TELEGRAPH AGE

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

Office of Publication: 253 BROADWAY, NEW YORK

ESTABLISHED 1883

Single Copies 10 Cents { $1.50 per Year / 2.00 to Foreign Countries

VOL. XXIV., No. 21. NEW YORK, NOVEMBER 1, 1906. Whole No. 563.

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TELEGRAPH AGE

No. 21. NEW YORK, NOVEMBER 1, 1906. VOL. XXIV.

CONTENTS.

SOME POINTS ON ELECTRICITY.

Questions and Answers.

BY WILLIS H. JONES.

A correspondent asks:

(a) What is the difference between the construction of a dynamo machine and that of a motor?

(b) What is the distinction between a motor dynamo and dynamotor?

(c) What is a rotary converter?

(a) From a theoretical standpoint there is no difference whatever in the construction of the two machines designated by those respective terms. Each machine becomes a motor or a dynamo according to the manner in which it is operated. If the armature is rotated by means of mechanical power applied at a pulley connected to the same shaft, electric energy is generated in the armature and may be taken from the brushes. Such a machine, operated in that manner, would be called a dynamo, or generator. On the other hand, if the armature is caused to rotate by means of an external current of electricity applied to its brushes, mechanical power may be delivered from the pulley by means of a belt or direct gearing. In this case the same machine would act as a motor and consequently be termed a motor. For practical reasons, however, the motor is often constructed in a shape that will permit of a more suitable mechanical connection with other apparatus than could be obtained in some of the upright types used for generating current only. Otherwise the construction of the two machines might be identical so far as the necessity of any difference exists.

(b) A motor-dynamo is a machine in which the armature coils of the generator or dynamo is rotated by means of a motor, in contradistinction to one rotated by belt and pulley. Such a machine usually consists of a motor and a generator, both mechanically connected together on one common shaft. When the motor coil is supplied with a current of electricity the revolving of its armature and common shaft rotates the armature of the companion or generating part of the device, which latter obviously acts as a dynamo, hence the term motor-dynamo. The motor may be wound for either direct or alternating currents. If the machine consists of a motor and a dynamo, both using one common field, having either two separate armatures, or one armature with two separate windings, it is called a dynamotor.

(c) A machine so wound and otherwise arranged that one set of windings acts as both motor and dynamo, is called a rotary converter, the name being suggested by the rotary motion the magnetic fields of such machines assume during their operation.

Another correspondent asks:

In what manner does a piece of iron become a magnet by passing a current of electricity around it? What relation has magnetism to hysterisis?

Every piece of iron is made up of an infinite number of small particles called molecules. Each of these molecules is normally a little magnet in itself; and when in a state of rest, that is to say, not disturbed by extraneous influences, the irregularity or lack of uniformity in the arrangement of their positions in relation to one another is normally such that their combined magneto force, as manifested in the iron, is nil.

When a current of electricity, however, is caused to flow around the metal, the electric energy thus expended tends to compel the separate molecules of iron to align themselves all in one direction. The alteration in their respective positions thus turns their magneto forces all in one direction, with the result that the entire mass of iron becomes one big magnet, instead of a receptacle for a number of almost equally balanced magneto forces. The greater the current, the more perfect the alignment. In very soft

iron the molecules nearly all resume their normal positions the moment the current is withdrawn, hence demagnetization. The few that remain where forced by the current constitutes what is called residual magnetism. In hardened iron, or steel, comparatively few of the molecules are able to resume their normal position, hence our "permanent" magnets, such as are used in polarized relays, horseshoe magnets, etc.

Now, if we attempt to rapidly magnetize and demagnetize a piece of iron containing a considerable number of these unrestored molecules, it will be found that the latter act as a resistance to the current and thereby lessen its efficiency. This counterforce is termed hysterisis. In other words, hysterisis is a term which refers to that abnormal arrangement of molecules in a mass of iron which resists changes in the direction of the magnetizing current.

Still another query is:

What is a Foucault or eddy current?

A Foucault or eddy current, also sometimes called a parasitical current, is one produced in metal by an electromotive force developed therein due to the alterations in the density of the magnetic lines of force the mass is subjected to while acting in the capacity of, let us say, a field magnet, or the armature of a dynamo. The resulting parasitical electromotive force causes currents of its own creation to pass through the body of the iron and in this manner diminishes the output of the machine. Such currents, however, are not very formidable except in large masses of metal. In large dynamos the volume of eddy currents is kept at a minimum value by constructing the magnet and armatures of many sections, or sheets arranged in parallel. These laminations, as they are called, act as a resistance to the flow of the Foucault current and thus reduce its volume.

Another question is:

What is electrical resonance?

One of the clearest illustrations of the meaning and application of this term that we have seen may be found in the opening paragraph of an article on that subject in a recent edition of the Western Electrician. It is as follows:

"When a certain number of simple harmonic electromotive forces are impressed upon a line conductor, then a branch line may be adjusted so that it will offer a much smaller impedance to one of these electromotive forces than to others. This will take place when the natural period of the branch is the same as that of the selected electromotive force. This physical fact is known as electrical resonance."

We will add, in connection with this question, that Professor Dr. M. I. Pupin has recently been granted a patent for the operation of an ingenious quadruplex, the method of which is based upon the principle of electrical resonance.

(To be continued.)

Mr. Atkins Elected a Vice-President of the Western Union Telegraph Company.

George W. E. Atkins for many years superintendent of the contract and free service departments of the Western Union Telegraph Company, New York, has been elected to the position of acting vice-president in charge of the contract department. This elevation confers upon Mr. Atkins an added dignity, and widens the scope of his influence and operations, and may be accepted as a just recognition of the ability and faithfulness with which he has conducted the affairs of his important office..

Mr. Atkins' career affords another instance of the value of application, study and conscientious effort on the part of the individual as requisites in determining and rendering possible success in life. Mr. Atkins, who is a native of Tennessee, where he was born in 1850, began life in the railroad telegraph service, advancing from the positions of messenger, office boy and batteryman to that of operator for the Nashville and Northwestern Railroad, his accession to the key being in

GEORGE W. E. ATKINS, OF NEW YORK.

1865 at Waverly, Tenn. Railroad telegraphy engaged his attention during his earlier years, and when he first came to New York from the West in 1875, he was not only an accomplished telegraph operator, but was also an expert stenographer. His appointment to the head of the contract department of the Western Union Telegraph Company in 1896, placed him in a position where the versatile aptitude of the man was given opportunity to obtain fuller development. His long experience in his department has broadened him into a man of executive force and character, and with a ready command of papers, knowledge of contracts and accounts, excellent memory and methodical habits of labor, render him one of the most efficient men of the Western Union staff.

For many years Mr. Atkins was the treasurer of the Telegraphers' Mutual Benefit Association, and at present is the president of the Gold and Stock Life Insurance Association. At the annual meet-

ing of the Gold and Stock Telegraph Company, New York, held September 28, Mr. Atkins was elected a vice-president of that company.

Western Union Officers Re-elected.

At a meeting of the directors of the Western Union Telegraph Company, held October 17, the retiring officers were re-elected. They are as follows: Robert C. Clowry, president and general manager; George J. Gould, J. B. Van Every, Thomas F. Clark, vice-presidents; A. R. Brewer, secretary; M. T. Wilbur, treasurer; J. B. Van Every, auditor; John F. Dillon, general counsel; G. H. Fearons, general attorney; Rush Taggart, H. D. Estabrook, solicitors. The office of acting vice-president in charge of the contract department was created and G. W. E. Atkins was elected to that office.

The executive committee was reduced from twelve to nine members and the following men now constitute that committee: Thomas T. Eckert, chairman; Robert C. Clowry, John T. Terry, George J. Gould, Joseph J. Slocum, Edwin Gould, Frank J. Gould, Jacob H. Schiff and William L. Bull. Mr. Slocum succeeds the late Russell Sage. James H. Hyde and Sam. Sloan were the two former members whose names do not appear on the committee elected. Mr. Hyde is abroad and Mr. Sloan's health has not permitted him to attend to business regularly for some time.

Owing to a technicality in the matter of advertising the special meeting of the stockholders recently held to ratify the bond issue, it has been decided to re-enact the proposition at another meeting of the stockholders, which has been called for November 23. For the purposes of that meeting the transfer books were closed on October 24 and reopen on November 24. At the recent special meeting proxies were voted in favor of the proposition aggregating 30,000 shares in excess of the necessary two-thirds vote to carry it. It will be necessary to solicit new proxies for the special meeting to be held on the 23rd inst., although there was no opposition to the plan.

WESTERN UNION TELEGRAPH COMPANY

EXECUTIVE OFFICES.

Col. Robert C. Clowry, president and general manager of the company, was elected October 15 a director of the Colorado Fuel and Iron Company, of Denver, Colo., in place of David C. Beaman.

Mr. Thomas F. Clark, vice-president of the company, who has been absent on account of illness for the past three months, has returned to his office much improved in health.

Mr. M. W. Hamblin, manager of the city offices, has returned from Mount Clemens, Mich., where he has been sojourning for the past three weeks for the benefit of his health.

Mr. Leonard Cox, the traveling accountant of the company, has returned from his European business trip, which has kept him on the other side of the Atlantic for the past six weeks.

Among the recent executive office visitors were: T. P. Cummings, manager of the New Orleans, La., office; J. S. Calvert, assistant superintendent, Atlanta, Ga., W. H. Doherty, manager, Albany, N. Y., and James Swan, superintendent, Minneapolis, Minn.

The "Morse Electric Club," a social organization, was formed by officials and employees of this company on October 16. Two committees were appointed, one on incorporation and organization consisting of Belvidere Brooks, John C. Barclay, E. M. Mulford, Frank J. Scherrer, A. T. Benedict, Marion H. Kerner, P. J. Casey, Gardner Irving and D. Skelton, and the other on constitution and by-laws made up of A. G. Saylor, B. H. Reynolds and J. W. Schmults. A report from both of these committees will be made early this month, when a permanent organization will be effected. The new club will begin its existence with 150 charter members. It is designed to make this exclusively a Western Union club.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

By reason of the coming of Mr. E. J. Nally from Chicago to New York, to assume his duties as vice-president of the company, a rearrangement of the executive offices on the tenth floor has been deemed necessary. As now adjusted Mr. William H. Baker, vice-president and general manager remains in his old quarters, occupying the corner office, Broadway and Murray street. Adjoining Mr. Baker along the Broadway front, the first room belongs to Thomas E. Fleming, assistant secretary and special agent; next to this are located Mr. Baker's staff of clerks, while the next apartment is given over to Mr. Nally's clerks, Mr. Nally himself being domiciled in the large extreme north room of the building. The location of the reception room remains unchanged. West from Mr. Baker's office the first room is devoted to the use of stenographers, while beyond this, following down the long corridor running parallel with Murray street offices are occupied in the order named. provision also being made for the several staffs of clerks; Charles P. Bruch, vice-president and assistant general manager; Charles C. Adams, vice-president; H. F. Hawkins, superintendent of leased wires; Minor M. Davis, associate electrical engineer and traffic manager; Edward G. Cochrane, general superintendent eastern division, with clerks occupying next adjoining room; George H. Usher, superintendent second district; Theodore L. Cuyler, Jr., assistant treasurer, and lastly, at the extreme rear of the building, Col. Albert B. Chandler, chairman of the Board of Directors. Edward Reynolds, auditor, and Isaac Smith, superintendent of tariffs, will continue to occupy their former offices on the west corridor. The office of Charles

Shirley, superintendent, has been moved from the tenth floor to the ninth.

