sockets lamps are inserted each containing the required amount of resistance that is necessary to build that conductor up to the uniform value of resistance assigned to the desk lamps on the right hand disks. The amount of resistance usually given

to the desk lamps is made approximately equal to that of the longest branch office loops, and the short loops are built up to that value. The object of this uniformity in resistance is to enable the chief operator to provide current for both the desk locals and the various branch office loops from one single source. Thus in a modernly equipped office one dynamo usually furnishes all the current for both branch and desk connections for every multiplex apparatus in the office. The figure 5 shows a springjack in the loopswitch with battery connected to the upper lip only. This battery is available for many different purposes. It is principally used for making up temporary local circuits. For example, should we desire to desk a newspaper or other branch office loop contained in the loop-

The figure 6 shows a testing device with battery on both lips of the springjack possessing the addition of a three-point switch and a ground connection. This device is useful for testing loops both duplex and single. When the switch lever is turned to the left the springjack has battery on both lips, for duplex testing. When the lever is shifted to the right, however, the battery on the underlip is disconnected. Hence an ungrounded or "single" loop will show clear when the disconnection of the ground lamp by means of the lever "opens" the loop.

(To be continued.)

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



switch for the purpose of receiving or transmitting an overflow of matter, the insertion of the desk and the loop cords in such an arranged springjack, with a dummy "ground" wedge underneath, would form a closed circuit and obviate the necessity of borrowing a wire or other close circuit from one of the various main line boards. The figure 7 shows a similar springjack in the loopswitch with battery on both lips. This device is used principally for testing duplex loops, and the voltage of such battery is made the same as that assigned to the multiplex apparatus. It has the advantage of preserving the receiving side closed. When testing loops remaining on the multiplex set, the relay points are liable to open and interfere with one's test, should conversation be attempted on that side of the loop.

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—Com-

parative Efficiencies of a Polar and a Neutral Relay, June 1;
Influence of Weather on Static—An Electrical Phenomenon, June 18;
Induction Leakage, Crossfire, July 1.]

THE INFLUENCE OF WEATHER ON STATIC.

Editor TELEGRAPH AGE:

Supplementing my letter published in your issue of June 1, regarding the remarkable phenomena of the dusty deposit observed on wires attached to walls and ceilings, I enclose these photographs taken by me in a warehouse in New York city. You will notice the difference between the two wires, one being sharply defined, whereas the other side of the circuit is blurred, caused by the dusty deposit on it and the ceiling. These three photographs were taken at widely separated parts of the same building, one in the office, one in the hallway and the other in a room used for packing cotton goods. In each case it is the ground wire which is the clean one.

WALTER M. PETTY,
City Electrician.
Rutherford, N.J., July 8.



Business Notice.

The Simplex Company of Salt Lake City, Utah, advertise in another column Leiser's Simplex Telegraph Transmitter, of which they are the manufacturers. This transmitter, which is one of the newer devices of like character, has apparently been thoroughly tested as to its capabilities before being offered on the market. Exhaustive and successful trials on all kinds of circuits in the Salt Lake Western Union telegraph office, covering a period of six months, are offered in evidence of its utility. For four months it was used constantly on the Chicago-Salt Lake local with reported signal success, like results also having been obtained on the San Francisco-Salt Lake local. Regarding the speed and adjustment of this instrument, this statement is made: "A weight is moved to and from the armature axis for speed. The contacts for making the signals are so arranged that they come together with a sliding or lapping motion; (adjustable, so that either heavy or light sending may be sent out, irrespective of speed); i. e., either heavy or light sending, on either a fast or slow speed—neither of

which conflicts with the other. The latitude of adjustment is unlimited, working equally satisfactorily on a single wire, quadruplex, duplex, through innumerable repeaters, or a weather-bound wire."

The company is now prepared to furnish these instruments, the price of which is \$15, in any desired amount, and invite correspondence, whether in regard to purchase or of inquiry more fully respecting the device.

Municipal Electricians.

The eleventh annual convention of the International Association of Municipal Electricians, will be held at New Haven, Conn., on Wednesday, Thursday and Friday, August 15, 16 and 17. The following papers will be read: "History of the Fire and Police Telegraph," by Adam Bosch, Newark, N. J.; "Details of Certain Auxiliaries to Fire Alarm Apparatus," by J. B. Yeakle, Baltimore, Md.; "Advisability of Protecting Municipal Electricians by the Civil Service Laws," by Jerry Murphy, Cleveland, O.; "Comparison of Underground and Overhead Wiring, and of the Relative values of Single, Rubber covered Wire and Lead Incased Cable for Underground Construction," by W. H. Thompson, Richmond, Va.; "Conditions Surrounding the Inspection of Wires in the Southwest, (with Special Reference to the Advisability of one Inspector Completing each Inspection instead of several Inspectors each doing a part of it.," by Clarence R. George, Houston, Tex.; "Question Box," by Walter M. Petty, Rutherford, N. J.

Among the deaths in the wreck at Salisbury, England, early Sunday morning, July 1, of the boat train running from Plymouth to London, and conveying passengers from the American line steamer New York, were Louis Cassier and John E. McDonald, both of New York. Mr. Cassier, who was forty-four years of age, was the publisher of the magazine bearing his name and of Electrical Age, a journal which was started originally by the publisher of TELEGRAPH AGE, and successfully conducted by him for a number of years. Mr. McDonald, who was but thirty-five years old, was an active young business man in the telephonic and telegraphic field. He was president of the Boston and New York Telephone and Telegraph Company, president of the Knickerbocker Telephone and Telegraph Company, treasurer of the Massachusetts Telephone and Telegraph Company, treasurer of the Telephone, Telegraph and Cable Company of America, and president of the Thomson Hill Land and Improvement Company.

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

Personal Mention.

Mr. Emmett Howard, formerly manager of the Western Union Telegraph Company, at Memphis, Tenn., and who now is engaged in the insurance business at Tampa, Fla., going to that point almost an invalid from bronchitis in January last, has wholly recovered his health.

Mr. William H. Young, night manager of the Western Union Telegraph Company, at Washington, D.C. and president of the Old Time Telegraphers' and Historical Association, is taking a brief vacation among the mountains, whither he has gone for a rest after the arduous duties performed in connection with the long session of Congress.

Mr. W. H. Adkins, the well-known old time telegrapher, of Atlanta, Ga., traffic chief of the Southern Bell Telephone and Telegraph Company at that point, has been advanced to the position of general sub-license agent of his company. Since his connection with telephone interests his advancement in that service has been rapid. Mr. Adkins' fine abilities are receiving deserved recognition, and his many telegraph friends rejoice at the success that has attended him in his present field of occupation.

The Cable.

Cables interrupted July 12, 1906:

Venezuela,	Jan. 12, 1906
Messages may be mailed from Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902

Capt. R. G. Halpin, of the cable steamer "Britannia," died on June 8, at Falmouth, England. Capt. Halpin entered the Eastern Telegraph Company's service in December, 1888, and was at the time of his death only thirty-seven years of age. He was well known in cable circles throughout the world.

It is stated that the Storting of Norway has accepted a proposal of the director of telegraphs of Germany for the laying of a cable between Germany and Norway to unite Cuxhaven and Arendal. The Norwegian Government is to subscribe about 1,500,000 francs towards the cost of the work. It is stated that the telegraphic rate between Norway and Germany will be reduced.

The new cable steamer "Cormorant," built for the Western Telegraph Company, was launched at Paisley, Scotland, June 7. The new vessel is a strongly-constructed single-screw steel steamer built throughout to Lloyd's highest requirements. The machinery is placed amidships and is of triple expansion type, with usual auxiliaries. Forward and aft of machinery space large cable tanks are fitted. The bow gear is neatly wrought into the fiddle bow, and a steam cable winch is fitted forward, also a special steam winch aft. The decks and woodwork throughout the steamer are of teak.

A complimentary dinner was given at Shanghai in April by the American Association of China to the vice-president and general manager of the Commercial Pacific Cable Company, Mr. George Gray Ward, of New York. Forty-six sat down to table, half being guests. The president of the association, Dr. Gilbert Reid, presided at one end, and the Consul-General for the United States, Mr. James L. Rodgers, presided at the other. The object of the event was to celebrate the completion of the new Pacific cable. Mr. Ward is in Japan at the present time.

Recent Telegraph Patents.

A patent, No. 824,031, for a telegraphic transmitting key, has been obtained by Isidor Kitsce, Philadelphia, assignor of one-half to William J. Latta, Philadelphia. In combination with a line of transmission are a transmitting key embracing a main lever connected to the line, a contact lever on each side of the main lever connected each through stationary contacts with the ground, stationary contacts connected to sources of current and means whereby through the movement of the main lever the line is connected to one or the other of the sources.

The following patent has expired:

No. 406,406, for a telegraph pole, issued to C. M. Russell, Bowling Green, Ky.

Resignations and Appointments.

The following change has occurred in the Western Union Telegraph Company's service:

Mr. A. H. Krum has been advanced from the position of operator to be manager of the office at Ithaca, N. Y., vice J. A. Casterlin, resigned on account of ill health.

Another Stone Deaf Operator.

Editor TELEGRAPH AGE:

The item in TELEGRAPH AGE of July 1, referring to the "Marvelous Work of a Stone Deaf Operator," recalls another similar case. During the year 1858 or 1859, an operator named Hoffman, familiarly known as "Dummy" Hoffman, employed in the Washington, D.C., office of the American Telegraph Company, although stone deaf, worked the heaviest wires without the slightest difficulty by placing his feet against the table legs. If any one stamped on the floor it would cause him to break and swear. He could also understand everything that was said by the motion of one's lips. He afterwards worked in the Mobile, Ala., office, dying some time after the Civil War was over.

WILLIAM H. YOUNG.

Washington, D.C., July 4.

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

Western Union Telegraph Company.**EXECUTIVE OFFICES.**

Among the recent executive office visitors were Mr. Charles F. Annett, manager of the New Haven, Conn., office.

Mr. B. F. Woodward, now a prosperous resident of Denver, Col., for over thirty years a prominent figure in telegraph circles in the West, was also a recent visitor. Mr. Woodward was an operator in New York in the early fifties.

Mr. W. J. Lloyd, assistant superintendent at Chicago, Ill., sailed from New York on the steamer Caledonia for Glasgow on June 30. Mr. Lloyd was accompanied by his wife and two children, and will be absent about six weeks.

Mr. W. N. Fashbaugh, electrician of the Eastern division, has returned to his office after an absence of some weeks spent at the North Sydney, Cape Breton, cable station, whither he went to install a storage battery system, dynamotor and dynamo plants and an oil engine equipment.

Mr. A. J. Brown, formerly foreman of construction of this company, and well-known in line construction departments, died on July 2. His funeral, which occurred on July 4, was largely attended by members of the telegraph fraternity.

Mr. F. O. Nourse, general inspector of the Southern division, Atlanta, Ga., has been promoted to the position of assistant superintendent under Mr. J. R. Terhune, with headquarters at Nashville, Tenn. Mr. Nourse's abilities in the telegraphic field were made clear when he was associated with the New York office. Since he has been in the South his advancement has been steady and is a further recognition of the capacity of the man.

Postal Telegraph-Cable Company.**EXECUTIVE OFFICES.**

At a meeting of the Executive Committee of the Postal Telegraph-Cable Company, held on July 3, the resignation of Mr. Edgar C. Bradley as second vice-president and as a director of the company, the same to take effect July 1, was received and accepted only upon Mr. Bradley's assurance that he regards such course as his best interest, and with the understanding that Mr. Bradley shall act in an advisory capacity until August 1. A resolution was adopted by the committee expressive of regret at the retirement of Mr. Bradley after nearly fifteen years of efficient and faithful service in behalf of the company, coupled with the hope that his prosperity and happiness in the future might be assured.

The retirement of Mr. Bradley necessitated a shift of officers, and changes were effected as indicated by the election of the following-named gentlemen:

Mr. George G. Ward, second vice-president, vice Mr. Bradley; Mr. Charles C. Adams, third vice-president, vice Mr. Ward; Mr. Charles P. Bruch, fourth vice-president, vice Mr. Adams, and a member of the executive committee, and

Mr. Thos. E. Fleming, assistant secretary, vice Mr. Bruch.

The committee assigned to Mr. Adams the duties formerly discharged by Mr. Bradley; to Mr. Bruch the duties formerly assigned to Mr. Adams, with the understanding that Mr. Bruch shall continue to be and to perform the duties of assistant general manager, and to Mr. Fleming the duties of assistant secretary, with the understanding that he shall continue to be and to perform the duties of special agent.

Mr. F. J. Kernan was appointed traveling auditor of the company, and charged with the duty of making direct examination of office accounts under the direction of the auditor. Mr. Fleming will continue under the direction of the general manager to report on the general condition of offices and to adjust all defalcations as heretofore.

Charles C. Adams, who has been elected third vice-president of the Postal Telegraph-Cable Company, has passed his entire career in the telegraph service. He is a native of Freeport, Pa., is in the prime of life and will reach his forty-



CHARLES C. ADAMS.
Third Vice-President Postal Telegraph-Cable Company.

eighth birthday on August 13 next. His entry into the Postal employ dates from February, 1884, when he was appointed manager of the Philadelphia office, from which he was promoted to the superintendency of the district in 1886. In 1902 he was transferred to Atlanta, Ga., there becoming general superintendent of the Southern division. He was called by his company in 1904 to fill the position of fourth vice-president at New York, then a newly-created office. Mr. Adams is a fine executive officer and possesses a wide and practical knowledge of the telegraph business.