The daughter of Mr. Francis W. Jones, electrical engineer of this company, Miss Leonora Jones, was married on October 20 at the home of her parents to Dr. George Edward Weaver, of New York. Dr. and Mrs. Weaver will be at home after November 1 at "The Marion," 2610 Broadway.

This company has finished its new main operating room in its Washington, D. C., office. It is located on the fourth floor of the building for some years occupied by the company at 1345 Pennsylvania avenue. It is probably the most up-to-date operating room of any in the company's entire system. There is not a particle of wood used in connection with the installation of the main switchboard (except the test shelf), which is of 150 wire capacity. The operating room, until November 1, was located on the ground floor of the building. This space will now be occupied as a public reception room and by the manager and his staff of employees, ample space being allowed for the receiving and delivery departments. The quarters of Mr. G. W. Ribble, the superintendent, will remain on the third floor as heretofore. The manager is Mr. J. D. Prosser, and both that gentleman as well as Superintendent Ribble are exceedingly pleased with the ample facilities now at their disposal.

DINNER IN HONOR OF E. J. NALLY.

A complimentary dinner was given to Mr. E. J. Nally, who for many years has been general superintendent of this company at Chicago, on the evening of October 15, at the Union League Club, that city, prior to his departure for New York. Speeches complimentary to Mr. Nally on the conduct of his office there, and wishing him success in his larger opportunity in New York, were made by Frank J. Loesch, Joseph H. Defries, Walter H. Chamberlain, Father Vattman, retired U. S. A. chaplain; Walter Fitch, Will P. Williams, W. E. O'Neill and Fred. W. Upham. B. E. Sunny acted as toastmaster. Letters congratulatory were sent by Melville E. Stone, Addison C. Thomas, George W. Jackson, A. H. Revell, F. R. Babcock, Col. R. C. Clowry, J. C. Eastman, John M. Glenn, W. C. Hately, Angus Hibbard, J. Keeley and J. Hamilton Lewis.

Among those present were: W. Rufus Abbott, C. M. Baker, W. E. Bell, Elmer E. Black, S. H. Black, Ben. B. Bryan, John P. Byrnes, W. I. Capen, T. W. Carroll, Will H. Clark, F. W. Conger, F. W. Cushing, A. C. Frost, E. W. Hardin, W. R. Holligan, F. G. Jennings, S. J. Larned, C. F. Loesch, W. J. Lloyd, Harry J. Powers, Leigh Reilly, Franklin P. Smith, Henry T. Smith, B. E. Sunny, F. H. Tubbs, T. P. Cook, John Fitzpatrick and E. F. Carry.

Recent Telegraph Patents.

A patent, No. 832,632, for a multiple contact for electrical condensers, has been granted to John F. Skirrow of East Orange, N. J. A block of insulating material contains contact fingers in parallel grooves.

A patent, number 832,035, for a feeding mechanism for perforating machines for preparing telegraphic messages for automatic transmission has been granted to Charles L. Buckingham, New York, and Emil Germann, Brooklyn, N. Y.

A patent number 832,303 for an automatic reminder for telegraph operators has been awarded to Samuel F. Estell, Los Angeles, Cal. A manually controlled lever for opening the telegraph circuit is in combination with an automatic reminder signal. A detent is provided for holding the signal out of indicating position and is operatively connected with the lever.

Resignations and Appointments.

The following change has occurred in the service of the Postal Telegraph-Cable Company, of Texas:

Mr. W. S. Arnold, manager at Austin, Tex., has been transferred to the managership at Fort Worth, Mr. E. C. Pace being promoted to the vacancy thus created.

Wireless Telegraphy.

A special cable dispatch from Berlin says: "The delegates to the International Wireless Telegraph Conference had a preliminary exchange of general views at the session from which it appeared that the British delegates were prepared to go further than previously supposed toward international regulation. The attitude of the British has been awaited with the utmost interest because upon Great Britain's action the success or partial failure of the conference depends. The British delegates joined in the view that wireless telegraphy had developed to a point where international accord was desirable. In this endeavor it is said to be quite possible that the Marconi company will yield sufficiently to make an agreement possible. The British course will probably be followed by Italy, which has similar relations with Marconi. Agents of the principal wireless companies throughout the world are here watching the proceedings." Mr. Marconi appears at the conference as representative of Montenegro, which is taken amiss by Germany because Prof. Slaby, his principal rival, declined to become a delegate. The American delegates, representing the state, war, navy and commerce and labor departments, are keeping their own counsel, giving no indication that they reservedly favor the German proposals, as has all along been taken for granted. Assistant Minister of Posts Sydow of Germany, was elected president of the conference.

Mr. George Hanscom, chief electrician of the Mare Island Navy Yard, has returned from the Farralones with his force of men, where a wireless plant sixteen times more powerful than the old one, has been installed. Great hopes are entertained of getting connection with Honolulu. Four men were left in charge and the result of test soon to be made is awaited with interest.

Regulation of wireless telegraphy through an international bureau to which all the nations shall appoint delegates and compulsory exchange of messages by all wireless systems is a proposition which has been offered to the International Wireless Congress now in session at Berlin, Germany, as the solution of the problem for establishing international rules to govern the new method of transmitting messages. The crucial question of intercommunication between the companies using different systems, which it has been feared will break up the congress will soon be reached, when the proposal for an international bureau will be made. Germany will present the proposition that each nation shall have one representative in the bureau and one vote. England is opposed to the plan of single delegates and votes, as she believes the great maratime powers are entitled to more votes than the minor nations. She will propose an amendment that any nation's autonomous colonies shall be allowed to send delegates, with the proviso that every nation shall be limited to seven delegates. This change is not satisfactory to Germany and a substitute has been offered to allow all colonies, whether autonomous or despotically governed to have delegates in the bureau, limiting the representation of every nation to six members. The question has been referred to a sub-committee. Under the German substitute the United States would be entitled to five delegates to the bureau as the Philippines, Guam, Tutuila, and Porta Rico would be eligible to representation. Great Britain's objection is to such miniature possessions having equal voting power with Canada, Australia and South Africa.

George J. Gould on Governmental Ownership of Public Utilities.

George J. Gould said in an interview, at St. Louis, on October 24, in discussing Governmental ownership of public utilities:

"If the Government believes it can manage our railroads better than we can, and it wishes to operate them, I have no objection to selling the properties. I would sell to the Government as willingly as to an individual or company, were the lines to be disposed of, although ours are good properties and are not on the market. This is how I feel, as a railroad man, in regard to the public ownership of carriers.

"But, as a private citizen, I am opposed to the public ownership suggestion. The Government could not manage the properties successfully. Private capital or enterprise is better equipped than the Government for directing railroads, and would realize successful results against failures on the part of the Government.

"There seems to be an impression that the Government would be superior to private enterprise, which impression is apparently founded on experience in Europe. Public ownership, or Governmental ownership, as it is more properly called in countries having a different political organization, is not the success in Europe that by some Americans it is believed to be. In fact, Government ownership is a failure in Europe.

"Italy, for example, would gladly surrender its proprietary interests and its public obligations, and it is even now taking steps to turn the State's lines over to private companies. Governmental ownership and management of the telegraph lines of Great Britain is an expensive experiment for the administration.

"The burden of the comparative failure of this form of Governmental enterprise rests on the taxpayers of England.

"The chief reason that State ownership of railroads prevails in Europe is the necessity or desire to provide ample precautions against the possibility of war. Europe is virtually armed at all times, and it is for the purpose of being able to control the arteries of travel in the event of hostilities that Governmental ownership of railroads is the general policy. From other standpoints Governmental ownership of carriers is not a success.

New York Visitors.

Mr. S. F. Fenton, accompanied by his wife. Mr. Fenton is an old time telegrapher, now retired and residing at Salt Lake City, Utah.

Mr. W. E. Peirce, repeater chief for the Western Union Telegraph Company at Pittsburg, Pa. Mr. Peirce has resigned his position in the "Smoky City" and expects to remain in the East.

Mr. S. K. Bullard, superintendent of telegraph of the Missouri, Kansas and Texas Railway, Sedalia, Mo. Mr. Bullard was accompanied by his wife and attended the Railway Signal Association convention at Washington, D. C.

Mr. P. J. Feeney, an old time telegrapher, of Bangor, Me., who was en route home from the reunion of the Old Timers at Washington. Mr. Feeney was accompanied by his wife and spent several days in New York visiting friends.

Mr. George W. Lawton, for many years past superintendent of construction at various places for the Western Union Telegraph Company, as well as the Baltimore and Ohio Telegraph Company, now identified with electric light interests at New Haven, Conn.

S. E. Leonard Goes From Denver to the Western Union Superintendency at Omaha.

The promotion of Stark Edward Leonard from the position of assistant superintendent at Denver, to succeed Superintendent Horton, deceased, carries to the higher office a young man of much promise. Curiously enough he succeeds a man who held the assistant superintendency at Denver and for approximately a corresponding length of time with that of Mr. Leonard, for the latter has been there only since May last. Mr. Leonard is from the South, having been born at Milton, Fla., February 8, 1875. At less than thirty-two years of age he is one of the youngest superintendents in the telegraph service in the country. He went to Denver from El Paso, Texas, where

STARK E. LEONARD,
The new Western Union Superintendent at Omaha, Neb.

for four years he was manager of the local Western Union office, previous to which time for six years he was superintendent of telegraph and trainmaster of the Rio Grande, Sierra Madre and Pacific Railroad.

The Cable.

Cable communication is interrupted with:

Venezuela	Jan. 12, 1906
Messages may be mailed from Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902
Canary Islands—	
Island of Palma	July 12, 1906
Steamer from Teneriffe.	
Island of Lanzorote	Sept. 18, 1906
Steamer from Las Palmas.	

Dr. D. H. Goodsall, a director of the Western Telegraph Company, of the Pacific and European Telegraph Company, and of the London Platino-Brazilian Telegraph Company, died suddenly in London on September 14.

Mr. George Gray Ward, vice-president and general manager of the Commercial Cable Company, accompanied by his family, has returned to New York and is once again at his office after an absence of more than six months in an extended trip which took him to the Orient.

Mr. C. H. Reynolds, of London, general manager of the Pacific cable board, who was recently a visitor in this country, coming hither from Australia, where he went principally to arrange for active competition with the Eastern Extension Telegraph Company, said that the increase in the business of the all British Pacific cable is between 3,000 and 4,000 words a week more than a year ago and in New Zealand the Pacific cable board has more than three-quarters of the business.

It was recently mentioned that the Eastern Extension Telegraph Company has obtained a concession from the Dutch Government to land a cable at Java for a period of years ending in 1944, the cable being laid to the Cocos or Keeling Islands, belonging to the Government of Ceylon. It was then suggested, on the authority of a Berlin newspaper, that the new cable would be a serious competitor to the cable enterprise of the German-Netherlands Telegraph Company, of Cologne. The latter company now states that it is incorrect to assume that the new cable will be a rival to its cable in the Pacific Ocean between Menado-Yap-Guam and between Yap and Shanghai. On the contrary, the Java-Cocos Islands line is expected to be a new feeder to its service—as, for instance, for telegrams from Africa—and, consequently, will presumably lead to an increase in traffic. It is further mentioned by the company that the cable between Java and the Cocos Islands does not represent the establishment of a first connection between the Dutch Indies and Australia, but that it only adds a fourth to the three lines to Australia which have been in existence for a long time past. As a consequence, the conclusion is fallacious as to a possible diversion of the present traffic between the Dutch Indies and America, via Australia and the British Pacific cable, especially as the rates for the route via Australia are higher than those obtaining via Menado-Yap-Guam.

Book Review.

Mary Agnes Byrne, a former telegraph operator, who has done some good work as a writer of children's stories, as shown in "The Little Woman at the Spout," "Roy and Rosyrocks," "Little Dame Trot," etc., has brought out another volume entitled "The Fairy Chaser;" Saalfield Publishing Company, Akron, O., 150 pages, illustrated, printed on heavy coated paper, 60 cents. It is not often in these modern times that fairy tales of a class such as we used to read in days of childhood reach the juvenile mind. Their reappearance in pleasantly told text is to be commended.

Death of Charles B. Horton.

After a protracted illness, due to Bright's disease, Charles B. Horton, superintendent of the Western Union Telegraph Company, at Omaha, Neb., died at his home in that city Saturday evening, October 20. The death of Mr. Horton removes a man whose competency for the position he occupied was never questioned. He was a close student and observer of men and affairs and possessed a comprehensive and accurate knowledge of the condition and requirements of his district, the interests of which he held in intimate touch. Mr. Horton was fifty-six years of age, having been born at Geneva, N. Y., January 25. 1850. His early experiences, while yet but a lad, in crossing the plains in a "prairie schooner," and the exciting part he took in an expedition against the Indians, have been recited in

THE LATE CHARLES B. HORTON, OF OMAHA, NEB.

these columns. His subsequent connection with the regular army was always prized by him in after life, for it taught him the value of the soldierly qualities exemplified alike in obedience or in exercising command.

He became identified with the Western Union Telegraph Company, July 3, 1878, as an operator. The excellence of his early education well fitted him for higher duties, and his promotion to the position of cashier of the Omaha office followed. Later he became clerk, stenographer and chief clerk in the office of the late Superintendent J. J. Dickey. His next advance was on June 1, 1890, when he was made assistant superintendent under his chief. In the spring of 1902, when Mr. Belvidere Brooks was promoted from the position of assistant superintendent at Denver to that of general superintendent of the eastern division at New York, Mr. Horton was the one selected to succeed him in the vacated office. He remained there but a short time, for owing to the death of Mr. Dickey on December 29, 1902, he was recalled to Omaha, whither he went as superintendent.

Mr. Horton was a Mason and the funeral services were conducted according to the Masonic ritual. There was a large attendance of telegraphers, officials and others, from both the commercial and railroad services, and the floral offerings tendered were numerous and beautiful. Mr. Horton is survived by his wife, three sons and a mother far advanced in years. .

Obituary.

W. E. Wineland, a telegrapher, aged forty-four years, died at Philadelphia, October 21.

Marcus E. Gillum, a telegraph operator of Los Angeles, Cal., died of heart disease on October 5, at Oakland, Cala.

Miss Emily P. Burton, for twenty years a Western Union telegraph operator, at Worcester, Mass., and other points in New England, died at New Haven, Conn., on October 8.

Frank W. Mack, aged forty-five years, and who from 1894 to 1901 was superintendent of the easten division of The Associated Press, New York, died October 24, at Santa Ana, Cal.

Henry Clay Sherman, who during the Civil War was chief operator on Gen. Butler's staff, died in Boston, October 24. He was sixty-one years old, and has been connected with the Western Union Telegraph Company in Boston for thirty-eight years, but for the past three or four years he has been in the oil business.

Patrick J. Foley, aged fifty-five years, a well-known Western Union operator at Cincinnati, died after an illness of but a few hours, in that city October 12. He was an operator of exceptional ability, and had been in the Western Union employ for more than twenty-five years, formerly and for years having handled The Associated Press reports. .

Creosoted Poles.

Trolley, telegraph and telephone poles, it was asserted at the Columbus Street Railway Convention, have been treated only to a very limited extent by the creosote process as a means of preservation. In the matter of trolley poles it was said that in the case of one plant where the transmission voltage is 3,000, creosoted poles were not used for the reason that the leakage would have been too great at this voltage. Where creosoted poles are used, the spans are doubly insulated in the same manner as with steel pole construction.

The Railway Signal Association.

The annual meeting of this association was held at Washington, D. C., October 16, 17 and 18, and it was by far the best attended and most enthusiastic meeting that the association has ever held. Two hundred and twenty-eight members and about three hundred guests of members were present, a good many members having brought their wives. The membership of the association is now over 600. The supply men have formed an organization, the Signal Appliance Association, and forty-five firms, members of the association, were represented in the exhibits. These were displayed in a large room on the same floor with the meeting room, except some full-size automatic electric signals, in operation, which had to be left outdoors. Milwaukee was selected as the next point of meeting. The annual election of officers for the ensuing year resulted in the choice of J. A. Peabody, signal engineer of the Chicago and Northwestern Railroad, Chicago, and C. C. Rosenberg for president and secretary, respectively, the latter succeeding Mr. H. S. Balliet, who could no longer give the necessary time to the position.

The Railroad.

Mr. A. J. Benjamin, superintendent of telegraph, of the Baltimore, Chesapeake and Atlantic Railroad, died at Salisbury, Md., at the age of sixty-one.

Mr. C. W. Douglas, an old Erie Railroad telegrapher at Wayne, N. J., on the Greenwood Lake Railroad, who is seventy-five years of age, celebrated his gold wedding on October 15.

Mr. W. M. Knowd, chief clerk to the superintendent of telegraph of the Atchison, Topeka and Santa Fe system, Topeka, Kan., has been appointed manager of telegraphs of the Gulf, Colorado and Sante Fe Railroad, with headquarters at Galveston, Tex.

The New York, New Haven and Hartford Railroad Company and the Western Union Telegraph Company are moving their wires some distance back from the tracks of the railroad, the object being to avoid the heavy voltages of the feed wires. This railroad is now being electrified between Stamford, Conn., and New York City and it was thought the telegraph and signal wires would be rendered useless by the high currents.

Personal Mention.

Mr. O. A. Weidner, the newly appointed assistant superintendent of the Atlantic City Railroad, was a former telegrapher.

Katherine, daughter of John F. Wallick, superintendent of the Western Union Telegraph Company at Indianapolis, Ind., was married on October 23, to Louis E. Lathrop.

Miss Mary Darley Collins, only daughter of J. W. Collins, chief operator of the Western Union Telegraph Company, Washington, D. C., was married to Mr. John Mc. C. Glover on October 24.

Col. A. B. Chandler, chairman of the board of directors of the Postal Telegraph Cable Company of New York, has returned to the city from his farm at Randolph, Vt., where he spends his summers.

Mr. Denver Lawton, son of "Old Farmer" Lawton, of the Western Union Telegraph Company, Denver, Colo., nineteen years of age, is a young man of much intellectual promise. The other night, at Golden, Colo., he appeared in public recitation, which won for him much commendation, the newspapers according high praise to his efforts.

Mr. John A. Creighton, of Omaha, Neb., a forty-niner of the telegraph, to commemorate his seventy-fifth birthday, deeded to the Creighton University of that place, of which he was one of the founders, two buildings located in the wholesale district of the city, valued at $500,000. Mr. Creighton's previous benefactions to the University have been most liberal.

Mr. Daniel Colestock of Titusville, Pa., who is an Old Time and United States Military telegrapher, told a story at the recent reunion of Old Timers' at Washington, D. C., that goes to prove that the old timers as well as the up-to-date operators made errors. He stated that he was assigned for Government service in the early sixties to Charleston, W. Va. When he reported there at the telegraph office he was told by the manager that they had a very important despatch from Washington addressed to Col. E. Stock, which could not be delivered because the party was unknown.

Mr. J. Orton Kerby, of Washington, the well know Old Timer, traveler and author, at one time United States Consul at Para, Brazil, now a resident at the capital, was present at the recent reunion of the Old Timers' at Washington, and was noted as a picturesque figure. He met many friends, cronies of other days, and numerous experiences of the intervening years were exchanged between the old companions. Naturally Mr. Kerby dwelt much on his South American trip in search of rubber, the story of which he has put in book form, in a work entitled "The Land of To-Morrow."

Mr. William H. Young, of Washington, D. C., president of the Old Time Telegraphers' and Historical Association, on October 20, celebrated his thirty-ninth anniversary of his membership in that city of the order of the Sons of Jonadab, of which he is the Sovereign Secretary. On the occasion in question a number of councils met to tender felicitations to the guest of the evening. Speeches were made, a musical programme was carried out, and a good time generally was had. The Sons of Jonadab is a temperance organization, in which Mr. Young has been a conspicuous figure, and through which he has accomplished so much for members of the telegraph profession.

Telegraph Age.

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

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

TERMS OF SUBSCRIPTION.

One Copy, One Year,	$1.50
One Copy, Six Months,	.75
Foreign Countries,	2.00

ADDRESS ALL COMMUNICATIONS TO

J. B. TALTAVALL, - Editor and Publisher,
253 BROADWAY, NEW YORK.

E. H. BOWEN, Associate Editor.
WILLIS H JONES, Electrical Editor

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

CABLE ADDRESS: "Telegage," New York.
Telephone, 4143—Cortlandt.

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NEW YORK, NOVEMBER 1, 1906.