Charles P. Bruch, who becomes fourth vice-president of the Postal Telegraph-Cable Company, has been identified with the Postal company since June, 1891, entering that service as assistant to the vice-president. On January 1, 1893,

he was made assistant secretary, and since September 22, 1898, has also filled the responsible office of assistant general manager. Mr. Bruch is a native of Louisville, Ky., where he was born April 20, 1860, although subsequent years of



CHARLES P. BRUCH
Fourth Vice-President and Assistant General Manager Postal Telegraph-Cable Company.

his early life were spent at Canton, Ohio, where he learned to telegraph, and was first employed as an operator just twenty-eight years ago. A large part of Mr. Bruch's business life has been passed in telegraph and collateral business. He has sturdily worked his way and earned advancement by skilled knowledge of his avocation. His management of various departments has been marked by conscientious devotion and intelligent method.

Mr. Thomas E. Fleming, who has just been made assistant secretary of the Postal Telegraph-



THOMAS E. FLEMING
Assistant Secretary and Special Agent Postal Telegraph-Cable Company.

Cable Company, was born in Ireland forty-six years ago. He began his business career as a

messenger in the Western Union Telegraph Company shortly after the removal of that company to 195 Broadway. The advantages of an excellent common school education told in young Fleming's behalf, for he speedily received promotion, first serving as a clerk in the cable department, later going to the French Cable Company, afterwards to the American Union Telegraph Company and the American Telegraph Cable Company, while subsequently serving for a brief term in the superintendent's office of the Western Union Telegraph Company. After a further career of several years, both in and out of the telegraph service, during which time he served as chief clerk, first in the operating department in the Baltimore and Ohio Telegraph Company, New York, he afterwards was employed as chief clerk under W. J. Dealy, when that gentleman was manager of the operating department of the Western Union Telegraph Company. Mr. Fleming served from 1888 to 1897 as secretary of the Telegraphers' Mutual Benefit Association. At the latter date he entered the employ of the Postal company, June 1, 1897, as chief clerk in the general manager's office. He was appointed special agent of the company in 1899. His close knowledge of the details of the business of the Postal company well fit him to undertake the additional work in connection with his old duties that will come under his charge in the dual capacity of special agent and assistant secretary.

Mr. Felix J. Kernan, who was appointed traveling auditor of the Postal Telegraph-Cable Company, is a typical product of that company. He was born in Brooklyn, N. Y., May 28, 1876, and entered the Postal service in June, 1894, as clerk in the service department. From this position he was advanced in February, 1895, to a clerkship in the office of the then general superintendent, J. H. Emerick, where he remained for two years. Thence from February, 1897, to January 1, 1902, he was employed as a clerk in Vice-President Bradley's office, subsequently and to date occupying the post of chief clerk to Mr. Edward Reynolds, auditor of the company.

Mr. Charles C. Adams, third vice-president of the company, has transferred his office, and now occupies the room lately vacated by Mr. E. C. Bradley, second vice-president, resigned; while Mr. Thomas E. Fleming, special agent and assistant secretary, has taken possession of Mr. Adams' former apartment.

Mr. Jesse Hargrave, electrician of the Southern division, Atlanta, Ga., will soon be transferred to New York in a similar capacity. The vacated office at Atlanta will be filled by Mr. J. P. Edwards, now chief operator at Augusta, Ga.

Mr. C. A. Garland, manager at Mobile, Ala., has been appointed acting superintendent of the Eighth District Southern Division, with headquarters temporarily at Atlanta, Ga. Later he will be established permanently at Memphis, Tenn.

Mechanical Morse Transmitters.

BY FRANCIS W. JONES.

The motions required to be made by the telegraph key are made known to the central nervous system of the operator through the medium of sight, and via a set of motor nerves, to the muscles of the arm, hand and fingers which move the key automatically in response to the nervous impulses received from the brain, and at the same time all such motions, including the temperature, roughness of the key knob, etc., are instantly telegraphed back from the finger tips to the central nervous system by a separate set of sensory nerves.

In the use of the keyboard transmitter, the depression of a key by a finger, determines the electrical transmission of the necessary Morse characters to form the letter attached to the key. Here we have a departure from the physiological actions involved in using the Morse key. After the central nervous system, through the eyes, has been informed of the letter required to be transmitted, the eyes must guide a finger to the key, on which the letter is marked, and then one single downward motion of the finger on the key is brought about through the motor nerves and muscles.

The modus operandi of the so-called mechanical transmitters known as Vibroplex and Mecograph, is different from either the Morse key, or a keyboard transmitter. In the mechanical transmitter the key or lever has a slight motion from a central or open position, to the right to transmit dots, and to the left to transmit dashes. When moved to the right, a vibrating supplementary lever opens and closes the circuit with regular periodicity (which can be regulated in advance) making dots, and the number of dots transmitted depends upon the length of time the operator holds the lever to the right.

Thus the letter E (one dot) is the shortest time required, and the figure six (six dots) is the longest time. The dashes are transmitted when the lever is held to the left, the letter T the shortest dash, and the figure naught (o) the longest dash. In transmitting the letter B (one dash and three dots) the lever is held a short time to the left, and immediately swung to the right, and held long enough for three dots to be transmitted, and then is restored to the central point.

In this manipulation the use of the ear becomes indispensable to enable the operator to determine the length of time the lever should be held to the right to produce the proper number of dots for the desired letter.

An operator can readily put his hand through an aperture and manipulate a Morse key, without seeing or hearing the instrument, although it is always customary and desirable in practice to have the key operate a sounder near the sending operator as a guide to the ear.

The keyboard transmitter cannot be operated through the sense of touch alone, the eye is ab-

solutely necessary, unless the operator has become so expert and accustomed from long use to the keyboard that it has become indelibly pictured upon the mind, and the fingers are thus enabled to reach the required keys by a delicate sense of location and touch but little short of instinct. Thus an expert sender can work blindfolded, if the matter to be sent were stored in the memory, but with no assurance of accuracy, unless a sounder were employed to inform the ear.

In transmitting the alphabet by the Morse key, seventy-seven motions or cycles by the hand and fingers are necessary; by the mechanical transmitter fifty-three, and by keyboard, twenty-six; the latter may be divided between right and left hand.

In a day's work it is probable that the motions of the hand would average: Morse, 100 per cent.; mechanical, 70 per cent., and keyboard, 33 per cent.

The long continued use of the fingers and arm, subject to a limited vertical motion, becomes wearing upon the nerves and muscles involved in the use of the Morse key, and sooner or later, according to the general health and strength of the operator, results in numbness of the hand and loss of grip.

The Morse key signals, by a strictly first-class operator in prime physical condition, are not equaled for good carrying quality by any of the present mechanical transmitters in the hands of ordinary operators. Like piano players, there are but few Morse sending operators who rise above mediocrity, and produce a uniformly rapid and firm touch of the circuit contacts of the key. If prizes were given for the best Morse sending, over long circuits, such as between New York and Chicago, or Chicago and San Francisco, it would be of great advantage to telegraph companies, but the prizes at present given for "spurt efforts" on local circuits in a tournament hall serve no useful purpose.

Long ocean cables and transatlantic overland lines have for some time been advantageously operated by Wheatstone automatic transmitters. It is found that with a prepared tape that causes the signals to pass into the cable or line with unvarying speed and precision, as to duration of electrical impulses, and spaces between them, that more messages can be received upon the recorder in a given time than can be done when the sending is manual by the very best operators.

In Morse key sending, the right arm and hand rest on the table and the fatigue is reduced to a minimum. It would greatly prevent the loss of grip if two keys were used alternately, one by the right hand and the other by the left.

The keyboard transmitter, in the most perfect form, is capable of sending into the line uniform signals, so far as each individual letter is concerned, but the spacing of letters and words, and utilizing the time on the wire to the greatest advantage, depend on the expertness and endurance of the operator. Many good receiving

operators dislike the stiff machine character of the signals, claiming them more tiresome than good key signals. The great increase of unfamiliar cabalistic cipher words, has rendered their repetition by the sender a necessity, and the key sender slows down to the capacity of the receiver and repeats, but the keyboard machine, geared to do rapid work, cannot slow down, so the nervous strain on the receiving operator is very great. Both arms and hands of the keyboard manipulator have to be used the entire day without any support, and the left hand is not available for the very necessary numbering and timing of messages; and besides this, his eyes have to be making excursions backwards and forwards between the message being transmitted and the keyboard, so that it occasionally happens that the eyes return to the wrong word or line of the message.

A mechanical transmitter well made, and accurately adjusted, in the hands of a first-class operator who has thoroughly mastered its action is capable of producing satisfactory signals, but it is found in practice that there are but few operators who can manipulate this instrument, which depends on a good ear, steady nerves, and an accurate estimate of time, to produce satisfactory signals. The tendency in most cases is to allow the lever to return to zero too quickly, thus shortening the duration of the last dot, or dash, as the case may be, so that the chiefs at repeater stations complain of the difficulty of passing the signals made by ordinary operators upon such machines. This clipping of signals is often aggravated by poor adjustment of the moving parts, which do not permit the last dot in a letter to be made as firmly as the first dot, and the dots not so firmly as the dashes, and there exists the same disadvantage in the transmission of cipher words as has been mentioned in connection with the keyboard machine.

Wireless Telegraphy.

The delegates of the United States to the International Wireless Telegraph Conference in Berlin, to be held October 10, will be General James Allen, Rear Admiral H. N. Manney and John I. Waterbury.

The DeForest Wireless Telegraph Company has appealed to the recorder's court in Quebec, Quebec province, against an assessment for \$1,000 personal tax for its business in Quebec city. The company argues that as it does not use any poles or wires, like the other telegraph companies, it is not liable for the tax.

The Dominion Government has been asked to establish wireless telegraph stations between Atlin, B. C., and Quesnelle, Yukon Territory, about 1,200 miles. This portion of the Yukon telegraph line is subject to frequent interruption during the winter, and is a source of great expense for repairs, etc. The Minister of Public Works has promised to have a report prepared as to the cost.

A patent, No. 824,682, for a method of practicing wireless telegraphy, has been awarded to André Blondel, Paris, France. The method of wireless telegraphy consists in producing at one or more transmitting stations electromagnetic waves in groups of different predetermined frequencies and actuating at one or more receiving stations signal-receiving instruments each selectively with one of the different transmitted group frequencies.

A patent, No. 824,676, for a wireless telegraph system, has been granted to Harry Shoemaker, Philadelphia, Pa., assignor to Marie V. Gehring, Philadelphia, and International Wireless Telegraph Company. In a wireless signaling system are an aerial conductor, an earth connection, wave-responsive devices connected in parallel with each other and connected to separate condensers between the aerial conductor and earth connection, and a local circuit including the wave-responsive devices connected in series with each other.

Book Review.

"The Management of Electrical Machinery" is the title of a thoroughly revised and enlarged edition of the old standard work of "The Practical Management of Dynamos and Motors," written by Prof. Francis B. Crocker and Dr. S. S. Wheeler. Since the appearance of the original edition of this work in 1892, one complete revision of the book has been made and corrections introduced from time to time. The rapid progress of electrical engineering has brought about changes so radical that another thorough revision became necessary. This is exemplified in the present edition, and the volume now in hand offers to its old readers and new, an up-to-date expression of its subject matter than which there is nothing superior offered. To the telegrapher it affords a clear understanding of the use, care and operation of motor generators and other appliances, important adjuncts of a well equipped modern telegraph office.

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General Mention.

Mr. E. H. Millington, superintendent of telegraph, Michigan Central Railroad, Detroit, Mich., in a recent letter writes: "TELEGRAPH AGE becomes of more interest and value each year."

Mr. E. C. Davis, of the Western Union Telegraph Company, Dallas, Tex., has accepted the position of manager of the relay office of the San Pedro, Los Angeles and Salt Lake Railroad, at Salt Lake City, Utah.

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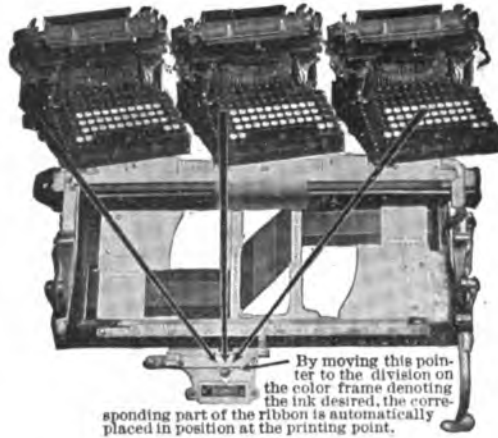
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NEW YORK, JULY 16, 1906.

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

The retirement of Mr. Edgar C. Bradley from the position of second vice-president and as a director of the Postal Telegraph-Cable Company, noted fully in another column, has made way for the promotion of several of the higher executive officers of the company. The readjustment of forces thus effected, which tends to consolidate and impart additional strength to the company management, is made in accordance with the well-known policy adopted by the Postal company of advancement from within its own official staff, and is accordingly considered as a recognition of meritorious services. The Postal is a well officered company, the executive staff being made up of long experienced and well-trained telegraph men, harmonious in thought and purpose of action, who possess a fundamental, comprehensive and intelligent grasp of the great property interests they are called upon to administer.

The telegraphic tournament held at Boston, in Tremont Temple, on June 29, presented a warm contest in the telegraphic arena, and resulted in bringing a number of new names to the front of speedy operators to divide and share honors with the experts who in the past have gained eminence and reputation at the key. While the speed attained did not equal that achieved at former tournaments, the beauty and perfection of the quality of the all-round work performed has never been excelled. The affair was admirably conducted, reflecting credit only upon those who had it in charge, and from a financial standpoint it was also a success. A full account of the tournament will be found in another column.

The point raised some time ago by Attorney John N. Sebrell, Norfolk, Va., counsel for the Postal Telegraph-Cable Company, that all suits against telegraph companies on the statutory penalty of \$100 for failing to deliver a telegram, should be tried in the Corporation Court and not in the Court of Law and Chancery, as has been the custom, has been decided adversely by the Court of Appeals. The case came up on a writ of prohibition to prevent Judge W. B. Martin trying a certain case against the Postal company. The upper court held that the suits had not been improperly brought in the court of law and chancery.