The success of the savings banks conducted under the direction of the Post Office in England presents a most creditable, as well as interesting showing, clearly demonstrating their popularity as affording a safe place of deposit for the savings of the common people. The system of administration adopted also admirably adapts itself to all needs. It cannot be doubted that faith in Government control of moneyed institutions acts as a powerful incentive in attracting depositors; for when the integrity of the bank is thus guaranteed, precluding all failure, unless the governmental structure itself is wrecked, the security offered becomes as nearly absolute as human ingenuity can make it. These English postal banks had on deposit at the close of 1905, the enormous total of about $760,000,000. The extract from the postmaster general's report relative to the savings bank department, in which figures and facts are quoted, will be found in another column. The practical suggestion it conveys is one well worthy of consideration. This scheme is more in keeping with legitimate governmental function than in taking control of public utilities.

Classifying Membership in the Old Time Telegraphers' Association.

Mr. J. N. Worl, of Westfield, N. J., an old time telegrapher, now retired, and a member of the Old Time Telegraphers' and Historical Association, has some original ideas as to membership standing in that organization. He declared that the term "Old Time," as now applied to the membership, is, to a certain extent, a misnomer, for the reason that all members, old and young, under the present arrangement, are placed in the same classification. He would rectify this anomalous condition of things by dividing the membership into two divisions, the older members, all those who entered the service prior to 1870, constituting the first, the second being made up of all those who have joined the ranks subsequent to that date. This, he thinks, would establish a proper and consistent grouping. He further argues that at the annual reunions the calling of the roll of the first division should have priority, thus furnishing a readier means of ascertaining who of the original old timers have passed away. He is of the opinion, also, that the first division should be allotted seats in the business meeting apart from the others, and that at the banquets such members should be assembled by themselves. He further says that as the United States Military Telegraph Corps is composed of original old time telegraphers, they should be accorded the same recognition as the old timers referred to. Mr. Worl sent a communication embodying his views on the subject to the old timers lately in session at Washington, as stated in our issue of October 16, and the comment thereon respecting his proposition was in the main favorable to its adoption.

Avoid Cynicism.

It is unfortunate to observe the spirit of cynicism manifesting itself with growing frequency in the rank and file of the wage workers in this country as against employing interests, and in contradistinction to the principle and disposition shown in former times. Its presence is not confined alone to any single occupation in which men engage, but appears with more or less harshness in all lines of employment. It is not unknown in the telegraph business, where the advent of the carping mind in an avocation that requires the exercise of a broad minded and catholic intelligence, is to be especially deplored. For the indulgence of such a proclivity is retroactive in its influence, and when persisted in tends to dwarf the intelligence of the individual and narrow his environment.

The attainment of success in life is the hope of almost every one, even though at times faulty ideas governing conduct gain ascendancy and true ambition seems blunted. It is desirable sometimes to pause and reflect upon the causes that retard or impel men in life; for the individual to seriously and with candor question conditions that surround and directly affect his personal welfare.

Self examination is a good thing, and it is just as well to set out with the accepted thought that, barring accidents and ill health, only the deserving will meet with success. This is simply but recognizing the law of equivalents, avowed by God and acknowledged by man. Time spent, therefore, in fault finding and applying censure

of real or supposed ills is not calculated to enhance one's chances. The best way is to get a clean, buoyant mind, divest oneself of all casuistry, and secure an outlook upon the future, bright and discerning, strictly in harmony with honest intent. Every man should be his own best friend, for a true friend will tell us of our faults, and rejoice with us when we overcome and throw them aside, and step out into the clear light of high-minded self respect and manly endeavor. Natural gifts are, of course, a mighty aid to any one, but dogged persistence sometimes wins the race.

What we would urge is that men should seek to fit themselves with greater assiduity to the duties immediately surrounding them. These well performed, with commendable intelligence, will surely pave the way for future preferment. The demand is not alone in telegraph, but in every line of business, for men who can "do things." The telegraph has need of men to fill hundreds of the higher offices it has to bestow. The operator who has shown himself intelligent and capable is wanted for a chiefship; competent managers are in demand. Who are to fill these positions? If the operator has proved his capacity and the telegraph will not reward him as it should, his opportunities for gaining outside employment are increased many fold. Repining or caviling in his present position certainly will not aid him.

Technical knowledge is becoming more and more a requisite in the telegraph. It is to the obvious advantage of the companies to give the preference to men so educated, and in the future it is the technically trained man who will gain the success which was the ambition of young manhood. Promotion comes rarely to the ill-qualified operator.

A Contract by Telegraph is Complete When the Acceptance is Deposited for Transmission.

A correspondent of the New York Commercial Bulletin seeks information from that journal regarding the legality of a contract made by telegraph, stating the case as follows:

At 11.10 A. M. Saturday, September 29, a telegram was received by us in New York from a party in Texas, making us an offer of merchandise, subject to immediate reply. At 11.15 A. M. we telegraphed accepting the offer. Our telegram, however, did not reach Texas until 7 P. M., and the Texas party refuses to confirm the transaction on account of this delay, basing his refusal on the ground that on Saturday the telegraph companies were only receiving messages subject to delay. Please inform us whether the purchase is invalidated by this fact. We, of course, complied literally with the terms of the offer, as the offer was not subject to reply to reach the seller at a certain time, but only subject to prompt reply on our part, which reply was made promptly, and in good faith, and for the purpose of filling an order of one of our customers.

The enquiry elicited this reply:

"There was a completed contract in this case, and both parties are bound by it. The moment at which it became completed was 11.15 A. M., of Saturday, September 29. That is the moment at which the buyers accepted the seller's offer, and that is the moment at which, in contemplation of law, the acceptance was communicated to the seller. If it was delayed in actually reaching him, or if it never reached him at all, he must look to the telegraph company to make good his loss, if any. He is bound in either case. The telegram was his own chosen means of communication, and he cannot repudiate it now. This is the effect of all decisions on the subject. See 36, N. Y., 307, where it is held that 'when an offer is by letter or by telegram, the acceptance signified in the same manner is sufficient, irrespective of the time when it comes to the knowledge of the proposing party.' See also 4 Dill. (U. S.) 431, where it is held: 'In contracts by telegraph the same rules as to acceptance prevail as in contracts by mail; the contract is completed when an acceptance of the proposition is deposited for transmission in the telegraph office.' See also 86 Ga., 558; 111 Ill., 421; 15 R. I., 380; 58 S. W. Rep., (Tenn.) 382, and numerous other cases, English and American, cited in the course of those decisions."

Wire Crossings of Railways.

In an article referring to the rules and specifications prescribed by the Canadian authorities for overhead wire at railroad crossings the Railway and Marine World, says:

"Where open lines are strung across railway tracks the stretch must consist of copper wire, to be of not less than No. 13 new British standard gauge .091 inches diameter. Wire to be tied to the insulator on each of the double cross arms by a soft copper tie wire, of same dimensions as line wire, not less than twenty inches in length. Where a number of rubber covered wires are strung across railway tracks they may be made up into a cable by being twisted on each other or sewn with marline, which must be tied every three feet and the whole securely fastened to the poles by marline. Guy wires crossing railway tracks must consist of either seven stranded No. 16 or No. 13 galvanized steel wire and must be clearly indicated as guy wires on the plan accompanying the application.

"An iron hook guard to be placed on the end of each cross arm, or a copper wire loop guard over each wire and fastened by staples to the cross arm.

"Where cables are strung across tracks they must be carried on a suspension wire of not less than seven strands of No. 13 galvanized steel wire, which when cross arms are used will be attached to a three-quarter inch iron hook, or when fastened to poles, a malleable iron messenger hanger bolted through the poles; the cable to be attached to the suspension wire by cable clips not more than twenty inches apart. Rubber insulated cables of less than three-quarter inch in diameter may be carried on a suspension wire of not less than seven strands of No. 16 galvanized steel wire."

The First Attempt Made in Washington to Organize a Telegraph Insurance Bureau.

Mr. William H. Young, president of the Old Time Telegraphers' and Historical Association, at the recent reunion at Washington, D. C., presented to those assembled numerous interesting papers on various subjects pertaining to the telegraph. Mr. Young's career goes back almost to the earliest days of the telegraph, and the fact that he has been located at the National capital during his entire life where he has come in contact with so many men eminent in the profession, he may be regarded as a competent authority on all subjects respecting the developments of the calling in which he has been so long engaged. One of the matters to which he called attention was that of the first attempt ever made in Washington to organize a telegraph insurance bureau. He said:

"At an informal meeting of persons engaged in the telegraph profession, called March 27, 1867 (Sunday afternoon), in the Fire Alarm Telegraph office, on Louisiana avenue opposite the City Hall, Washington, D. C., it was proposed by Mr. D. L. Findley that a life insurance bureau be organized among the telegraphers of the country. After some discussion it was agreed that D. L. Findley, A. F. Childs and J. M. Sarvis as a committee, should prepare some plan to be presented at a future regular meeting. Among those present at this meeting were Wm. H. Young, A. B. Talcott, D. L. Findley, A. F. Childs, J. M. Sarvis, Thomas H. Sherman, J. E. Hahn and M. Y. Holly.

"At the fourth annual convention of the National Telegraphers' Union held at St. Louis, September 11 and 12, 1867, William H. Young of Washington, D. C., moved that a committee of three be appointed to prepare a plan of life insurance. This proposition was afterwards amended and a committee of five, namely, J. W. Stover, William H. Young, A. L. Whipple and Messrs. Lawrence and Woodruff were appointed, with full power to establish a plan of life insurance for all persons in telegraph employ.

"Soon after the meeting held in Washington, Mr. D. L. Findley went to New York and discussed the proposition of insurance. In the Telegrapher of October 19, 1867, appeared this notice:

"That the National Telegraphic Union, by authority of its special charter granted by the State of New York, proposes to insure the lives of all persons connected with the telegraph business in this country, and set forth certain rules to be followed.

'(Signed) J. W. Stover,
'Actuary.'

"On October 26, 1867, the following notice appeared in the Telegrapher:

"TELEGRAPHERS' MUTUAL LIFE INSURANCE ASSOCIATION.

"A meeting was held on Monday evening last in this city for the purpose of organizing a Telegraphers' Mutual Life Insurance Association; Mr. J. D. Reid was elected treasurer of the association and Mr. D. R. Downer, secretary.

"An executive committee of five were appointed of which the treasurer and secretary were constituted members. The notice signed by J. W. Stover was continued in the Telegrapher as an advertisement for over six months."

This action was the forerunner of the Telegraphers' Mutual Benefit Association.

Touching upon the subject of electrical societies, Mr. Young had this to say:

"In the early part of the year 1865 the telegraphers in Washington, D. C., organized an association for mutual improvement. A meeting place was engaged from a medical society that met over Gilman's drug store, on Pennsylvania avenue between Sixth and Seventh streets, N. W., next to the Metropolitan Hotel, and once every week Prof. Joseph Henry, who was then at the head of the Smithsonian Institution, was escorted to this hall by a committee composed of George C. Maynard and James F. Hahn, where he delivered a series of lectures and experiments on electrical science that were greatly enjoyed and proved of incalculable benefit to all the members."

This was undoubtedly the first electrical society to hold regular meetings in the United States.

Telegraphy on the English Military Field of Operation.

A special correspondent of the London Daily News, writing in connection with the army manoeuvres from Aldershot, England, says:

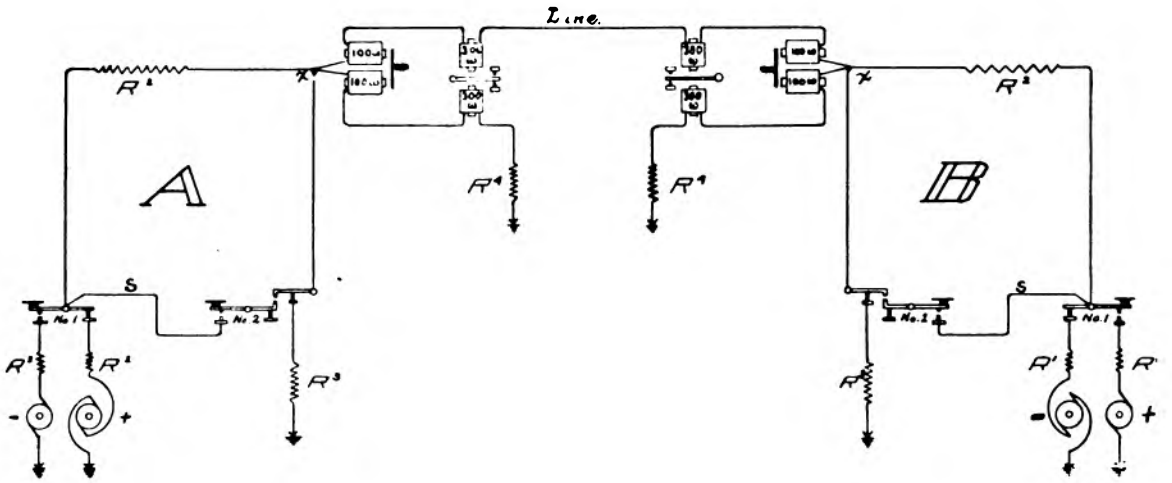
"Of the actual field operations I am informed that what most impressed the military attaches and the military visitors was the system of communication that is now practised by the Army Corps between the various units. Visual signaling, which is to say, signaling by flags or heliographs in the daytime or with lamps or any other form of shutter flash at night, has so many defects that its use, except within quite interior lines, must eventually be discarded. It is felt that it is frequently as much use to an alert and watchful enemy as it is of service to the army using it. The telegraph, so far, is the medium that best commends itself to military men. It is faster and much less liable to be 'tapped' or read off by anyone with whom communications are not intended than any known form of visual signaling. Wires, of course, may be cut from time to time, therefore, the 'wireless' method has its advantages. In the Army Corps both wired and wireless telegraphy is practised, and on the South Downs constant communication was maintained between every unit in the field of the strength of a battalion, and also with detached units of even less potentiality."

Testing by Ammeters and Voltmeters.

BY FRANCIS W. JONES.

Electrical Engineer Postal Telegraph-Cable Company, New York.

Reliable voltmeters and ammeters have been supplied in such convenient forms, and are so generally used that they have to some extent obviated the tedious and careful calculations that were necessary a few years ago. The young telegraph student will nevertheless find it to his advantage to give attention to the fundamental principles which govern the electromotive forces and quantities of electric currents in the various circuits employed for telegraph purposes, and to calculate the volts, ohms, and amperes, that should exist in each case. A good example is a quadruplex circuit extending between two stations A and B, shown in the diagram. The Key System is that invented by Stephen D. Field, and the polarized and neutral relays at each station are shown connected differentially. This example



DIFFERENTIAL QUADRUPLEX.

may be called the student's Pons Asinorum. Ohm's formulas are as follows:

Current=E. M. F. divided by resistance,

Resistance=E. M. F. divided by current, and

E. M. F.=Current multiplied by resistance.

Referring to diagram we will assume that at both A and B, $R^1 = 600$ ohms; $R^2 = 1200$ ohms; $R^3 = 900$ ohms; $R^4 = 2600$ ohms. Neutral relay 100 ohms each coil; polarized relay 300 ohms each coil; line 1700 ohms; E. M. F. 355 volts plus and 355 volts minus. Fractions will be omitted. When both keys are open, A connects plus to line, and B connects minus to line.

At point x to incoming currents the joint resistance of the three circuits $R^1 - R^3$, R^2 and R^4 is 500 ohms. Also at x when No. 2 key is closed the joint resistance of R^1, via S, and of R^4 is 500. Also at x to outgoing currents the joint resistance of line, R^2 and R^4 is 562 ohms.

When key No. 2 is closed, the joint resistance at x of line and R^4 is 1500 ohms. The line resistance is composed of line wire 1700 ohms, two polar relays 600 ohms, two neutral relays 200 ohms, and 500 ohms, the joint resistance on line side of x making a total of 3000 ohms.

When all keys open, the E. M. F. acts through $R^1 = 600$ ohms; $R^2 = 1200$ ohms, and the joint resistance of line, R^2 and $R^4 = 562$ ohms = total 2362 ohms, giving a current of 150 milliamperes, which divides to line 28 M. A. via R^2 94 M. A. and R^4 28 M.A.

Current arriving over line at x divides approximately as follows:

8 M. A. via R^1 and R^2 15 M.A.'s via R^3 and 5 M. A. via R^4. At B the same conditions prevail as at A, and to the minus current of 150 M. A.'s in R^1 and R^2 must be added the incoming current of 8 M. A.'s, the total in this circuit of 158 M. A.'s. In R^2 at B to the 94 M.A.'s of home current must be added incoming 15 M.A.'s = total 109 M.A.'s in R^2.

To the B home current of 28 M. A.'s in R^4 must be added 5 M.A.'s of incoming current = total 33 M.A.'s.

The current sent to line by closing No. 2 key is three times greater than by No. 1 key alone.

With both keys open at B, and No. 1 open and No. 2 closed at A, current on line will be 84+28 = 112 M.A.'s, the increased incoming current at B will divide via R^1 and R^2 23 M.A.'s, R^3 46 M.A.'s and R^4 15 M.A.'s = total 84 M.A.'s, or three times more than when both keys open at A and B.

If No. 2 keys only are closed at A and B, the current on line will be A 84 M.A's.; B 84 M.A's.= 168 M.A's., and the A current arriving at B will divide as follows: R^1 72 M.A's., R^4 12 M.A's. = 84 M.A's. In the circuit R^1 will already be 168 M.A's. of B current which with incoming current will = 240 M.A's. It will become evident that the resistance coils used in these circuits must be constructed respectively to carry the maximum currents to which they are subjected.

When the keys are closed to place like polarity to line the currents are neutralized in the line in proportion to the excess of volts at the point x at either station, and the relays are operated at the

receiving station by the unneutralized currents of that station acting through the relay coils which are in the artificial circuit R^4.

The rule for ascertaining the potential at any point of a circuit by difference in resistance is as follows:

E = E.M.F. of dynamo.
R = whole resistance of circuit.
R^1 = point distant in ohms from battery where potential is required.
X = potential at said point, then

$$X = \frac{E\ (R - R^1)}{R}$$

Referring to diagram of quad at A, when both keys are open the potential drops through 1800 ohms to point x and through 562 ohms beyond, therefore, R = 2362; R^1 = 1800; E 355 and x = 84 volts, which give in line 28 M. A's. When No. 2 key is closed at A, the potential drops through 600 ohms to x and through 1500 ohms beyond, therefore R = 2100 and R^1 = 600, E = 355, and x = 252 volts, which give in line 84 M. A's.

The Field key may be arranged with R^1 R^2 and R^3 to give various proportions of current to line.

The following formulas will be convenient for the purpose:

Proportion of 1 to 2; $R^1 + R^2 = R^3$

Proportion of 1 to 3; $\frac{R^1 + R^2}{2} = R^3$

Proportion of 1 to 4; $\frac{R^1 + R^2}{3} = R^3$

$$\text{The Ratio} = \frac{R^1 + R^2 + R^3}{R^3}$$

Applying the second formula to diagram R^1 = 600 ohms; R^2 = 1200 ohms = 1800 ohms divided by 2 = 900 ohms.

To find the joint resistance of two or more wires connected in parallel circuit, add together the reciprocals of their respective resistance and divide 1 by this sum, for example:

$$\frac{1}{\frac{1}{1800} + \frac{1}{900} + \frac{1}{3000}} = 500 \text{ ohms}$$

A current divides among parallel currents in proportion to their conductivities, or in the inverse ratio of their resistances and the current in amperes in any branch may be readily ascertained by following formula, using resistance of circuits in diagram to illustrate:

Call E 355
R 1800 = (600 + 1200)
R^2 900
R^3 1500 = joint resistance of line and R^4; then

$$355 \times \frac{R^3 + R^4}{R\,R^3 + R\,R^4 + R^3\,R^4} = .150 \text{ ampere, the current in } R^1 \text{ and } R^2 \text{ circuit.}$$

Wireless Telegraphy for Railway Signaling.

The idea of applying wireless telegraphy to railway use is not new, if one include under this item the early attempts of Phelps, Smith, Brown and others with the so-called induction systems. So far no actual use is being made of the new system of communication for controlling railway trains, but Dr. E. Nesber describes here some interesting experiments made in this field near Berlin. A station was equipped with apparatus of the Telefunken system, and a horizontal aerial was adopted, about 210 feet long, 190 feet of which was stretched between two telegraph poles twelve inches below the telegraph wires, the remainder of the length being made up of the connections to the sending apparatus. A car attached to a steam-hauled train was fitted up with the receiving aerial, consisting of a horizontal rectangle of wire supported on six short posts. The receiving apparatus was placed in one compartment of this car. Experiments were made to determine the distance to which signals could be sent with certainty, and the influence of overhead wires. It was found that the latter, when directly over the car, interfered somewhat with the clearness of the received message. The experiment is thought to indicate that for railway signaling purposes a system of wireless telegraphy such as that used in this work can be depended upon to transmit messages about seven and one-half miles, and that with more attention to the equipments of both the fixed and moving stations, greater distances can be covered. The operation of the system was found in no way to interfere with that of the ordinary telegraph lines running along the road.—Abstracted from Elektrotechnische Zeitschrift (Berlin), by the New York Electrical Review.

Took the Wrong House.

On one of the southern railroads there is a station building that is commonly known by travelers as the smallest railroad station in America. It is of this station that the story is told that an old farmer was expecting a chicken house to arrive there, and he sent one of his hands, a newcomer, to fetch it. Arriving there the man saw the house, loaded it onto his wagon and started for home. On the way he met a man in uniform with the words "Station Agent" on his cap.

"Say, hold on. What have you got on that wagon," he asked.

"My chicken house, of course," was the reply.

"Chicken house be jiggered!" exploded the official. "That's the station."

The Toledo Office of the Western Union in the Seventies.

BY J. W. HAYES.