Honesty of Telegraphers as a Class.

In view of the frequent disclosures of dishonesty in the business and political world, including flagrant instances particularly affecting persons and offices of high repute, as well as of the low moral tone so prevalent as to "graft" in general, the question has been asked by a correspondent, not unnaturally, perhaps, regarding the honesty of telegraphers as a class. We welcome the inquiry for it affords us a suitable opportunity to make clear the real status of the telegrapher in this respect. When one considers the large number of persons employed in this country who depend upon the telegraph for a living, we believe the fidelity of this great body to employing interests will compare most favorably with any other equal number of men of corresponding intelligence and capacity. While the very nature of the telegraph business precludes the payment to employees of what may be termed a generous compensation, even to those holding positions of special responsibility, when measured by the remuneration obtainable elsewhere in other lines of occupation, the records show, nevertheless, but comparatively few lapses from official uprightness of those in telegraph employ. It is not alone that managers and others, who have the handling of money are faithful to the trust reposed in them, but the operating forces have likewise proved themselves honorable and high minded so far at least as their company covenants are regarded. The aspersions that are sometimes wantonly placed upon the operator

affecting his probity of character so far as furnishing information relative to the contents of messages is regarded, with which necessarily he is familiar, are not warranted by the facts, and when irresponsible, uninformed or unscrupulous writers in the daily press so charge, they should be severely rebuked. It is an incident of rare exception when a manager is short in his accounts or an operator betrays obligations imposed by his company. While, of course, honesty should be observed everywhere and under all circumstances; and while it may truthfully be said that to maintain such conditions is but adhering to the plain path of duty, telegraphers after all are but human, like other mortals, and the fact that as a distinctive body they do not yield to temptation in the particulars cited, is a very gratifying reflection to say the least.

Sterling honesty of the old-fashioned type that knows no guile; that presents a face of flint like adamant in the presence of temptation, is a resisting force that will carry one through successfully in the hour of peril. To allow oneself to be placed under temptation, whether because of carelessness in the individual or through lack of proper business methods, is to invite moral disaster.

For the honor of the telegraph in which so many of us entertain abiding hope for its continued welfare, we may be permitted to remark that all within its service, especially those holding positions of trust, may hold only to lofty ideals of moral rectitude.

The Military Telegraphers' Pension Bill in the House.

Editor TELEGRAPH AGE:

Under the above caption in the editorial column of TELEGRAPH AGE of June 16, there appears a letter from Hon. Cyrus A. Sulloway to Mr. F. A. Stumm, wherein appears the following paragraph: "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." Mr. Sulloway could not have had in mind Senate bill 2165, which has been in the hands of his committee since February 12, for he is too honorable a man to entertain such views on that bill and then not ask for its reference to the proper committee. That bill which interprets or rather emphasizes the soldier status as provided for in the act of January 26, 1897, was prepared and reported by the pension committee of the Senate and unanimously passed by that body, is a pension measure pure and simple.

After Mr. Sulloway's letter appeared in TELEGRAPH AGE, the Hon. Sereno E. Payne, chairman of the committee on ways and means, and floor leader of the House, was asked to have a reference made of the bill, to which he responded on June 21 as follows: "The bill you speak of does not belong to the military committee and they would have no jurisdiction. It does belong

to the committee on invalid pensions, and you will have to abide their action." Next to the Speaker, who referred the bill, there is no higher authority on the subject in the House than Mr. Payne. The committee on invalid pensions has been almost submerged with private pension bills, and has not had the time to consider general measures, of which the military telegraphers' pension bill is one. Many of its members are in favor of the bill, while the floor of the House is covered with members who are ready to advocate its passage whenever Mr. Sulloway can find the time for his committee to act. It seems that this long delayed act of justice of as brave a soldiery as ever existed in any army awaits only Mr. Sulloway's action, and I have too much confidence in his patriotism to believe that he would willingly or knowingly place himself as a barrier to prevent justice being done to any one who in the Civil War aided in making this a nation and in laying the foundations of the great prosperity and progress this country is now enjoying.

WILLIAM BENDER WILSON.

President of the Society of the United States
Military Telegraph Corps.

Holmesburg, Philadelphia, Pa., July 9, 1906.

Old Time Telegraphers' and Historical Association.

In response to the request made by Mr. William H. Young, of Washington, D. C., president of the Old Time Telegraphers' and Historical Association, who called on the private secretary of President Roosevelt in regard to the appointment of a day when the latter could receive the delegates to the Old Timers' convention which is to meet at Washington, D. C., on October 9, 10 and 11, President Roosevelt said that it would afford him much pleasure to extend a welcome to the telegraphers. Admission to the White House on this occasion will be by ticket. Mr. Young states that the date named by the President was October 10 at noon.

Mr. Young also says that he is greatly encouraged in the work accomplished by the various committees in arranging for the entertainment of the Old Timers next October, and that the meeting promises to be an exceedingly interesting one. No doubt now that President Roosevelt has assigned a time to receive the telegraphers this will prove an additional attraction and draw to the National Capital a large number of old time telegraphers residing at distant points.

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

The International Telegraph Tournament at Boston.

BY F. M. MCCLINTIC, OF NEW YORK.

David Jaquith Ellington, not yet twenty-two years of age, and eight years a telegrapher, won the championship for all-round work in Boston, Mass., on Friday, June 29, after some close and exciting finishes. To prove his right to the title, Ellington, who had been in but one previous tournament, was forced to compete with veterans of every grade of telegraphic work, and even his most intimate associates did not feel that he possessed the experience and stamina to finish first. The Boston tournament was held primarily for the purpose of completing a fund for the endowment of a telegraphic bed in one of the Boston hospitals. The end in view was achieved. Not only that, but one of the most successful tournaments ever held was enjoyed by the participants and a goodly audience which filled Tremont Temple from the opening of the railroad classes at 2 o'clock Friday afternoon un-



SIDNEY F. SHIRLEY.

Manager of the International Telegraph Tournament, Boston, Mass.

til the last dot had echoed from the sounder when Charles Edney closed his key in the straight Morse sending class at 2 o'clock Saturday morning. Sidney F. Shirley, who managed the details of the tournament, is deserving of especial mention for the astute manner in which he handled the multitude of duties to be performed. President James J. McGarty and Vice-President Michael J. Reidy were ever present, seeing to it that every visitor was properly taken care of and every contestant was made to feel that the Boston committee had a personal interest in his welfare. The arrangement of Tremont Temple for the tournament—the separate practice rooms fitted with every conceivable instrument, through the courtesy of Superintendent E. B. Pillsbury of the Postal Telegraph-Cable Company, J. P. O'Donohue, one of the electricians of the same company; the absolute privacy of the judges'

room, and the placing of tables and telegraph apparatus on the stage—was, in the judgment of a telegrapher who has had an active part in the last five tournaments, equal, if not superior, to any. In such contests, there is bound to be great rivalry. Every contestant cannot win—no matter how great may be his ability—and there is always dissatisfaction of some sort. In Boston it was different. The judging was excellent, and those hard-working gentlemen were repaid in a measure for their labors by hearing a variety of Morse that ranged from the swiftest "OS" to the classic rhythm and speed of the winner. There was not a breath of complaint from any contestant; indeed, there was nothing but praise, and everybody seemed to be working with a will for the success of the affair and the endowment of the hospital bed. Among other entertainments that were afforded the visitors, many of whom came from Pennsylvania, New York, Kentucky, the New England and other states, was a trip down the bay on a city tug, greatly through the kindness of Mayor Fitzgerald, who also graced the tournament with a most gracious speech of welcome. The Mayor was introduced by Master of Ceremonies Reidy, who took occasion to pay a pleasant tribute to His Honor, and prove that he (Reidy) is an orator of the first rate, as well as an excellent telegrapher.

Various telegraphic devices were exhibited and their merits passed upon by the visitors. George W. Conkling, general manager of the Delany Telegraphic Transmitter Company, New York, occupied a suite of rooms at the Quincy House, headquarters for the visiting contestants, where he held open house and demonstrated the new "Auto-Dot" to the satisfaction of the critical. Samuel B. Lefley, of Columbia, Pa., inventor of the "Lefley key," which has gained wide popularity among telegraphers of all classes, was present demonstrating his invention, which was highly praised. P. J. Faulkner gave a demonstration with the Vibroplex, manufactured by the United Electrical Manufacturing Company, of New York, just before the close of the tournament, and his work was applauded.

The work of George W. Conkling (who went to Boston at the invitation of the tournament committee) in sending to the classes in straight Morse and Phillips Code, proved that added years have not in any way affected the beautiful precision of dots, dashes and spaces that have won for him praise and prizes in every tournament with which he has been identified. Mr. Conkling used the Lefley key. The only surprise was that every receiving copy was not perfect. The receiving classes were so well filled that each had to be divided into two squads, and Conkling thus sent the 350 words straight press twice and the 500 words of Phillips Code twice. At no time did he exceed forty words per minute in the straight Morse class, and under ordinary conditions perhaps not a single man of the nineteen

entries but that could have copied the perfect sending with a pen. The heat was terrific, however, and perhaps it accentuated the stage fright with which even the old-timer is sometimes affected.

The results follow:

Railroad, Class A.—Sending twenty ordinary railroad messages, each contestant being permitted to follow the custom of the system by which he is employed: First prize, latest model Smith Premier typewriter, won by Richard C. Bartley, of the Pennsylvania Railroad, Philadelphia; second prize, Mecograph, donated by the Mecograph Company, Cleveland, won by James F. Beegan, of the Boston and Maine Railroad, Everett Junction, Mass. Time, 10 minutes, 10 2/5 seconds. Bartley reduced his own record, made in Philadelphia, October, 1903, 11 minutes, 12 seconds, in this class. Time, 9 minutes, 36 1/5 seconds.

Railroad, Class B.—Receiving twenty ordinary railroad messages on a typewriter: First prize, Remington typewriter, won by William F. Bannester, of the Pennsylvania Railroad, Philadelphia; time 12 minutes, 37 4-5 seconds; second prize, Mecograph, won by James W. Harrison, of the Pennsylvania Railroad, Philadelphia.

Brokerage Class.—Sending brokerage and financial business, ten minutes: First prize, solid silver punch bowl, donated by the Boston News Bureau, valued at \$150, won by David J. Ellington, Postal Telegraph-Cable Company, New York; second prize, \$40 in cash, won by Harvey Williams, of Philadelphia; third prize, won by F. M. McClintic, of Watson & Co., New York. The matter transmitted will be found at the latter part of this article.

Team Match.—Sender transmitting twenty-five commercial messages to his receiver, Postal Telegraph-Cable Company rules to govern: First prize, handsome solid silver cups, donated by Clarence H. Mackay, won by David J. Ellington, sender, and H. J. Finn, Postal Telegraph-Cable Company, Boston, receiver, time, 11 minutes, 44 4/5 seconds; second prize \$40 in cash, won by Edward Dougherty, of the Logan and Bryan Leased Wire System, New York, sender, and J. P. Gallagher, same system, New York, receiver, time, 12 minutes, 7 4/5 seconds; third prize won by Charles F. Edney, of H. W. Poor & Co., Boston, sender, and John J. Bell, of Wrenn Bros., Boston, receiver.

Press, Class A.—Sending 350 words straight press matter: First prize, \$100 in gold, won by David J. Ellington, New York, perfect Morse, time 8 minutes; second prize, \$40 in cash, won by Charles F. Edney, Boston, superior Morse, time 7 minutes, 54 2/5 seconds; third prize, won by F. M. McClintic, New York.

Press, Class B.—Receiving 350 words straight press matter, sent by George W. Conkling, of New York, time 8 minutes 56 1/5 seconds: First prize, chest of solid silver, valued at \$150, donated by Gen. Charles H. Taylor, of the Boston

Globe, won by Charles F. Edney, Boston; second prize, Fay-Sholes typewriter, won by F. E. Howe, of the Logan and Bryan Leased Wire System, New York; third, P. J. Faulkner, New York.

Press, Class C.—Receiving 500 words press matter, Phillips Code: First prize, \$100, won by Edward J. Coleman, of Providence, R. I., time 9 minutes 31 1/5 seconds; second prize, Willard E. Brown, of the Boston Herald; third, F. M. McClintic, New York.

David J. Ellington, of New York, having received a majority of the points, five for each first prize, three for each second prize, and one for each third prize, as prescribed by the Tournament Association, was declared the winner of the world's championship for all-round telegraphing. Mr. Ellington, having won the most points, as prescribed by the International Telegraphers' Tournament Association (under whose auspices the tournament was held), was declared winner of the Carnegie international trophy for the championship of the world—a cup valued at \$250.

Entries in Railroad, Class A:—B. F. Blaisdell, B. and M. R. R., Boston; James F. Beegan, B. and M. R. R., Everett Junction, Mass.; C. W. Blake, B. and M. R. R., Lynn, Mass.; G. W. Broderick, N. Y., N. H. and H. R. R., Lynn, Mass.; Richard C. Bartley, Pennsylvania R. R., Philadelphia.

Judges.—R. P. Lindsey, B. and M. R. R., Boston; C. E. Mahoney, N. Y., N. H. and H. R. R., Boston; George W. Conkling, New York.

Entries in Railroad, Class B.—Gilmore Miller, Pennsylvania R. R., Altoona, Pa.; James W. Harrison, Wm. F. Bannester and G. W. Smith, Jr., Pennsylvania R. R., Philadelphia; F. H. Wright, N. Y., N. H. and H. R. R., Boston.

Judges.—A. D. Price, N. Y., N. H. and H. R. R., Boston; J. F. Mickler, B. and M. R. R., Boston; F. S. Hollis, N. Y., N. H. and H. R. R., Boston.

Entries in Brokerage Class.—Harvey Williams, Philadelphia; F. M. McClintic, New York; Charles F. Edney, Boston; E. F. Dougherty, New York; David J. Ellington, New York; Joseph Haskell, Boston.

Judges.—H. A. Stanley, of Charles Head and Company; James P. Seely, of Harvey Fisk and Sons; J. Stewart Carr, of Hornblower and Weeks; Hugh J. Gillespie, of George C. Brooks and Company, and James J. Benelisha, of Towle and Fitzgerald, all of Boston.

Entries in Team Match.—Harvey B. Williams and Harry V. Emanuel, Philadelphia; Edward F. Dougherty and Joseph P. Gallagher, New York; A. J. Mackler and L. G. Thornton, New York; Charles F. Edney and John J. Bell, Boston; Joseph F. Cronin and William E. Conroy, Boston; David J. Ellington and H. J. Finn, New York and Boston; Joseph Haskell and E. S. Blake, Boston; H. F. Wood and W. E. Stimson, Boston.

Judges.—George D. Boursey, of Lee, Higginson and Company, Boston; F. B. Travis and J. A. Coughlan, Postal Telegraph-Cable Company,

Boston; George H. Bell, Long Distance Telephone Company, Boston; Robert Murray, Jr., Western Union Telegraph Company, Philadelphia.

Entries in Press Sending, Class A, 350 Words Straight Matter.—James H. Anderson, Newport, R. I.; George H. Wright, Danvers, Mass.; James F. Beegan, Everett Junction, Mass.; Harvey Williams, Philadelphia; Willard E. Brown, W. C. Estabrook and Charles F. Edney, Boston; A. J. Mackler, F. E. Howe, F. M. McClintic, Edward J. Dougherty and David J. Ellington, New York; Frank T. McGauley, Lowell, Mass.

Judges.—George F. Shuman, Long Distance Telephone Company, Boston; J. H. Johnson, The Associated Press, Boston, and C. B. Wood, Western Union Telegraph Company, Philadelphia.

Entries in Press Receiving, 350 Words Straight Matter.—Herman F. Wood, Willard E. Brown, Frank J. Flynn, Charles F. Edney, A. F. Booth and W. C. Estabrook, Boston; Robert C. Rogers, Louisville, Ky.; J. A. Hosey, Lowell, Mass.; A. O. Howard, Newport, R. I.; Edward J. Coleman, Providence, R. I.; J. P. Gallagher, L. G. Thornton, P. J. Faulkner, F. M. McClintic, F. E. Howe, David J. Ellington, New York; Harvey Williams, Philadelphia; Warren E. Stimson, John J. Bell, Boston; R. A. DeCoursey, Brockton, Mass.

Judges.—C. A. Richardson, manager Postal Telegraph-Cable Company, Boston; Allen Woodle, manager Western Union Telegraph Company, Boston, and Frederick N. Bassett, manager The Publishers' Press Association, Boston.

Entries in Phillips Code Receiving, 500 Words Press Matter.—F. M. McClintic, F. E. Howe, New York; Harvey Williams, Philadelphia; A. O. Howard, Newport, R. I.; J. A. Hosey, Lowell, Mass.; Edward J. Coleman, Providence, R. I.; Charles F. Edney, Frank J. Flynn, A. F. Booth, H. F. Wood and Willard E. Brown, Boston; R. A. DeCoursey, Brockton, Mass.

Judges.—Chester D. Rogers, chief operator, The Associated Press, Boston; George R. Allen, chief operator The Associated Press, New York; Frank B. Dumas, The Herald, Boston, Mass.

The following is the copy that was used in the Broker Class. The winner stopped at "36.6" as indicated in the concluding paragraph:

"Methinks the lady doth protest too much." That is the remark which a broker with Shakespearian recollections made when he viewed the activity in Baltimore & Ohio. He referred to the great pains taken by the management of that property to emphasize the excellent condition of the company. Perhaps the suspicions were unfounded, although the great volume of the trading at gradually lower prices indicated that some one was taking profits on the good news. The general opinion was that the old bull pool in Baltimore & Ohio was the heaviest seller of that stock. From the declaration of the dividend and even before it, they were liquidating. Their sales were considerably more than 50,000 shares. This was not the only pool liquidation in the market, as the American Locomotive pool tried to get rid of some of their stock on the dividend, but were not very successful.

New York, 12.20 P. M.—The curb market is firm: American Can, 7 $\frac{1}{8}$ @7 $\frac{3}{8}$; preferred, 58 $\frac{1}{2}$ @58 $\frac{1}{2}$; Havana

Tobacco, 23 $\frac{1}{2}$ @25; preferred, 37@38 $\frac{1}{2}$; Bethlehem Steel, 27 $\frac{1}{2}$ @29 $\frac{1}{2}$; preferred, 86@89; Marine, 11 $\frac{3}{8}$ @11 $\frac{3}{4}$; preferred, 30 $\frac{1}{2}$ @31 $\frac{1}{2}$; Mackay, 74 $\frac{1}{2}$ @75; preferred, 73@73 $\frac{1}{2}$; Manhattan Transit, 3 $\frac{1}{4}$ @3 $\frac{1}{2}$; Boston Consolidated, 28 $\frac{1}{4}$ @28 $\frac{3}{8}$; Greene, 24 $\frac{3}{8}$ @25; Copper Securities, 34; Butte, 30@30 $\frac{1}{4}$; United, 65 $\frac{1}{8}$ @65 $\frac{1}{2}$; Gold Hills, 1 $\frac{3}{8}$ @1 $\frac{7}{8}$; Nipissing, 5 $\frac{1}{2}$ @5 $\frac{5}{8}$; Utah, 26 $\frac{1}{2}$ @28 $\frac{1}{2}$; Giroux, 8 $\frac{1}{2}$ @9.

Buy 50 Mackay pfd 71 $\frac{5}{8}$.

Sell 50 Greene market.

Buy 500 Manhattan 141 $\frac{1}{2}$.

Sell 10 Rights 2 $\frac{1}{2}$.

Quote Steel pfd.

Buy 100 Northern Pacific 199 $\frac{7}{8}$, G. T. C.

Sell 50 People's Gas 89 $\frac{1}{2}$.

Buy 100 N. Y. C. 135 $\frac{1}{2}$.

Sell 50 Amalgamated 99 $\frac{7}{8}$, G. T. C.

Buy 100 Allouez 35.

Chicago.—Close: July wheat 83 $\frac{3}{4}$, up 1, September 83 $\frac{7}{8}$, up 1 $\frac{1}{8}$, December 84 $\frac{7}{8}$, up 1 $\frac{1}{4}$, May 87 $\frac{1}{4}$; July corn 51 $\frac{7}{8}$, up 1 $\frac{1}{2}$, September 52 $\frac{1}{4}$, up 1 $\frac{1}{2}$, December 50 $\frac{1}{2}$, up 1 $\frac{1}{2}$, May 50 $\frac{1}{2}$ @5 $\frac{3}{8}$; July pork, 17.50, up 50, September 16.80, up 15, January 15.10; July lard 8.77, off 3, September 8.92, off 3, October 8.95, January 8.20; July ribs 9.32, off 8, September 9.25, off 2, October 9.07@10, January 7.90; July oats 39 $\frac{3}{8}$, off 1 $\frac{1}{8}$, September 36 $\frac{3}{8}$, up 1 $\frac{1}{8}$, December 36 $\frac{3}{8}$, May 38 $\frac{3}{8}$.

New York.—Close: July wheat 90 $\frac{1}{2}$, up 1, September 89 $\frac{1}{4}$, up 1, December 90 $\frac{1}{2}$, up 1 $\frac{1}{8}$; July corn 58 $\frac{3}{8}$, up 1 $\frac{1}{8}$, September 58 $\frac{3}{8}$, up 1 $\frac{1}{8}$, December 57 $\frac{3}{8}$, up 1 $\frac{1}{4}$.

Paine, Webber & Co.—Indian wheat exports last crop year ending April 1 were 36.6

Three hundred and fifty words, sent in Press Class A:

There seems to be little question that the newly-organized Pennsylvania state constabulary deserves a large share of the credit for the maintenance of unusual order in the coal regions during the period of strike agitation while the miners were idle. There were two or three infractions of public order, one of them rather serious, but on the whole the coal regions were much quieter than they ever were before under strike conditions. Altogether the constabulary did service that has attracted the attention of other states and set them to considering the advisability of organizing a similar force.

Pennsylvania has a special problem to deal with because of its large colonies of ignorant and undisciplined foreigners employed in and about the anthracite mines. These are the men who make most of the trouble that always has accompanied a great anthracite strike. To aid the county officials in dealing with this element, Pennsylvania had, until recently, two forces—the coal and iron police and the national guard. Neither force was especially well adapted to this purpose. The coal and iron police was really a force in the employ of corporations that had property to protect. Their character as a state force was rather mythical. Everyone knew that the only lawlessness they were expected to repress was lawlessness directed against the property and interests of the mine owners. They were regarded by the wage workers not as state officials charged with the duty of upholding the law, but as private enemies of labor. There was some justice in this view. The arrangement involved a special alliance between certain private interests and the state that was vicious in principle. The coal and iron police really brought about more harm than good, and its presence in a disturbed section usually did more to provoke riot than to quell it.

The national guard was effective in maintaining order when it was on the scene, but its organization is such that it cannot and ought not to be called out except in very serious emergencies or kept on duty for any extended period. It is altogether

Three hundred and fifty words received in Press Class B, transmitted by George W. Conkling, of New York:

In his admirable and thoroughly sane address at Smith College on "Our Peace Problem" Congressman McCall indicated the great influence the United States can exercise upon the development of international law, which is only another name for international morals. But here, as elsewhere, example must count for more than precept. Acts are of more consequence than preaching. Certain things we must be careful not to do if the nation's influence abroad is to be of the highest and strongest character.

Mr. McCall illustrated the things to be avoided by courageously criticising the President's seizure of the Isthmus of Panama from Colombia. He has had over three years to reflect upon that performance and the justification that was offered to give it a veneer of morality. Having reviewed the facts, the Congressman presented this judgment with the utmost deliberation:—

The method of our acquisition of rights in the canal zone has been justified as an exercise of "international eminent domain." But how is it possible to have any right of eminent domain by one sovereign over another? Obviously, if one nation can exercise eminent domain over another, the latter cannot be sovereign. Where is the international court to award damages? The theory is subversive of that first principle of public law, the political equality of sovereign nations. It is the doctrine of pure force. A weak nation has something that a strong one wants, and the latter has only to set itself up as a trustee of civilization and help itself. If you are sailing the seas on a ship bristling with cannon and meet an unarmed vessel laden with bullion you might relieve the latter of its cargo with a fine discourse about Christianity and civilization to justify your action, but, according to the precedents, you would hardly be justified in calling what you are doing "eminent domain." That method of helping one's self upon the high seas has usually been stigmatized by a less euphemistic expression. Our country can stand for no such doctrine. It would be the falsest note ever struck in her history. Instead of ranging herself

Copy received in Press Class C, Phillips code, transmitted by George W. Conkling, of New York:

There can be no honest survey of the situation in San Francisco that excludes a certain element of discouragement among those whose hopes may have been unduly high, but whose disappointment is none the less deep. A reaction from the excitement of the fire itself and from the buoyancy induced by a world-wide sympathy was inevitable. The constant spectacle of gray and silent ruins is infinitely more depressing than actual and lurid destruction. The daily life amid ashes and desolation must have its influence even upon the most hopeful, and the contrast between the past and the present must for a time be intensified as memory gets leisure to assert itself. These things are of course, sentiment, but we are fortunate to be still largely governed by sentiment even though it may bring its occasional discouragement.

But added to all other causes for depression there is the all-engrossing insurance situation. While the city was still burning, the insurance money had already become in most minds the promise of reconstruction. Although those in a position to know something of the facts were inclined to shake their heads doubtfully, it never occurred to the ordinary householder to doubt that his claims would be met, that he would receive what he had paid for, and that he would at least have some funds in hand with which to rebuild his home. Only those upon the spot can appreciate what the delay means to those who have nothing in the world but claims that are ignored, and who are therefore compelled to stand idle and helpless and even dependent. They cannot leave the city for fear of prejudice to their chances; in many cases they have families for whom they could provide if they had an opportunity, and it is small wonder that the outlook to them should seem to be a gloomy one. The large concerns can of course, afford to wait, although to their grave detriment, but it is the small homes that form the

backbone of the city's life, and delay here is peculiarly grave. Delay means disintegration; it means the dissolution of civic habits and organization, and it is to be hoped that the resentment that is now being felt against the delinquent insurance companies will solidify into some coercive measure.

There are of course, many compensating features and large ones. The situation might easily be many times worse. The refugee camps are rapidly dwindling in size, and the drain upon charity has been relieved. The health of the people is everywhere of the best in spite of reasonable fears to the contrary. The moral effects of a common misfortune, the volume of fraternity that lightens all burdens, are immeasurably gratifying and are in themselves an assurance of good times coming. Even the insurance problem will be solved and its worst features will tend to be smoothed away. House rents are moderate and accommodation can be found by those who need it. Work has been delayed, but it has

SKETCH OF MR. ELLINGTON, CHIEF WINNER OF THE TOURNAMENT.

David Jaquith Ellington, who won such signal success at the International Telegraph Tournament at Boston, June 29, was born at Greenwood, Miss., September 29, 1884. Learning telegraphy his first employment as an operator was for the Postal Telegraph-Cable Company at Memphis, Tenn., in 1899. In 1901 he was



DAVID JAQUITH ELLINGTON.
Winner of the World's Championship.

transferred to St. Louis, where he was soon put on a bonus wire, at one time handling 733 messages in nine hours, taking them as they came.