It is more than thirty years since the writer lived in Toledo, Ohio, yet faces, forms and events of that period are still distinct in memory. Toledo, always a beautiful city, pleasant of situation on the lovely Maumee River, which further up was often the scene of our outings, and which here finds its way into Lake Erie;—a city of homes which we used to consider ideal in their attractiveness, it was also a leading centre for the grain trade, for from this point extensive shipments were made. This fact naturally caused an active use of the telegraph, and hence it was that it gave to the Toledo telegraph office a rank and importance far in advance of other places of its size.

The office at Toledo, at the time of which I write, was under the charge of W. A. Beach, who died many years ago, a most faithful, kind and considerate manager. He was a gentleman of the old school, a forty-niner of the telegraph, and, I may say, a true Christian. Frank M. Green was the cashier and he closely followed out Mr. Beach's policy in being thoughtful and considerate of the other employees. The local officials were very particular as to the kind of timber they employed in the operating room, and as the scrutiny was close it may be a matter of wonderment how I ever acquired a position in this office. Once admitted to the select circle, however, one found himself amid pleasant environments and in the society of kindred spirits.

Charles O. Brigham was chief operator, yet I never could understand how it was that a man of his calibre should remain in such a position, for he was possessed of intellectual abilities far in advance of the average. Then there was Benjamin F. Thompson, assistant chief operator, who succeeded William W. Cummings, afterwards chief operator at St. Louis, abounding in good nature, full of pleasantries, and equally solicitous with his superiors for the welfare of the men. Mr. Thompson was an electrical expert of much ability, and as a result of over-study and close application his health broke down, and he is now and for many years has been an inmate of a New York State asylum. W. W. Wells was night chief. He was a quiet, unassuming man, a fine operator and a good fellow withal. George M. Brigham, The Associated Press operator, was jolly and genial, and had a way of getting very close to one's heart. The great story teller of the office was W. G. Davis, who had just returned from a sojourn at Montgomery, Ala. Thomas F. Clohesy was the political figure, while Joseph P. Church was the spiritual adviser of the office.

Another member, who preceded my coming, was A. E. Lang, who handled the day press service, and who left the telegraph to study law, which he afterwards practiced successfully in Toledo. The Adonis of the office was Charles P. Dorr. His fund of original anecdote was large, and his merry voice was much in evidence in the current topical songs of the day—when the manager was out. W. C. Tingle was another member of the staff, who left the service in the early seventies to publish a newspaper in southern Ohio.

Other names that come to mind who were associated with the office, either at this time, 1875, or possibly a little earlier or later, as the case may be, for I must own up to a memory now a little treacherous after such a lapse of years, were: J. M. Wright, now dead; J. B. Taltavall, now publisher of TELEGRAPH AGE; A. M. Pearce, now of The Associated Press, Chicago; George W. Hurd, now a broker in the South; A. S. Ayres, lately deceased; and Frank N. Dowler, who went to the general office of the Clover Leaf Railroad, Toledo, later being transferred to New York in an official capacity with that road, and who is now identified with the freight department of the Lackawanna road, New York; Peter J. Raidy, Edward Sterling, William H. Batchelder, now dead, and Albert H. Babb. Charles Selden came up from Cincinnati about this time to visit Toledo, where he had relatives residing. He was anxious to remain and I would have liked going to Cincinnati, but somehow we could not make the exchange. Mr. Selden, however, became a member of the Toledo force a few months later. He installed the first quadruplex that was used at Toledo, and remained as expert electrician. Electrical matters began to exhibit activity after Selden's arrival, and we soon had a flourishing electrical society, with Mr. Selden as chief lecturer. He understood his subjects thoroughly. He went to the American Union as district superintendent, with his office at Toledo, holding that position until the consolidation of the American and Western Union companies, when he was appointed superintendent of telegraph of the Wabash road, with office at St. Louis, Mo., succeeding George A. Beach, whose office was at Toledo, Shortly afterwards Mr. Selden received another promotion, going to the Baltimore and Ohio Telegraph Company as general superintendent. After the consolidation of the company with the Western Union Telegraph Company he became superintendent of telegraph of the railroad, a position he still retains, with headquarters at Baltimore. Mr. Selden was succeeded on the Wabash by his assistant, George C. Kinsman, who is still at the head of the telegraph service on that road.

At the Atlantic and Pacific office James M. McNamara was manager and Charles E. Cloud was his operator, both of whom are dead. Harry S. Converse, now electrician of the Western Union Telegraph Company at San Francisco, was operator for one of the railroads, subsequently becoming a member of the Western Union force centering at Toledo. His hobby was wire testing and the study has proved to be of much value to him in later life. E. W. Fish, now dead, was

manager of the depot office, George M. Myers having charge nights and Charles Brimson was the operator. George A. Beach was superintendent of telegraph for the Wabash system and William Kline, Jr., held a similar position with the Lake Shore and Michigan Southern Railway. I will venture to say that there are few operators raised in Ohio or Indiana who have not at some time in their careers worked for one or the other of the last named gentlemen. I worked for both, and only a kindly feeling is cherished for the two superintendents.

Many of the old friends and co-laborers about whom I have been writing have also passed away

Charles F. Wilcox was a gilt-edged operator who was with us for a while. He left Toledo about 1877, and later became a trainmaster of the Wabash road. His death was caused by an engine, upon which he was riding, running into a washout.

Curtiss D. Meserve, "one of the finest," opened the Board of Trade office during the seventies. Mr. Meserve is now with the Postal in Chicago.

John M. Cronenberg, whose copper plate was the pride of the office, came over from Cleveland during the latter part of the seventies, and remained several years. He left the service to engage in the grain brokerage business, in which he was very successful until his death, which occurred three or four years ago.

Samuel S. Barr was also a member of the force at this time, and later went to the Toledo Blade as press operator, and was still with them when I last heard of him.

Charles O. Stowe was employed as check clerk during the seventies, and later became an operator and worked two or three years, and left during the big strike.

Besides these, I recall the names of "Doug" Burnett, J. P. Golden, both of whom are dead; Charles F. Fischer, who went south; William Ernesthausen, deadl, and Robert H. Lord, who was drowned at Galveston at the time of the great flood.

The lineman in Toledo at this time was Joseph Keenan. He is still chief of the line forces there and as jolly as in the old days. He was assisted in the seventies by A. Stevens, Joseph Eldred and Robert Rippon, all expert linemen and fine fellows. Eldred was killed in a railroad wreck about twenty years ago, and Rippon was accidentally killed by an electric shock two or three years since while working behind the switchboard in the Toledo office. Stevens went to the American Union and Wabash as general foreman with Superintendent Selden, and later followed the latter to the Baltimore and Ohio Railroad, and is still in that service, with headquarters at Baltimore.

Then there was Charles L. Fischer, the Swiss battery man. He was "The man behind the gun" when one Grove battery served all of the wires out of Toledo, and later officiated at the introduction of the Daniell and gravity batteries in turn, and kept the juice boiling until the motor generator "got" his position a couple of years ago. Mr. Fischer was proud of his batteries and always kept them in A-1 shape. He was an intelligent and thrifty man, and still resides in Toledo.

Of the living, George M. Myers, a sketch of whom and whose portrait appeared in the October 1 issue of TELEGRAPH AGE, resides in Kansas City, Mo. Thomas F. Clohesy, after making his mark in Missouri politics, is now in the electrical business in Cincinnati, while Charles Brimson is, or at least was, in the hotel business at Fresno, Cala., some years ago. George M. Brigham and W. G. Davis are about the only old members of the staff "holding the fort" at their old stamping grounds; J. P. Church is chief clerk for G. C. Kinsman, superintendent of telegraph of the Wabash Railroad at Decatur, Ill., and William Kline still retains his position of superintendent of telegraph of the Lake Shore and Michigan Southern Railway at Toledo, the dean in the service. A. H. Babb is a prosperous commission broker at Peoria, Ill.

George Kennan, father of the world renowned traveler, lecturer and scholar, George Kennan, was manager at Norwalk, O. J. W. Hunter, affectionately known as "Duke," one of the finest fellows in the business, was manager at Sandusky; Miss Nellie M. Kelly, now of The Associated Press, Columbus, O., was manager at Port Clinton; Miss Carrie Lefevre was manager at Clyde, and J. S. Butnam was manager at Fremont, O.

Relatives of "Skidoo."

How the passions will stimulate the growth of language is an interesting study, says the Chicago Journal.

One of the most curious examples of this is in the every day desire to get rid of some unwelcome visitor.

No philologist will ever trace the origin of these grotesque expressions, nor fathom how they were ever made susceptible of expressing an idea. "Skidoo" is a modern example that is just as expressive as "Get out," but where it came from and who were its sponsors is not clear, to say nothing of its development into a full-rounded word.

Following is a partial list of other phrases and words: Absquatulate. Vamoose the ranch. Shake your dusties. Light out. Shunt off. Beat it. Retire. Get out. Go away. Leave. Hit the trail. Hike. Skedaddle. Make your escape. Twenty-three for you. Scoot. Raus mit 'em. Blow. On your way. Trot along. Back to the mines. To the tall timber. Get a move on. To the grass. Go along. Get. Ta-ta. So long. Brush by. Shut the door from the outside. Dig.

B. F. Woodward Indulges in Reminiscence.

B. F. Woodward, of Denver, Col., whose picture and sketch appeared in our October 1 issue, while in a reminiscent mood, lately wrote to us as follows:

It has been my good fortune to know well many of the men who became distinguished and prominent in the telegraph service, or, after leaving it, in other lines of achievement. Among these were Anson Stager, Thomas T. Eckert, James D. Reid, David Brooks, George B. Hicks (Hicks repeater), John I. O'Reilly (brother of Henry), William B. Chandler, David Homer Bates, and later, William Orton, Dr. Norvin Green, and that ever courteous and genial gentleman, J. B. Van Every. I entered the telegraph service in 1850, at the age of sixteen, though looking much older. I went from Pittsburg to Philadelphia, and was given the position of copyist, in the office of the National Telegraph Company, which consisted of three independent corporations, viz., the Atlantic and Ohio, with wires from Philadelphia to Pittsburg, and a leased wire from Philadelphia to New York; the Pittsburg, Cincinnati and Louisville, and the southern line, Louisville to New Orleans. These companies had joint offices in Pittsburg and Louisville, and exchanged business, though having entirely separate organizations. James D. Reid was the superintendent of all three. In the Philadelphia office, where I was employed, David Brooks was manager, John McGonnigle and Deacon Hough were the operators. We worked two Harp (paper) instruments, one to New York and one to Pittsburg. Sound reading was unknown until several years later. After I had been with Mr. Brooks for several months, Mr. Reid came over to Philadelphia from New York and asked Mr. Brooks to recommend a man for receiver of the New York office to relieve Mr. John Horner. Mr. Brooks, for the lack of better material, recommended me. The reason given for the change was that the New York office was not paying expenses, although the salary of the receiver, Mr. Horner, was only one thousand dollars per year. My pay was to be six hundred dollars. I hesitated and objected on the plea of being too young and inexperienced, but Mr. Reid said I was all right, and the following day I went to New York and reported to Mr. Horner and Mr. Smith, the manager. Mr. Horner, meanwhile, had changed his mind, and was willing to remain for a time at fifty dollars per month. Mr. Smith informed me that he was certain Mr. Reid would prefer to have Mr. Horner remain at that salary and that I could assist at the receiver's desk and in the operating room. The office was at 181 Broadway, in the rear of a rubber store. Smith and Bailey were the operators. I had no word from Mr. Reid for over three months. He had gone to New Orleans and thence sailed for New York. When he reached New York he offered me a position in the Pittsburg office, which I gladly accepted. The Pittsburg office was on Fourth street, over the Mayor's office, and was the most important office of the system, having five or six operators and relaying business to Cleveland, Erie and Brownsville, on local lines. On the Atlantic and Ohio side William H. McCalla and myself were the operators. On the Pittsburg, Cincinnati and Louisville side, Edwin C. Bush and Marion H. Markle were the operators. The Brownsville line had T. B. A. David as operator.