During the Galveston flood he was sent to Little Rock with other Postal operators to relieve the congestion, wires being down between Memphis and Little Rock. Here he handled 1,183 messages in eighteen hours without rest. Later he worked for the Postal in Chicago, St. Louis and Dallas, after which he filled short engagements with The Associated Press and brokers in Memphis, Tenn., coming to New York in 1904. Here he was employed for a short time with The Associated Press and then went with

the banking house of T. A. McIntyre and Company, where he remained for a year. During the latter part of 1905 he made another southern trip, after which he returned to Messrs. McIntyre and Company in New York for several months. Recently he severed his connection with that firm and returned to his old occupation of bonus work with the Postal Telegraph-Cable Company, New York, where he is located at present. His first tournament experience was at Madison Square Garden, in December, 1904, where he took second prize in receiving fifty messages.

The following are the twenty-five messages used in the team match:

- A1 ¹⁰ BROOKLINE, MASS., June 29, 1906.
MR. J. A. BROWN,
120 Franklin St.,
Bradford, Mass.
Please meet me at South Station arrival ten o'clock train.
J. O. MARSH.
- A2 ⁶ SALEM, O., June 29, 1906.
W. M. A. SMITH,
Salem, Mass.
Come on to New York at once.
JOHN.
- A3 ^{8 Collect.} LOWELL, MASS., June 29, 1906.
BROWN & JONES,
Lynn, Mass.
Ship as per letter of May first.
SMITH BROS.
- A4 ⁷ MINNEAPOLIS, MINN., June 29, 1906.
JONES & KIDDER,
Wall St.,
Saco, Me.
Sell one hundred Utah at the market.
HOWARD & WATSON.
- A5 ⁷ BERGEN, N. J., June 29, 1906.
J. B. COOLIDGE,
Franklin, Mass.
Ship cotton goods ordered yesterday by express.
HAMLIN & THOMPSON.
- A6 ¹⁰ WINSLOWS, MD., June 28, 1906.
JONES & McLOUD,
Portland, Me.
Ship one barrel herring, one of cod and three mixed.
FULLER, BROWN & Co.
- A7 ^{11 Collect} PEORIA, ILL., June 29, 1906.
HALLGARTEN & Co.,
Cincinnati, O.
When may we expect balance of goods ordered May first.
JONES & McCORMICK.
- A8 ⁹ WESTERLY, R. I., June 29, 1906.
H. M. ROGERS & Co.,
Summit, Mass.
Send one barrel oysters one of clams three mackerel.
McMILLAN & Co.
- A9 ⁹ OMAHA, NEB., June 29, 1906.
H. B. CLAPLIN & Co.,
Palmer, N. Y.
We ship you today five thousand yards pattern B.
SMITH & Co.
- A10 ⁵ NEW ORLEANS, LA., June 29, 1906.
J. W. HORBS,
31 Worth St.,
Bradford, Pa.
Will arrive tonight five o'clock.
WILLIAM.
- A11 ^{7 Collect} PORTLAND, MICH., June 29, 1906.
MAX FRIEDMAN,
37 Broadway,
Norwich, Conn.
Goods received and check mailed today.
EARLE BROS.
- A12 ⁹ WILMINGTON, DEL., June 29, 1906.
PENNA. RAILROAD Co.,
Jersey City, N. J.
Reserve section in pullman for me tonight for Chicago.
J. W. PHILLIPS.
- A13 ⁵ DOVER, DEL., June 29, 1906.
PARKER HOUSE,
Bath, Me.
Reserve room for me tonight.
W. M. SIMPSON.
- A14 ⁶ ATLANTIC CITY, N. J., June 29, 1906.
W. A. MEAD,
Middletown, N. J.
Many happy returns of the day.
S. A. MEAD.
- A15 ⁹ CINCINNATI, O., June 29, 1906.
JOHN A. TAYLOR,
Trenton, N. J.
Ship five barrels pork today will send check tonight.
GIBBONS & HAMMOND.
- A16 ^{6 collect} MILWAUKEE, WIS., June 29, 1906.
JONES & SMITH,
New Haven, Conn.
Dynamo sent by freight today.
WILLIAMS & BELL.
- A17 ⁷ HARTFORD, CONN., June 29, 1906.
COOPER, HEWITT & Co.,
Trenton, N. J.
Ship wire by freight soon as possible.
JAMES BROWN & Co.
- A18 ⁹ LANCASTER, PA., June 29, 1906.
CARTER & Co.,
White St.,
Lynn, Mass.
Shoes sent today balance of leather goes forward to-morrow.
CANFIELD MFG. Co.
- A19 ⁵ BREWSTERS, N. Y., June 29, 1906.
UNITED STATES MFG. Co.,
New Britain, Conn.
Tubing received but no fittings.
JONES & McLAUGHLIN.

- A20 8
BANGOR, ME., June 29, 1906.
MAX FREDERICKS,
191 Canal St.,
New London, Conn.
Ship bottled goods by boat check follows today.
ARMSTRONG BOTTLING Co.
- A21 7
NEW ORLEANS, LA., June 29, 1906.
BULLARD & BETTS,
Cotton Exchange,
Memphis, Tenn.
Please quote cotton hourly until further notice.
HANSON & BROWN.
- A22 5
TAUNTON, MASS., June 29, 1906.
AMERICAN JUTE MILLS,
Jewett City, Conn.
Ship five bales jute today.
CONSOLIDATED MFG. Co.
- A23 10 collect.
INDIANAPOLIS, MINN., June 29, 1906.
HENDERSON BROS.,
Cleveland, O.
Five bales green muslin went forward today fast freight.
AMERICAN COTTON Co.
- A24 10
FRAMINGHAM, MASS., June 29, 1906.
MRS. J. B. HOWELL,
275 Fourth Ave.,
Knoxville, Tenn.
Funeral Monday at nine A.M. carriages arranged for at depot.
WM. B. HOWELL.
- A25 7
SAVANNAH, GA., June 29, 1906.
J. W. SHATTUCK,
Wesboro, Mass.
Will reach hotel Worthy at noon tomorrow.
F. W. GILES.

The Sandwich Telegraphone.

The Sandwich Electric Company, of Sandwich, Ill., are manufacturers of the Sandwich Telegraphones. By means of the telegraphone a talking circuit can be derived from an ordinary telegraph wire without interfering with the working of the latter. The signaling device operates independently of the Morse, and in no way interferes with its operation; the telegraphone will operate upon a quadruplex with no interference.

Figure 1 represents the station telegraphone. This instrument will give commercial service over an iron wire 100 miles in length, on a copper wire double the distance. Four cells of an ordinary dry battery are required to operate both the signal and talking circuit. It will operate upon a quadruplex or duplex circuit without interference.

Figure 2 represents the telegraphone train set. This instrument is made compact and is so mechanically constructed that it will withstand constant jarring, to which it is subjected. It is mounted on soft rubber supports, which keeps the instruments free from vibration to a considerable extent. The instrument is designed to be fastened upon the wall of a caboose or baggage

car, and is supplied with a jointed pole and 100 feet of flexible wire, making it possible to connect the instrument with the telegraph wire by

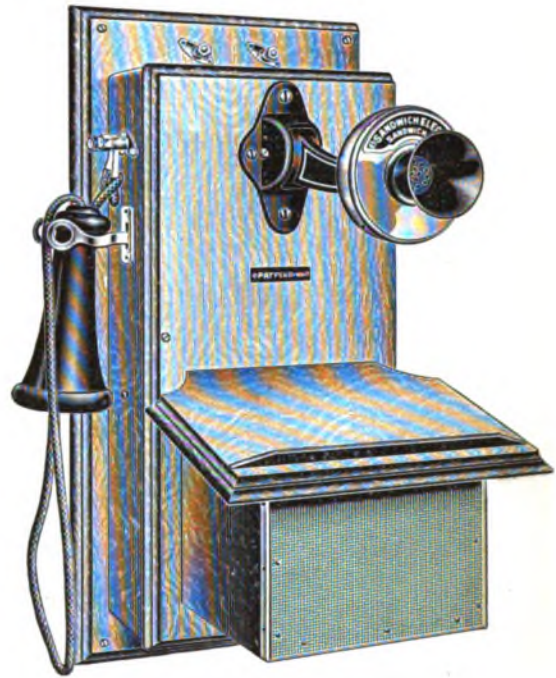


FIGURE 1.—THE STATION TELEGRAPHONE.

simply hooking the jointed pole over the wire. Then, by simply pressing the button at the side of the instrument, the train crew can be placed

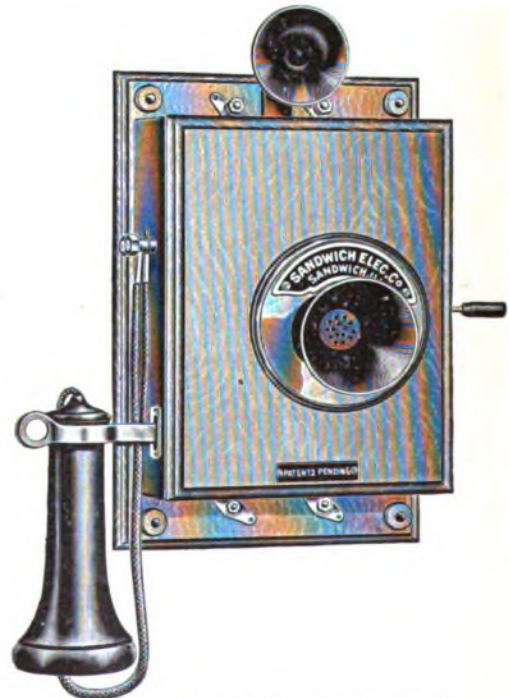


FIGURE 2.—TELEGRAPHONE TRAIN SET.

in communication with the despatcher or the nearest station equipped with a station set telegraphone.

At Last the True Discoverer of the Telegraph Stands Revealed.

The accepted belief has been very general, covering a long period of years, that the invention of the electric telegraph was very properly accredited to Prof. S. F. B. Morse. To the latter the world has rendered willing homage, and since his death his name has gone down in history as the genuine inventor aforesaid, save, indeed, when occasionally some half-hearted claimant would take a modest shy at the Pretender in the hope possibly of detaching a bit of the honor which has had a persistent kind of way of sticking closely to the generally accredited discoverer. But now we are calmly told to what an extent we have been humbugged, and that, too, by no less an impostor than Morse himself. A venerable gentleman, almost a centenarian, for he is now in his ninety-third year, a resident of Louisville, Ky., where, we are informed, he is the dean of the bar of that city, and consequently a man of extreme veracity, rises to explain, once for all, after waiting a long lapse of years, the exact origin of the telegraph. It is a pity that we should be compelled to loosen our hold on old-time and cherished beliefs. Yet such is the case, for Junius Lynch Clemmons, that is the name, realizing at best the numbering of his days, and with evident desire that the world may at last learn the exact truth respecting the telegraph, withdraws the veil that has so long hidden his name and fame and reveals himself as the only simon pure inventor thereof. His statement is set forth in the following letter:

You want to know about my connection with the Morse telegraph. I can, in this letter, answer you in a general way. Indeed, the science of electricity has so expanded, and its wonders so developed in these modern days as to obliterate the humble origin of its early history, 70 years ago.

Franklin, by means of his kite, had proven the identity of the electricity of the thunder-cloud with the electricity produced by friction, or the oxidation of metals. Volta, an Italian, had constructed the Voltaic pile, and Galvani had discovered the positive and negative poles, but as late as 1832 no scientist had ever dreamed of the true nature and wonderful powers of that great element of nature.

In 1832 I was a student at Randolph Macon College, Virginia. In attending the lectures of Prof. London C. Garland on chemistry I became very much interested in the science of electricity, or of what little of it was known at that early day.

The scientific world was speculating on the question as to how far an electric current could be sent over a wire. The experiments were being made on a coiled wire, and the greatest distance was 27 miles, made by Dr. Jackson, of Boston. I contended that if the wire was perfectly insulated and supported by a line of upright poles, its distance would be without limit, and to illustrate my idea, I drew, with a lead pencil, a diagram around my room.

Poles and wire alone, however, could not convey intelligence. All they could tell was that someone at the other end had connected the wire with the battery. There was but a single impulse, and I and all the rest were confronted with the problem how to make it talk, and for awhile both Europe and America were at work on that problem.

I firmly believe I was the first to solve that problem. I said, receive the current on a moving surface, and the problem was solved. Get your moving surface from an independent clockwork. To illustrate: Saturate a sheet of white paper in a solution of nitrate of silver and when dry wrap it around a wooden roller and connect it with a common clock and bring it near the end of the wire while still in motion. Let the man at the other end of the wire close the circuit for an instant and it will be seen the electric current has made a black dot on the moving paper. Then let the man at the battery end of the wire connect again and hold the connection for a little while and it will be seen that the current has made a mark, longer or shorter, according to the time of the connection. You will then have two elements, a dot and a dash, out of which a telegraphic alphabet can be constructed by which any word in any language can be spelled. This only for illustration.

I was laughed at and jeered by everybody for my crazy prophecies. So I concluded to submit my project to some electrician, and having learned that one Page of Washington was one of national note, I concluded to consult him as to his opinion of my suggestion. I accordingly sent him a diagram of my proposed apparatus with a statement of my views, and requested him to let me know what he thought of it. He never gave me any answer.

Being young and somewhat diffident, I took it for granted there was nothing in it, and so I dropped the matter altogether and devoted myself exclusively to my college studies.

Twelve years later, when I had graduated from Randolph Macon, and also from Transylvania University, and was in full practice of the law at Lexington, N. C., on opening my mail one morning I picked up the Washington Globe, and the first thing that caught my eye was a statement that Morse & Page, partners, had asked Congress to grant them \$15,000 to enable them to construct a line of telegraph from Washington to Baltimore.

I saw in a moment that Page had betrayed me, and immediately wrote an open letter to the Globe, charging him with having done so. He was thereby compelled to answer. He did so, and publicly admitted that he received my letter and diagram, but said there was nothing in my project and threw it aside. I do not know how long he and Morse continued partners.

I had the Globe containing Page's letter of admission, and a number of letters from fellow students verifying these statements, but while I was in the South during the Civil War my residence was occupied by Federal officers and all my papers were used for kindling fires.

I wish to do justice to Mr. Morse by saying that he did more than any other one man in the world in putting the idea of electric telegraph into practical operation. My connection was in theory only. His work was practical. He was no electrician, but was a first-class business man, and by great labor, expense and unceasing perseverance made the idea a success.

He was a portrait painter by trade, and was staying around Washington trying to get a contract to paint a national picture to be put in the rotunda of the Capitol. He was on intimate terms with Page, who was a commissioner of patents and an electrician of national reputation. Page, being a commissioner of patents, was forbidden by law from taking out a patent for himself, and in 1837 issued one to his friend and partner, Morse. I never knew either of them personally.

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

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

Some Points Involved in the Problem of Increasing Railroad Telegraph Facilities.*

BY W. W. RYDER, CHICAGO.

SUPERINTENDENT OF TELEGRAPH, CHICAGO, BURLINGTON AND QUINCY RAILROAD.

The telegraph department of a railroad is constantly confronted with the problem of properly taking care of a rapidly increasing volume of business with a minimum of expense.

It is generally recognized that economy of operation consists in closely watching the little things, and eternal vigilance is to-day as much the key to success as it ever was.

One of the ways in which money is frequently wasted is in the unnecessary relaying of telegrams. A little thought given to the making of through circuits would lessen this item of expense and would accordingly greatly reduce the time consumed in getting telegraph business to destination. At the same time the fact must be recognized that going to the extreme in attempting to save relaying will sometimes be detrimental to good service by reason of the difficulties involved in getting rid of business to a large number of offices on a way wire. For instance, it is often more economical to send to the division headquarters business for the way offices on that division, rather than attempt to work with them direct, even though the former does involve a relay.

There is not a member of this association who is not more or less familiar with the theory and practice of the quadruplex, yet few seem to realize how extremely flexible an arrangement of such circuits may be made, and what returns may be secured from a small expenditure in this direction. With a proper combination of quadruplex sets, with loopjacks and repeaters, not only is it possible to do away with a great deal of relaying of business, thereby lessening expenses and saving time consumed, but in addition facilities are provided that, rightly handled, can often in an emergency be made to do wonders in the way of quickly making up round-about routes when the regular route is interrupted.

The thought still seems to be somewhat prevalent that the quadruplex is so complicated that it is beyond the capabilities of the average railroad telegrapher to properly handle it. While this may be true so far as the ordinary way operator is concerned, it is not true of the average relay office man, particularly if he has come to the realization that a knowledge of the quadruplex will bring him a little additional salary; and it is difficult to find a place where a small expenditure will bring greater results than in this particular.

There has been a great deal said recently about

the quadruplex being less efficient than it was formerly, the principle reason given being the inductive effects due to the multiplication of these circuits. While this condition does undoubtedly exist on the long circuits maintained by the telegraph companies, the effect on the railroad circuits, being ordinarily much shorter, is far less noticeable, and I believe with proper supervision the quadruplex is still as valuable to the railroad as it ever was.

There has developed recently, however, a serious problem through the paralleling of portions of some of the roads with the high-tension single-phase trolley lines, causing both telegraph and telephone service to be greatly interfered with, but I am a firm believer in Yankee ingenuity and am sure some remedy for this trouble will soon be found.

Another method of increasing facilities is in the use of the wires for composite telegraphy and telephony. A great deal has been said about this idea in the past two or three years, and some of the statements have been so greatly exaggerated as to make it difficult to convince those unfamiliar with the details of composite work that existing local conditions play an important part in the successful working out of this method of transmission, and that there are some other requirements, physical and otherwise, besides the glowing statement of the selling agent to make results even partially successful.

In figuring upon compositing a line, as in any other work, one must realize that something cannot be had for nothing. Every time you attempt to add the telephone to the telegraph, or vice versa, you must realize that you do so at the loss of a certain percentage of efficiency of the original service. The first thing that should be considered is whether the efficiency of this original service is sufficiently high to allow this drop without serious interference. For instance, let us take as an example a long hard-working telegraph circuit with an insufficient current (around twenty milli-amperes — and such circuits are still all too common), it is worse than useless to expect to get anything like satisfactory composite results on such a circuit. Again, other local conditions, such as a large number of instruments on a wire, inductance, leakage and crossfire may be sufficiently detrimental as to make successful compositing impossible.

The one wire or grounded composite has not yielded good results, the telephone transmission under even the best conditions being far below what is generally recognized as satisfactory service. By satisfactory service I mean commercially good telephone transmission and clean, clear-cut Morse. The term "commercially good telephone transmission" is apparently understood differently by different people as is evidenced by an experience that I had about a year ago.

At the Chattanooga convention last year while discussing the possibilities of the single wire composite, I was assured by one of our members that

* Paper read at the convention of the Railway Telegraph Superintendents, Denver, Colo., June 20-21.

it was possible to get absolutely commercial service over a quadruplex telegraph circuit. This statement was made so positively and was so utterly at variance with my own personal experience that I went home considerably chagrined. As soon as possible I delegated a couple of my men to look into the matter, and I can best explain the situation by quoting from their report:

"When we were still some distance from the office in which was located the composite set, we heard someone shouting at the top of his voice, and upon entering the building found this person using the composite line we were sent to investigate. The gentleman's replies to our queries as to the general service would scarcely bear repeating here."

In the case of short circuits, say twenty-five miles or less, it would be more economical to string a special wire and equip it with ordinary telephones, thereby securing better transmission and incidentally saving the difference in cost of rental and maintenance of two sets of Bell standard type of railway composite apparatus, as compared with two ordinary telephones or an amount equal to six per cent. on the original cost of this wire. This being the case with only two telephones on the circuit, of course, a larger number would make the difference relatively greater. You would also gain through this procedure by reason of the greater simplicity of the ordinary telephones and the fact of there being no possible interference with the telegraph through punctured condensers or otherwise. Of course, the apparatus embodying the howler type of signaling is not so expensive to maintain, and consequently the mentioned figure of twenty-five miles would have to be reduced somewhat, perhaps half, but the other factors remain practically the same.

Local conditions must also be studied as regards the metallic circuit composite proposition, although the possibilities are much greater here than with the grounded circuit, particularly as to quality of service.

We are now able, under good conditions, to get satisfactory service from each of three possible combinations of composited metallic circuits: First, where either or both wires are worked as simple Morse circuits; second, where both wires are brought together through a split retardation coil, and used as simple Morse, duplex or quadruplexed. When quadded, however, we are at present unable to get more than a three-cornered quad for a distance above one hundred and twenty miles. The added capacity given the line by reason of the introduction of the composite apparatus exaggerates the "bug" due to the interval of no current to the line through the reversal of the distant pole changer and this on the longer line on which I have experimented has so far made it impossible to get a full four-cornered quad from either or both wires. However, I believe this difficulty is not all caused by the greater length of the line, feel-

ing that part of it may be due to the fact that at one end of the longer line we have gravity battery, while both ends of the line successfully quadded are supplied with current from dynamos.

Another use of the telephone that has been mentioned before, but is not, I believe, thoroughly appreciated by the railroad managements, is that in the connection of blind sidings with near-by telegraph stations. Such action, it is found, does away entirely with the unsatisfactory conditions of blind siding operation from a train movement standpoint. Without such means of communication the making of meeting points for opposing trains at blind sidings is always attended with the possibility of one train being tied up there indefinitely through failure of the other train to carry out the provisions of the order. The telephone, however, enables the dispatcher to quickly get in touch with the train at the blind siding through the operator at the other end of the telephone line, and necessary orders changing movement are thus readily transmitted. Care must, of course, be exercised in handling orders in this way, but it is not more vital than in the handling of them by telegraph.

Underground Telegraph Wires in England.

The British postmaster-general has written a letter to the Association of Chambers of Commerce, which memorialized him in favor of laying all trunk lines underground to obviate delays by storms, to the following effect:

In reply I am able to state that the underground line between London and Glasgow has now been completed. The spur line to Manchester has been continued through Bradford to Leeds. In the south an underground line has been laid from London eastward as far as Chatham and westward as far as Slough, and thence a pipe, but not yet a cable, as far as Reading. During the present year the postmaster-general hopes to extend this pipe line to Bristol and to provide a cable as far as Chippenham. The postmaster-general trusts that the Chambers of Commerce will see that such a programme evidences a desire to extend the underground system of telegraphs as rapidly as can reasonably be made.

It is proposed to extend the underground wires to the landing places of important Atlantic and Mediterranean cables throughout Great Britain.

Signaling by Means of a Huge Shutter.

An officer of the artillery branch of the United States army, has just completed a device for visual signaling. He has constructed a huge shutter, the slats of which are a foot wide and so painted that when operated by a lever the colors will be shown to a distant observer, and by this means simple signals can be given. Of course, this is not as satisfactory as wireless telegraphy, but it was regarded as worth trying, and the War Department has allotted \$2,000 for experiments with the device. These tests will be conducted in Boston harbor. If the signal corps people succeed in getting a cheap wireless outfit, there will be no need of the artillery officer's shutter.

An Electrolytic Wireless Receiver.

BY D. L. BEARDSLEY, IN THE SCIENTIFIC AMERICAN.

Most Hertzian wave detectors are more or less complicated, and few are very satisfactory. The writer has experimented with many kinds, and has at last evolved one which has given the utmost satisfaction, receiving the most distant messages very clearly and sharply. This detector is electrolytic in its action, and it consists of a cell in which a zinc anode and a platinum cathode are used with an electrolyte of dilute sulphuric acid. An important advantage of this receiver is the fact that it requires no battery, as it is a battery in itself.

The following are the instructions for making it: Prepare a base about three inches square of hardwood. At one side, parallel to the edge, erect a standard of hardwood, one-half inch thick, two inches wide at the bottom, tapered to one and one-half inches at the top, and three inches high. Cut out two pieces of brass, one and three-quarter inches long, one-half inch wide and one-sixteenth of an inch thick. One of these pieces, which will serve to support the anode, should have a three-sixteenths-inch hole drilled at one end, and the other strip, which is to support the cathode, should be drilled and tapped for an 8 x 32 machine screw. These strips of brass are to be fastened to the top of the standard one-half inch apart by woodscrew binding posts, and should be provided with one-quarter-inch holes to receive the threaded shanks of the binding posts. Cut off a two and one-half-inch length of common battery zinc, and thoroughly amalgamate it. This may then be fastened to the untapped brass strip with an 8 x 32 machine screw, threaded into the end of the zinc. The depending end of the zinc should enter a small glass jar of about one and one-half inches diameter and two inches high. For holding the cathode make an 8 x 32 machine screw of brass one and one-half inches long, with a knurled head. File down the end to a diameter of 3-32 inch, and split it with a fine jeweler's saw. Take a very fine piece of platinum wire (if Wollaston wire can be obtained so much the better, but very fine platinum wire will do) about three-quarters of an inch long, and place one end in the fine saw cut, after which close the kerf onto the wire by means of a vise. The screw may now be threaded into the tapped hole of the cathode-supporting strip, and screwed in far enough to bring the platinum wire within the cup. The cup should be filled with a ten per cent. solution of sulphuric acid. In making the electrical connections the aerial should be connected to the cathode supporting strip, the other strip being connected to the ground, and the two terminals of a telephone receiver being connected respectively to the two strips. Place the telephone to the ear, and feed the cathode down by turning the screw until a click is heard. This will indicate the position in which the detector will work to the best advantage.

Mr. Rosewater and the International Postal Congress.

Edward Rosewater, the well known old time telegrapher, proprietor of the Omaha Bee, has returned from Europe whither he went as American delegate to the International Postal Congress in Rome. He was able to give valuable service for two reasons: he took in the Postal Congress in Washington in 1897, and as he speaks French fluently, he was able to do business without an interpreter.

Mr. Rosewater had this to say:

"This congress has demonstrated again, that the United States is woefully behind the other nations in postal matters. We have here practically no parcels post, our money order system is not nearly so complete as that of some European nations, and we have nothing here which corresponds with the declared-value service in operation abroad.

"There a parcel can be posted and insured just as we insure a package here for a certain value with the express companies. The government is responsible for the package, and this and the other features of the parcels post are very desirable adjuncts of the postal service.

"We have given over that part of the business here entirely to the express companies, when, as a matter of fact, it should be a part of our postal system.

"Of great importance was the agreement to issue in the country from which a letter is sent a payment coupon which will be exchangeable at the post office to which it is sent for a stamp. As each country retains all the money it receives for postage paid within its borders, these coupons would be kept and sent at the end of each year to the clearing house in Berne, where any credit difference will be allowed to the country to which it is due.

"Heretofore, if a person wished to prepay an answer to a letter sent abroad, he was required to purchase a foreign stamp, never an easy matter, or put the prepayment money in an envelope.

"After October 1, 1907, when the new postal treaty takes effect, all he need to do is to put a prepayment coupon in the letter, which the recipient will take to his post office and receive therefor a stamp."

The Wellman Polar Expedition.

Walter Wellman, chief of the Chicago Record-Herald's arctic expedition, is in Norway actively preparing for his journey by balloon of 600 miles from Spitzbergen to the North Pole, and return. In order to do this the explorer has had constructed at a cost of \$75,000 an aerial automobile supported by a huge gas balloon and propelled by a gasoline engine. It is expected that the altitude of the airship will be maintained at a height of about 300 feet above the earth's surface. During his progress toward the North Pole, Mr. Wellman expects to report progress daily by wireless telegraphy.

Cleveland Western Union Office in the Late Sixties and Early Seventies.

BY J. W. HAYES.

First impressions, especially those made on an impressionable boy, are seldom eradicated. So the faces, forms and names of those I met with in my first introduction to telegraphic life stand out in bold relief, withstanding the ravages of time.