Within a year we moved from Fourth street to the corner of Third and Wood, with a grade floor receiving office, in charge of John Glass and later Robert Glass. I had a natural liking for mechanical work and was given the task of running all the wires in the new office, which I did, with the help of the battery man, John Connor. The operating room was a large one. The operating tables were about four feet high, for the purpose of giving length to the weight cord of the Harp register instruments. We had two bellboys, Andrew Carnegie and David McCargo, the former being succeeded by Robert Pitcairn. In the center of the room was a long table, at which the newspaper reporters made up their telegraphic reports for the papers. The office force was shortly increased by the addition of David Fleming and George B. Hicks. All through messages were relayed at Pittsburg. I had heard of button or switch repeaters and asked to be permitted to convert two of the Harp instruments into repeaters, among the first that were ever used. My button switch was my own invention. It was made of a large disc of ivory with eight silver-plated points. The repeaters worked satisfactorily and thereafter saved much relaying of through business, though we had to keep a copy of the address, signature and check. The eight-pointed button necessitated a somewhat complicated arrangement of wires under the table. None of the operators took the trouble to study it out, but Andrew Carnegie, who had acquired some knowledge of telegraphing, laid upon his back under the table until he mastered the problem. At that time the use of the telegraph for train despatching was unthought of. Thomas A. Scott was division superintendent of the Pennsylvania Railroad Company. His office was at the outer depot in Pittsburg, and his telegrams were greatly delayed. One day he asked Mr. Glass to recommend a cheap operator who could receive and send business from his office. Mr. Glass came upstairs and asked me about it. I told him "Andy" was quite equal to the work required. In this manner Andrew Carnegie was started upon his career as a railroad man, who has been, I think, the cleanest and greatest of the captains of industry this country has produced. I think his first salary with Mr. Scott was not over $25 per month.

The Western Union Telegraph Company, originally the House Printing Telegraph Company, a Rochester, N. Y., corporation, had the best constructed line in the country at that time, extend-

ing from New York to Buffalo. After several years' struggle with that complicated system the House company was forced into buying one of the weak Morse companies, so as to obtain the right to use the Morse patent. In a short time it bought the Wade, Cornell, Speed and other Morse systems, and reached Cincinnati, Chicago and St. Louis. The purchase of the Wade and Pew lines gave the Western Union connection with Pittsburg. A Western Union office was opened on Wood street, and John Leach was put in charge as manager; Thomas T. Eckert was division superintendent. The office under Leach did not pay expenses. Leach caught the California gold fever, and went to California, and I succeeded him as manager and operator of the first Western Union office in Pittsburg. A little rustling and the use of local paragraphs in the newspapers increased our patronage, and I had the pleasure of remitting a small balance to Uncle Ira Elwood, treasurer, at Rochester, the first month, and every month thereafter while I held the position. But what delighted me most, I received from him monthly a personal letter containing very kind and flattering words of appreciation. Anson Stager, who had been manager of the National at Cincinnati, accepted the superintendency of the Western Union.

After about one year as manager of the Pittsburg office I was induced to resign, in order to engage in merchandising in Illinois. Edward P. Wright, of Cleveland, relieved me, but soon became homesick and returned to Cleveland. He was relieved by Edward Culgan, of Buffalo. I remained in business at Fulton, Ill., until the beginning of the Civil War. I had for several years been much troubled with asthma. In 1861-62, Thomas T. Eckert, who also for a time had been out of the business, escaped through the Southern lines and shortly afterwards was appointed assistant superintendent of the United States Military Telegraph under Stager. Learning of this, I wrote to Mr. Eckert asking for a position in the field, where I hoped to benefit my health. He did not wait to reply by mail, but telegraphed me: "Come to Washington at once." I disposed of my business and within forty-eight hours was en route to Washington. On arrival I went directly to "Di" (War Department) Washington office and saw Mr. Eckert. He exclaimed: "By George, I'm afraid you're too late. I wanted you to go with Colonel Bulkley to New Orleans to open up the Southern lines; they were to sail this afternoon." He telegraphed to New York and found they had already sailed. The result was that after several weeks' unassigned duty at "Di" office I was given a Government "cipher" and ordered to report to General Peck, in command at Suffolk, Va., the extreme outpost of the Army of the Potomac. An operator named Holloway did most of the military and other work at Suffolk. General Peck had a private cipher with General Wool, his superior officer at Fortress Monroe, and had no use for a government cipher. Hence my office was a sinecure, but General Peck gave me the passenger station of the Norfolk and Petersburg Railroad for an office. I had two orderlies from an Indiana cavalry regiment, a contraband black boy to do chores, and the society of a number of interesting Union officers, who, like myself, had very little to do, had several hair-breadth escapes from Confederate pickets, while horseback riding beyond our picket lines, in company with Dr. Reed, a volunteer surgeon and my messmate. The lack of active occupation, together with the fact that I had left behind me a young wife, and the hope of improved health in California, caused me to resign in the spring of 1863. I did so, returned to Fulton, and planned to go to California overland. I had heard that W. B. Hibbard, who was operator at the Cleveland depot when I was at Pittsburg, was in Omaha. Thinking he could give me information regarding the overland trip, I visited the telegraph office at Fulton, got the operator to connect me through to Omaha, and called Hibbard to the key. I told him my plans, asked about stage fares, etc., when he broke in and said: "You're just the man I want. We are about to build a branch line from Julesburg to Denver, Colo. You can have the Denver office." I was somewhat taken aback, not knowing that Hibbard was superintendent of the Pacific Telegraph Company, whose line extended from Omaha to Salt Lake City, via Julesburg, and thence northwesterly to Fort Laramie, Fort Bridger and Salt Lake City. With the understanding that I could accompany the building party, if I wished, and go on to California if Denver did not suit me, I went across Iowa, mostly by stage, to Omaha and thence in a few weeks to Julesburg. The wagon train with men and material for building the branch from Julesburg to Denver was much delayed, but finally arrived, with a foreman named Johnson who was to construct the branch line. The train consisted of about twenty-four immense prairie schooners loaded with wire, insulators, etc., and eighteen or twenty linemen; the poles were also being distributed. Johnson was taken down with typhoid fever the day the train reached Julesburg and died within a week. With the approval of Edward Creighton, the president of the company, I took charge of the gang and built the line to Denver, opening the Denver office October 10, 1863. I was made division superintendent of the Western Union a few years later. After many years in that position I became superintendent of telegraph of the Denver and Rio Grande Railway, a position I held for more than a dozen years, but for some ten or twelve years have not been in active business. I organized and built the United States and Mexico Telegraph Company line, extending from Denver to Santa Fe (projected to the City of Mexico), but stopping at Santa Fe, and later sold to the Western Union. Building and operating telegraph lines through almost desert regions, often without wagon roads for fifty miles and more, with repair stations fifty

or sixty miles apart—the operator being the repairer, who when out on horseback with saddle bags filled with climbers, plyers, block, tackle, etc.—was very different from present conditions on railroad lines. But do not think for a moment that the pioneers are objects of sympathy, or are entitled to special consideration for risking the perils of Indian attacks, road agents and a lawless element that always flocks to new gold fields. They enjoyed life, made more money and had more pleasure than those who remained in the East. Indian attacks, lynchings and other exciting events were not unmixed with a sort of pleasurable excitement that was not sought for but was not greatly dreaded.

I have had the satisfaction of seeing Denver grow from a village of thirty-five hundred to a city of over one hundred and seventy-five thousand, with business blocks equal to any on the continent, and with supreme faith that it is destined to rank as one of the five or six great commercial cities of the United States.

Some peculiar incidents and experiences have come to me. While at Julesburg I had two men killed by lightning who were at work where the line crossed the Platte River on the road to Fort Laramie, although the storm at the time was ten miles away. The same storm completely destroyed thirteen poles a dozen miles east of Julesburg. I have worked the line without any battery at either end during a steady wind storm across the plains, which generated a very strong current that charged the wire, the earth being so dry as to be perfectly insulated. I have had more than one hundred feet of No. 9 wire melted and twisted into pieces not a foot long where the lightning struck the wire and spent its fury upon it, because the earth was so thoroughly dry. I had a man killed who happened to be under a sagging wire in a field, but at least six feet beneath it, the lightning jumping that space, burning a round hole in the man's felt hat and tearing both soles from his shoes. He was electrocuted without an outcry.

I am interested in the welfare of all Old Timers and United States military men. Their ranks are thinning, as are those of my contemporaries. I propose a toast to the survivors: May they all live to be a hundred years old, and more.

Orthography and Telegraphy.

It would appear that the spelling reform in the United States and the International Telegraph Convention are not quite in agreement. The telegraphic point of view, like many others, appears to have entirely escaped consideration. It was stated in a London daily paper that great excitement was caused at the American Embassy by the receipt of a dispatch composed of words in the new form. How was the telegram charged for by the telegraph companies? According to existing rules of charging, proper English words must not be mutilated. We think the use of the new form of spelling will either be prohibited —at any rate, we hope so—or the words so written will be chargeable as code, and should a word of more than ten letters appear in a plain language telegram written in the new style, it will rank as two. It would appear that before words in accordance with the new spelling reform can be made use of the new system will have to receive authorization from a conference.

The friction, predicted in our columns as likely to occur between the telegraph companies and the public with regard to counting and charging, has already caused great annoyance, as could only be expected from a system such as that permitted by the London Telegraph Conference, and we are brought again to our old recommendation of charging per letter and allowing the public to send whatever they like. This should cause no insurmountable difficulty to the various telegraph companies so long as it is agreed to by the various administrations that are parties to the convention.—London Electrical Review.

Directory of Annual Meetings.