It was in the early seventies that through the kindness of the late Louis A. Somers, of Cleveland, O., I was appointed to a position as messenger in his office at the "Dock" in that city. Mr. Somers was manager and Albert J. Desson was his assistant. Never was a boy launched into the telegraphic profession under better men or brighter auspices. We meet such men as L. A. Somers but once during a lifetime, and their impression and influence for good is lasting. A spirit of true Christianity pervaded Mr. Somers, and he took great interest in reading and expounding the scriptures. He was not erratic, but lived up to his highest conceptions of his belief, and he was a good man. As a telegrapher, Mr. Somers excelled, and he is the only man I ever knew who could receive from two instruments at the same time. This feat I have seen him accomplish without apparent effort. He had a world's record for fast receiving and held a personal letter from Prof. Morse, of which he was justly proud.

Albert J. Desson was one of those quiet, unostentatious men, that go through life so easily, taking things cool, accomplishing much, but with such an utter disregard for pomp or show that one could hardly realize how much was being executed. He was always ready to help along the struggling youth, and to him I owe my first teachings in mastering the Morse alphabet. In the room adjoining our office at the dock was the Atlantic and Pacific Telegraph office, with Richard D. Babbitt as manager, and John B. Taltavall, now the publisher of TELEGRAPH AGE, messenger and batteryman. While Mr. Babbitt could not telegraph with both hands at the same time he could do enough execution with one to make up for any alleged deficiency that way. Mr. Babbitt died of yellow fever at New Orleans in the epidemic of 1878. He had removed to that city but a few years previously, and was held in high esteem by a wide circle of acquaintances.

John D. Rockefeller had a modest office in the Empire block adjacent to the dock office, and Mr. Taltavall and the writer wore a beaten path between the two places in their official capacity as messengers. Mr. Rockefeller did not cut much of a figure in those days. He offered me a position as messenger in his office, but as the compensation was \$5 less per month than the Western Union was paying, the offer was declined. What the result might have been had his munificent tender been accepted is a matter

of conjecture. I think the same inducements were held out to young Taltavall, who at the time also declined, but who in 1869 or 1870 entered the service of the Western Union Telegraph Company at the Dock office, where he soon mastered the art of telegraphy under Mr. Somers and Mr. Desson. On January 1, 1871, he did, however, enter the employ of Mr. Rockefeller, upon the recommendation of Mr. Somers, and thus probably became the first operator in the service of the Standard Oil Company, then in process of organization.

A. M. Vanduzer, who is again a resident of Cleveland, was manager of the main office, but he resigned shortly after I entered the service, and was succeeded by Herbert L. Melton, who had been supply agent under William Hunter. Mr. Melton was an ideal manager, popular with the public and loved and respected by his men. The gentleman that took the keenest interest in the business office was Nelson A. Buell. Under all trying conditions, Mr. Buell was always the same patient, kind and accommodating gentleman, and all the boys who served under him as messengers delight in speaking in his praise. Nicholas Kerver was delivery clerk. He had risen from the messenger ranks, appreciated conditions and we all liked him. Charles H. Lapp was bookkeeper. He was a handsome fellow, a man of good business instincts, with a promise of a bright future before him.

The four gentlemen just mentioned comprised the office force down stairs. Mr. Melton, after filling various honorable positions in Cleveland, is now engaged in the manufacturing business at that point. Nelson A. Buell was manager for over five years, but finding the duties too onerous asked to be returned to his old position, which he still holds. Nicholas Kerver and Charles H. Lapp are now both dead.

The operators in those days included C. F. Stumm, chief operator; V. D. Green, night chief; George H. Wadsworth, assistant day chief; O. A. Gurley, Marsh Green, E. C. Jenney, George A. Lied, C. J. Wilhelm, T. R. Taltavall, S. B. Derrickson, E. M. Boynton, W. A. Manning, D. C. Schull, E. T. Tindall, George T. Lowe, George W. Hinman, James P. McKinstry, W. A. Williams, J. W. Hunter, W. H. Sterling, N. C. Griswold, George D. Phillips, G. W. Jones, G. W. Patterson, F. A. Stumm, J. M. McNamara, and others.

Mr. C. F. Stumm took a fatherly interest in the boys and was always ready by good counsel and advice to put them on the right road to become good men. "Ducomb" Green excelled at the key and was a famous hunter and fisherman. If you want to know a man's true self, take him a-fishing with you. I have been fishing with Mr. Green and he stood the crucial test. One of the noblest of fellows was William A. Manning. With ability that would have fitted him to fill a much higher office, either in the service or out of it, Mr. Manning plodded along in an easy

way, doing all the good he could. George Wadsworth afterwards succeeded Mr. Stumm as chief operator. He was one of the first men in the Cleveland office to take up the study of electricity in a systematic manner, and through the knowledge he gathered he speedily gained preference with the company.

O. A. Gurley, too, followed the same line of study, and was rewarded by merited advancement. John W. Hunter went to Sandusky as manager, where he remained a number of years, returning to Cleveland but recently.

Most of the people I have mentioned have passed away. So far as I know, these include C. F. Stumm, G. H. Wadsworth, O. A. Gurley, E. C. Stockwell, G. W. Patterson, G. D. Phillips, D. C. Schull and George T. Lowe.

There is one man whom I must not forget to mention, and that was Thomas Callahan, the batteryman. He came to the service while yet in his teens, and after serving faithfully and well for forty years and more died a short time since. He hardly missed a day during this long period. He was ever ready with a bit of Irish wit, and nobody was more honest and true blue than Thomas Callahan.

Gen. Anson Stager was general superintendent at this time, and I remember him well. I still possess a fifty-cent gold piece that the General gave me for a Christmas present. These coins were very rare, and to make sure of keeping it, I had it converted into a scarf pin, which remains still in the family.

I always feel like taking off my hat when I mention the name of Edward P. Wright, the superintendent. He was certainly one of God's noblemen. Always kind and just, he did all that was in his power to lessen the burdens and improve the conditions of all of his subordinates, and never did anyone come away from a hearing with Mr. Wright without having any alleged grievance adjusted. Mr. Wright still lives and enjoys good health, and his declining years are full of peace. Charles W. Douglass was Mr. Wright's chief clerk, a most excellent and competent man. He was assisted by C. H. Cadmus, with Walter Hinman, a brother of George, as office boy.

Up the street a short distance was located the office of the Atlantic and Pacific Telegraph Company, where Frank A. Beach was manager, having succeeded Charles W. Dean; and W. H. Spencer chief operator. W. D. Linton, E. B. Beecher, Samuel B. Roberts, C. H. Speed, and Edward Schermerhorn were some of the operators. Messrs. Beach, Roberts and Spencer have been called to their fathers; Beecher and Linton are on the Pacific Coast doing well.

Mr. H. W. Stager was despatcher at the Lake Shore depot. His ever present companion was A. A. Briggs, one of the most genial of men, and the twain were popular with their employees, who to this day delight in relating reminiscences of the two gentlemen.

The national game of baseball was very much in evidence at the period of which I write, and our Western Union force had a pretty good team. An invitation to go to Buffalo to play a game with a nine composed of operators was accepted, and I was fortunate enough to be allowed to go as a representative messenger. Of course, the Clevelanders beat at baseball, but the trip was an episode in one's life. "Nat" Hucker, chief operator, and J. W. Tillinghast, manager, were with the party that took us out on a steam launch. There were also J. W. Larish, now of the district electrician's office, Postal Telegraph-Cable Company, New York; Harvey D. Reynolds, now superintendent of the Postal Telegraph-Cable Company, Buffalo, N. Y.; Frank Kitton, now of the electrical engineer's office, Western Union Telegraph Company, New York; George Stewart, John Lapey, and many whom I have forgotten. The most pleasant incident of that meeting was the goodbye at the depot, where Mr. Reynolds sang the sweet ballad, "Larboard Watch Ahoy." I have heard that song a thousand times since, and every time it has brought to my memory pleasant thoughts of Mr. Reynolds, the sweet singer of Buffalo.

Legal.

The Supreme Court of the State of Louisiana on June 28 handed down a decision which reversed a decision handed down recently in the Civil District Court of that State, concerning the liability of a telegraph company for the non-delivery, or improper delivery, of a telegram which had not been repeated at the sender's cost. The court refused a writ of review directed to the court of appeal on application of the telegraph company, which had been made the defendant in a suit for damages, owing to the improper delivery of a telegram and which had been decided against it.

J. B. Brown had arranged for a suit against Rains, Price & Rains, in Sabine Parish, and wired from Sodus, La., directing the clerk of the court to serve the papers without sequestration. The telegraph operator omitted the syllable "out," making the telegram read with sequestration. Rains, Price & Rains sued Brown for damages because of his sequestration of their property, and Brown, in turn, sued the telegraph company and was awarded damages.

The telegraph company took the case to the court of appeal on several grounds, among others being that the stipulation on the back of the telegram that they would not be responsible for errors in transmission unless the telegram was repeated at sender's cost was a contract and relieved them of responsibility. The court of appeal decided against them on the points of law, but reduced the amount of damages, and the telegraph company took the case to the Supreme Court for writ of review, which was denied.

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The Railroad.

Kenneth McKenzie, aged seventy-eight years, until within four years superintendent of telegraph of the Mobile and Ohio Railroad Company, died at Trenton, N. Y., June 20. He began life as a seaman, but entered the telegraph service in 1851 at St. Louis, Mo. During his lifetime he was superintendent of telegraph and of construction on various lines of railways in the West.

In the application of storage batteries in railway electric signal and interlocking devices, the Electric Storage Battery Company, of Philadelphia, has devoted much time to the consideration of the best types of batteries and designs of details for this particular class of work. Its bulletins lately issued, Nos. 99 and 100, for June and July, respectively, contain much of interest concerning this important subject, and should be in the hands of all railroad men interested. They will be sent on application. Address the company, at Allegheny avenue and Nineteenth street.

We have received from H. S. Balliet, the secretary-treasurer of the Railway Signal Association, volume 1 of the digest of proceedings of that organization, comprised within the years 1895-1905. It is a bulky volume of over 550 pages, illustrated with a number of drawings, and will be of great value as a book of reference to many railroad people. The book has been carefully prepared, the immense amount of work involved being clearly apparent. For purposes of record, a summary of the meetings is given with the president's annual address in full; finances and members elected, and list of officers, past and present.

On the westward journey to Denver to attend the convention of the Association of Railway Telegraph Superintendents, a number of the delegates and friends on reaching Omaha were met at the train by Mr. W. W. Umsted, manager of the Western Union Telegraph Company at that point, who extended to the travelers a most hospitable welcome, and who entertained his guests during their short stay by a ride about town.

A well-executed photograph has come to hand showing a group of men and women, delegates and guests to the convention of the Association of Railway Telegraph Superintendents, held at Denver lately, assembled in the snow on the summit of the Continental Divide. It was a novel situation for most of those present, particularly so when the summer date of June 23 is considered; while the zest of the occasion was added to by the prevalence of a heavy snow storm, the temperature marking but 22 degrees. An amusing and picturesque feature is shown in the fact that the majority of the individuals were clad in summer costume, including the conventional straw hat. It was a shivering assembly, yet a broad smile dominated the group.

Mr. E. A. Chenery, president of the Association of Railroad Telegraph Superintendents, and

who is superintendent of telegraph of the Missouri Pacific Railway System, St. Louis, Mo., has appointed association committees to serve for the ensuing year, as follows:

Committee on Arrangements.—Charles Selden, chairman, Baltimore and Ohio Railroad, Baltimore; L. B. Foley, Delaware, Lackawanna and Western Railroad, New York; F. G. Sherman, Central Railroad of New Jersey, Jersey City; C. M. Lewis, Philadelphia and Reading Railway, Reading, Pa.; Charles P. Adams, Southern Railway, Washington, D. C.; W. C. Walstrum, Norfolk and Western Railway, Roanoke, Va., and W. F. Williams, Seaboard Air Line Railway, Portsmouth, Va.

Ladies' Reception Committee.—Mesdames E. P. Griffith, Charles Selden, L. B. Foley, W. F. Williams and F. G. Sherman.

Committee on Topics.—A. B. Taylor, New York Central and Hudson River Railroad, New York; E. Parsons, Illinois Central, Chicago, and P. E. Hewitt, Southern Pacific Company, Houston, Tex.

Committee on Pole Construction to Withstand Sleet and Wind Storms.—William Maver, Jr., electrical engineer, New York; C. H. Bristol, general superintendent of construction, Western Union Telegraph Company, New York, and F. F. Fowle, American Telephone and Telegraph Company, Chicago.

Committee on Uniformity of Superintendent's Duties.—J. L. Davis, chairman, Chicago and Eastern Illinois Railroad, Chicago; W. P. McFarlane, Fremont, Elk Horn and Missouri Valley Railroad, Omaha, and F. H. Van Etten, Southern Indiana Railroad, Chicago.

Committee on Legislation for Wire Crossing.—G. H. Groce, Illinois Central, Chicago; G. C. Kinsman, Wabash Railroad, Decatur, Ill., and J. G. Jennings, Chicago, Rock Island and Pacific Railway, Chicago.

Committee to Confer with the American Railway Association as to State Laws.—E. P. Griffith, Erie Railroad, New York; L. B. Foley, New York, and C. P. Adams, Washington, D.C.

Obituary.

John N. Applebaugh, fifty-four years of age, a native of Bucyrus, O., manager and marine observer of the Western Union Telegraph Company at City Island, Long Island Sound, New York, died June 19.

The death is announced of A. Malpus at Oakland, Cal., a former telegrapher in the early sixties at Paterson, N. J. He was a United States Military Telegrapher during the Civil War., afterwards going to California for the Central Pacific Railroad, and later engaging in fruit culture in which occupation he became wealthy.

The Telegraph vs. the Telephone.

Editor TELEGRAPH AGE:

Permit me to offer a few remarks regarding the question of excessive expenditures in telegraph management referred to in your article headed "Telegraph Conditions," which appeared June 1.

I have often wondered why it was that telegraph corporations have not given practical recognition of the fact that the telephone was operated in direct opposition to their business, and met the telephone companies on their own ground and with their own weapons, namely, by establishing a telephone system of their own to be run in connection with the telegraph offices throughout the country. The telegraph companies already have the pole lines constructed for a long-distance service, and are maintaining offices in cities and villages throughout the country that could handle both branches of the service just as well as one of them. City construction, of course, would be the principal expense of such an undertaking, but the telephone people find good money, and plenty, in the business, are enterprising and readily comply with service demands, thus keeping their system well at the fore.

The great trouble with telegraph companies is that they have had a monopoly on wire communication for so long a period it is hard for them to realize that the time has arrived when they must admit competition, recognize the pressing necessities of the hour, and cater to the people instead of expecting the people to cater to them.

If the public wants the telephone, and it most certainly does, then why should not the telegraph undertake to provide telephones for its use, thus furnishing the single lacking auxiliary feature calculated to make the combined system well nigh perfect. Moreover, the adoption of the telephone would do much to overcome the weakest spot in the telegraph service, that is, the delivery. The public demands quicker action on their short haul, or local business, even if the expense therefor be increased and they are getting it through the medium of the telephone.

The telegraph companies spend thousands of dollars in up-to-date line construction, copper wires, quadruplex and wheatstone instruments, dynamo plants, typewriters and bonus operators, and cut out innumerable relay stations in their endeavor to increase speed and carrying capacity. The result is that business is piled into its destination and into the hands of the delivery department, the latter being but the survival of the same old system that Morse employed fifty years ago, and long since outgrown, namely, the messenger boy, and a lot of irresponsible clerks, who do not know the first rudiments of the business.

If the messenger boy might be eliminated and the telephone substituted therefor, and the dozen or more cheap clerks were to give way to half

the number of older heads paid living salaries, immediate improvements would follow. Lessen the number of times that messages have to be handled, and you lessen the percentage of errors and delays. For instance, John Smith in Portland, Ore., wishes to find out from "Bill" Jones in Seattle, Wash., the price of eggs. To obtain this information a telegram must, under ordinary circumstances, pass through fifteen intermediate hands before he receives his answer. Why the needless delay involved?

Another thing, the apparent increase in taxation imposed on telegraph plants, is explained by the fact that the telegraph systems have heretofore been almost entirely overlooked in this respect, and that the present assessments about which we hear so much, are simply but a just imposition compelling payments that in equity should have been paid for generations past.

However, if taxes must be paid they would probably be no more on poles carrying fifty telephone wires additional than they are now on poles carrying but one telegraph wire, the advantages of which arrangement are obvious.

It is claimed that damage suits are another source of expense. Nine-tenths of the damage suits originate in the delivery department, traceable to slow delivery or to non-delivery, a fact which in many cases is due to incompetency of the clerks handling that department, and the messengers' lack of ordinary horse sense.

It might be said that telephone errors would become a source of damage suits, and that telegraph companies would have to become responsible for them, instead of side-stepping them as they do now. The source of telephone errors principally, as in the telegraph service, is because of cheap clerks, who lack in judgment and common business sense, who put down what it sounds like irrespective of the sense of the reading.

Of course it is but a truism to say that the telephone is here to stay. Its utility is such that the public demand it. A telephone system, therefore, operated in conjunction with the telegraph would furnish a combination of strength and of impregnable front, hence the sooner the opposing enemy, the telephone per se, will be routed, and that, too, by the employment of their own weapons, the better.

The general drift of your article to which I have referred, is apparently one to discourage employees looking to an increase of wages, and reading between the lines, it even goes so far as to hint at a possible reduction, in order to meet the "excessive expenditures," outgoes which in reality are only legitimate expenses, necessary in order to keep the telegraph up to the requirements of the times, and which manifestly should be provided for out of past and future profits.

To illustrate: Suppose a dry goods merchant found that his store was too small, or that his stock was not up to the requirements of the trade, how would it look if he were to announce

to his employees that he was about to enlarge his establishment and increase his profits by adding new features and handling goods that the people demanded, and that it would be necessary, in order to do this, to decrease wages or to discourage merited increases in pay. He would take no such position. He would want the good feeling of every man, from foreman to cash boy; they would get words of encouragement and increases in salary, if the merchant expected to make a success of his undertaking.

With net profits of over seven million dollars for 1905, according to a recent report of the Western Union Telegraph Company, the cry of economy and excessive expenditures does not appeal to the general employee as one of real necessity, but rather a cry for increased profits for 1906. Let the telegraph re-incorporate under the name of "Telegraph and Telephone Company," if their present franchises do not cover the case, and provide for this emergency, the same as the telephone people are doing under the head of "Telephone and Telegraph," a title broad enough in scope to include the future possibilities of covering the entire field with telegraph as well as telephone, as they do now in a small way. But the telephone is their long suit. Why? Because there is more money in it.

A WESTERN OPERATOR.

[Our correspondent does not take altogether an equitable view of the situation of the telegraph vs. the telephone. Referring to but one feature of our correspondent's letter, if he had been a more careful reader of TELEGRAPH AGE than he asserts himself to be, he would have remembered that in discussing the question editorially at different times it has been stated that the telephone could not be utilized except in small places, as a medium through which to deliver telegraph messages. In all large cities at eight o'clock in the morning there are, as the case may be, anywhere from five hundred to twenty thousand messages ready for delivery. If our correspondent can demonstrate successfully to the officials of the telegraph companies how, for instance, any considerable portion of this vast number can be telephoned to business houses immediately after they have opened for business, he will prove a benefactor to the service. The subject is nothing new, for as a matter of fact the telephone has already been tried for the purpose named. The scheme is not practical, and until some genius, the like of which has not yet appeared, shall provide some better means for promoting delivery, the old-fashioned messenger boy must continue to be relied upon for the purpose. Evidently his days are not yet numbered.—Editor.]

"Keep my name on the list. I expect to be a subscriber always. Can't afford to be without TELEGRAPH AGE," is the value W. F. Williams, superintendent of telegraph, Seaboard Air Line, Portsmouth, Va., places on this journal.

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.]

NEW YORK, WESTERN UNION.

Miss Mary Lee, one of the most expert copyists in the Wheatstone and Morse departments, has gone to Denver, Col.

Mr. Edward Mesler has been assigned to the State Camp, Sea Girt, N. J., vice C. S. Pike.

Miss Nina Voorhees, Neostyle operator, has been assigned as assistant to Mr. W. J. Quinn.

Miss Kate Meyers and Miss Mamie Coan have been transferred to Block Island, Mass., for the season.

A daughter was born June 19 to Mr. H. A. Moody, chief message clerk.

NEW YORK, POSTAL.

This is the vacation season and a number of operators are absent in the mountains or at the seashore on recreation bent, while many have been assigned to summer offices. Among those who have returned from outings are W. C. Morris, day annunciator chief, who has been absent three weeks; and Harold Dobbs, who spent two weeks in the mountains.

Jay O. Gegler has been promoted to be annunciator chief, nights.

The second annual outing of the telegraphers will be held August 21 at Boehm's pleasure grounds, New Dorp, Staten Island. The programme of entertainment will include dancing, baseball, football, surf bathing and other outdoor sports. Prizes will be awarded for different events. Those who desire to secure positions on ball teams, Commercial vs. Brokers, should file application with the committee before August 8. Tickets, which includes dinner and refreshments, are placed at \$1 each; ladies' tickets seventy-five cents, and can be purchased from members of the committee.

Mr. S. Cohen, manager of the office at 274 Columbus avenue, has been transferred as manager to the 696 Columbus avenue office, vice W. Fitzgerald transferred to the managership of the 274 Columbus avenue office.

Mr. L. Schwartz has been appointed manager of the 70 West Fifty-eighth street office, vice A. P. Coleman, transferred.

OTHER NEW YORK NEWS.

A son was born to Mr. C. F. H. Johnson, chief clerk to Superintendent of Telegraph E. P. Grif-

fith of the Erie Railroad, on June 28.

Mr. Edward R. Sellev, an old time telegrapher, well known to the older members of the craft in New York, is acting chief operator of the fire alarm telegraph, fire headquarters, East Sixty-seventh street, New York, since the decease of George Farrell.

Mr. Alexander Craw, a well-known old time telegrapher, general yard master at Avis, Pa., for the New York Central and Hudson River Railroad Company, and former division claim agent of the Pennsylvania division, has been promoted to be a general office claim agent with headquarters at the Grand Central station, New York.

The death of George Farrell, chief of the fire alarm telegraph, New York, occurred on June 30. Mr. Farrell, who was fifty-eight years of age, had been in charge of the bureau since 1898; he entered the department in 1873. He was a son of James Farrell who was maritime observer at Sandy Hook since the introduction of the telegraph as a means of reporting the arrival of vessels.

Recent New York Visitors.

Mr. S. B. Lefley, Columbia, Pa., identified with the Standard Oil Company at that point. Mr. Lefley is the inventor of the Lefley telegraph key.

Mr. Nelson C. Buell, identified with the Western Union service at Cleveland, O., for the past

forty-three years. Mr. Buell was accompanied by his wife and daughter, and spent several weeks here.

Mr. W. P. Cline, superintendent of telegraph, Atlantic Coast Line, Wilmington, N. C. Mr. Cline was accompanied by his wife and daughter and was returning from the Denver convention of the Association of Railway Telegraph Superintendents.

Mr. John Cowden, late of the Marconi station at Siasconset, Mass., and formerly of Pretoria, South Africa, and Albany, West Australia; and Charles Quayle, of Pretoria, who is a native of Australia, and who is visiting this country on a vacation. Mr. Cowden will remain permanently in New York, having accepted a position with the Postal Telegraph-Cable Company, but Mr. Quayle will return to his South African home in August.

The Train Despatchers' Convention.

The convention of the Train Despatchers' Association of America, the nineteenth in the series, was held at Buffalo, N. Y., June 19, 20 and 21. The association has a membership of 954, and twenty-eight applications for membership were received. The treasurer holds \$2,500 to the credit of the association. Two entire sessions were devoted to a discussion of the interpretation of certain train rules and to practices relative to train movements.

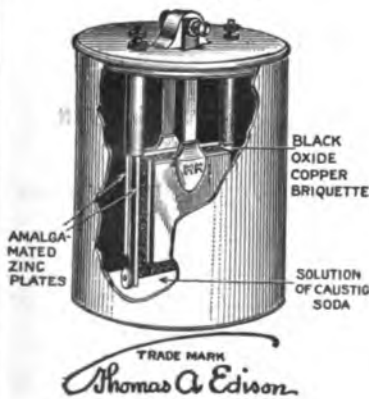
The election of officers resulted as follows: President, J. E. Holleran, Boston and Maine Railroad; vice-president, R. P. Riggs, Rock Island; secretary and treasurer, J. F. Mackie, Rock Island; executive committee, J. B. Jerome, Indiana Bridge Company, Louisville, Ky., chairman; J. D. Beaver, Pennsylvania, Buffalo; T. W. Kane, Sante Fe, Spokane; J. F. Molineux, Illinois Central, Fulton, Ky.

Mr. S. R. Wright, secretary and treasurer of the Telegraph Signal Company, of Rochester, N. Y., was present and demonstrated his invention of an electric call bell and signal apparatus.

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On Battery Design



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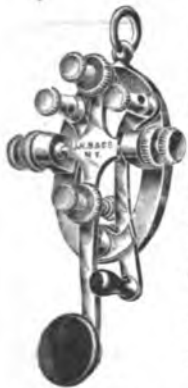
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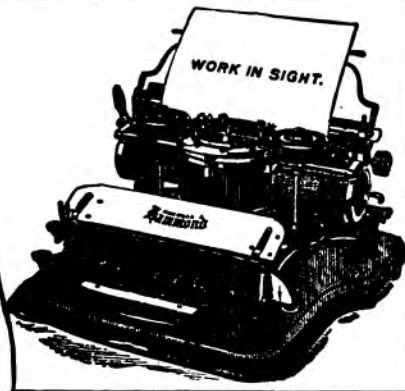
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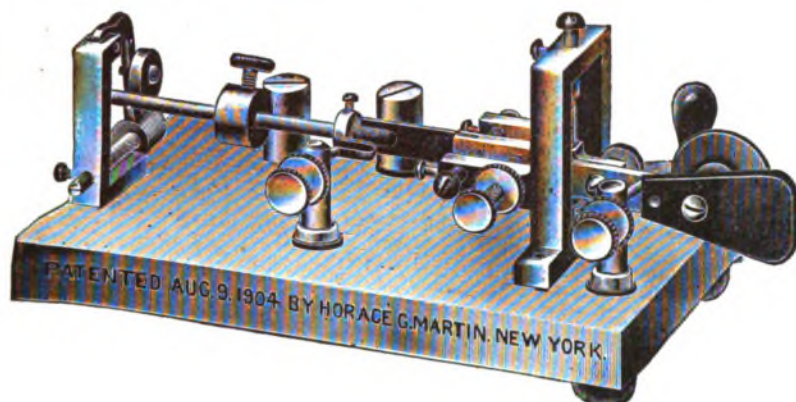
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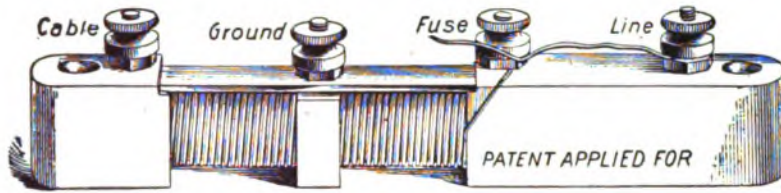


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