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

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

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

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

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

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

Old Time Telegraphers' and Historical Association meets at Niagara Falls, N. Y., in 1907, at a date to be named later.

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

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

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

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

At the convention of the Central States Waterworks Association, held in Cincinnati, Ohio, during the latter part of September, at which the subject of electrolysis of water pipes came up for discussion, the consensus of opinion was that the double trolley system was not a sure cure therefor, as had been held by some. It was argued by one speaker that it was not entirely correct to attribute all electrolytic troubles to the street railway, as any stray current may cause electrolysis to take place, and such currents are almost always present in cities where there are large electric generating stations. It is practically impossible to insulate all the systems perfectly so as to prevent any leakage of current, and it is this very feature which defeats the purpose of the double trolley system.

Mercury in Apogee.

Grave affairs of State of an unusual nature are perplexing high officials of France. The question at issue is whether one Monsieur Gontini, aged nineteen, a telegraph boy, shall or shall not sweep out the office where he is employed. Someone in authority at that office, in a moment of careless forgetfulness, ordered the boy to sweep out the office, but the boy, cognizant of his rights, refused to perform such menial service, contending that his duties consisted of the delivery of messages. It was a case where ordinarily a boy in such circumstances would be summarily discharged from his position, but this was a more serious matter, for Gontini is Secretary General of the Syndicate of Telegraph Boys of the Department of the Seine, which, despite its magnificent title, is practically an ordinary, every-day labor union. The matter was further complicated by the fact that the telegraph service in France is under Government control, and even little affairs like the obtuse conduct of a messenger boy have to be tied up in nice red tape and disposed of according to correct departmental etiquette. So, instead of giving the lad the centimes that were due him and hanging the "Boy Wanted" sign in the window, a complete report of the trouble was forwarded to the Council of Discipline of the Posts, Telegraphs and Telephones, which consists of seven high officials of the department.

The Council of Discipline sat in solemn judgment upon the case, and the merits of both sides were fully entered into, the Secretary General of the Syndicate of Telegraph Boys being represented by learned counsel. The prosecutors held that sweeping the office on two days a month did not interfere with the delivery of telegrams and that the boy lost no pay by such service, while counsel for the Secretary General maintained that as his client was paid so much per message for delivery, to wit, seven centimes, his superiors had no right to call upon him to sweep the office without extra pay. The case became so involved during the hearing and seemed of such importance, in view of the fact that the defendant was the Secretary General of the Syndicate of Telegraph Boys of the Department of the Seine, that the learned Council of Discipline was unable to reach a decision, and the entire matter was referred to the Secretary of State.

This incident, even in its unsettled condition, offers an instructive topic of study for ardent advocates of Government ownership of public utilities. In theory, it may be admitted, there are many attractive features about a scheme for National control of all the railroads, telegraph and telephone lines and similar institutions, but in actual practice, it may well be feared there might be a constant broiling of small affairs such as this in France, which would require the continual service of any number of Boards of Control, Councils of Arbitration, Commissioners of Referendum and Conciliation and what not. When the necessary membership on these various boards had been filled there might be enough persons left in the country to do the actual work required, but it would be doubtful. For the consumption of red tape in this country far exceeds that of France as it is, and it is not difficult to imagine to what an extent the Red Tape Department would find its duties increased under the beneficence of a paternal system of running things. There would, of course, be National Syndicates of Telegraph Boys, National Councils of Telephone Girls, National Unifications of Pullman Car Porters and all the other necessary organizations.

It might happen that a Pullman porter would rebel at some duty he was called upon to perform by the conductor of his car. No simple little settlement of the dispute according to present methods would do. A formal report of the trouble would have to be written on a blank form prepared for such emergencies by the conductor and handed in at the next station, then forwarded by the station master, after being duly attested and countersigned, to the superintendent of the division, and after being countersigned by him and forwarded with the same process through three other officials, it would probably reach the National Council of Arbitration. After it had considered the question in an all-day session, it would probably send the matter up to the Board of Appeal on Referred Documentary Disputes. In a fortnight, after gathering more red tape and documentary evidence, the report might reach the Commissioner of Decisions, who would in turn refer it to the Secretary of the Department, and he in turn would probably send it up to the Supreme Court for adjudication. From this high tribunal, in eighteen months or less, according to the pressure of business, a decision might be handed down with a batch of others, two of them to the effect that the boy ought to have swept out the office when he was told and that in any event the girl should not have been snappy when she said the line was busy. If Government control of railways, telegraphs and telephones should work the way it seems to work in France, the Supreme Court would be a very busy body; there are so many messenger boys and telephone girls.—Providence, (R. I.) Journal.

The story is told of an Irish porter, says Locomotive Engineering, employed on one of the railways of the Emerald Isle, who indignantly remonstrated with a passenger holding a first-class ticket for riding in a third-class compartment on the ground that the traveler was "cheating the company." It may have been a relative of his who, as he walked down a platform, put his head in at each carriage window and asked, "Is there anyone there for here?" But even this genius was eclipsed by a brother on the line, who, before the departure of an express train, fiercely rang a bell and shouted in warning tones, "This train stops nowhere at all."

Leased Telegraph Wires.

John T. Gibbons, in an article under the title of "The Use of Leased Telegraph Wires To-day," printed in the current issue of the "City Bank Club," has this to say concerning leased wires:

Everyone is more or less familiar with the use a newspaper or a broker would have for a private telegraph wire; but to illustrate the advantage obtained by other industries, I draw attention to three large manufacturing corporations who have availed themselves of this method of communication.

One of the largest concerns in the world maintains an extensive telegraph service, having direct wires to all its important works. All orders and specifications, no matter how intricate, are transmitted by wire. I mention this concern first, because it is credited with perfect organization. Our magazines of the day have given much space to this industry in America, but never once to my knowledge has any mention been made of the part played by the private wire, although all the writers must have known of its extensive use.

Another large company is the only concern that, as far as I know, uses the telegraph wire to any great extent for regular correspondence. It has a number of offices between New York and Chicago. Letters that would ordinarily go in the mail from New York or elsewhere, are telegraphed to the nearest branch and mailed from there. The saving in time is of course considerable, the advantage that they receive from getting their orders and other business in without delay makes the cost of rental of the wires insignificant. This is an age where time counts, the man or corporation that succeeds has to use every means in his power or the other fellow will get ahead.

The third concern I have in mind has a wire from their New York office to Bridgeport, Conn., only about 56 miles long, but it is claimed that it pays for its hire a hundred times over. It certainly does or they would not use it.

Almost any number of firms could be named who find their leased wire connections in their business absolutely indispensable. Of course, at first, some were skeptical whether it would be to their advantage or not to install such an expensive fixture; but once so equipped they could not do without it.

While the leased wire is used by hundreds of firms for as many different purposes, if the business public knew more about the subject, there would be ten wires used where there is one now.

In England and on the Continent on account of Government ownership of the telegraph lines, wires cannot be leased except under certain conditions and the use is not so general as in America. In fact, the demand for quick action in business is not so strenuous as with us.

It is not possible to lease a cable. There have been numbers of cases where the newspapers and The Associated Press would gladly have paid almost any amount for the exclusive use of the cable, especially so in the Russian-Japanese war, when the reports were so meagre. The time will come though, when our newspapers will consider their London, Paris and, possibly, St. Petersburg leased wires as much a matter of course as they now do those to Washington and Chicago.

The Telephone in Railway Service.

At a recent meeting of Union Pacific officials and employees at Omaha for the consideration of practical subjects, Mr. L. H. Korty, superintendent of telegraph, introduced the discussion on telephones with the following remarks:

"The telephone is becoming a most valuable aid in the operation of trains in large yards and terminals. Quick work is necessary because of the constantly increasing volume of business.

"Telephones are being introduced in connection with the automatic block system now being installed, as they will place the despatcher in close touch with the non-telegraph stations. Portable telephones will be placed on trains for use on the wires of the system in emergency cases. On some other sections of the road it is contemplated to introduce the composite system, by means of which one wire may be used simultaneously for telegraph and telephoning. Trains will be equipped with portable composite telephone apparatus, enabling conductors to reach the despatcher or nearest telegraph office. Where the use of the composite is impracticable, the most economical arrangement is to string a single iron wire between a siding and nearest telegraph office and connect with telephones. This places trains at sidings within reach of the despatcher.

"Experiments with telephones on trains are in progress on this road which, it is hoped, may result in devising apparatus that will make it possible for the engineer and conductor to successfully carry on conversation and compare their understanding of orders.

"A wrecking car on each division is supplied with two portable telephones, and a reel carrying one-quarter mile of insulated wire for use at wrecks, washouts, etc., which are used to place the temporary telegraph office in communication with the repair work, the covered wire being stretched along the ground. The arrangement keeps the division promptly advised as to the progress of repairs, etc.

"The movement of trains by telephonic orders in certain localities under proper safeguards is possible and is already being done on some roads. On the Union Pacific between Council Bluffs and Gilmore in conjunction with the block signal system the movement of trains is very greatly facilitated by use of telephones by the despatcher in one of the towers. Official and private cars, while standing on sidetracks at important terminals, may be quickly connected with private branch exchanges, or local and long-distance lines, thus giving the occupants of such cars tele-

phonic service as at their offices or homes. Such an arrangement is in vogue at the Omaha union station.

"Long distance telephone lines between division and district terminals would afford invaluable service to operating and traffic departments in giving orders and exchanging information which now overburdens the telegraph wires. I look forward to the time, in the not distant future, when the telephone service of the Union Pacific will be co-extensive with that of the telegraph: with long-distance telephone circuits along the main lines capable of satisfactory use between the extreme limits of the road, not as a rival of the telegraph, but rather as an auxiliary thereto, and as a direct and quick means for personal conversations between officials, agents and others. Each system has its particular advantage over the other, the telegraph being the best where a record is required."

Early Government Ownership in Pennsylvania.

The following extract is from an article in the Wall Street Journal describing an early trial of government ownership of railroads in the State of Pennsylvania. The information is taken from the "History of the Pennsylvania Railroad" by Col. William B. Wilson. It will be recalled that a five-page illustrated article entitled "The First Railroad Owned and Operated by a Government," describing in detail the history of the Philadelphia and Columbia and the Allegheny Portage railroads, which were owned by the State and are now part of the Pennsylvania, was published in the Railroad Gazette of August 24, 1906. The quotation follows:

The following were some of the evils developed in this trial of government ownership. Millions were squandered in construction; the public were punished or rewarded as they denounced, or sided with, those in position; employees were plundered by so-called assessments; the ballot-box was polluted for the purpose of perpetuating power; all the avenues of government were completely corrupted; the state credit collapsed, and the public improvements of Pennsylvania became public scandal. The officials in charge frequently clashed while lobbying in the legislatures for appropriations for their different departments, and these appropriations, when received, were applied in a way to advance the fortunes of the political faction to which the officials belonged. Ten per cent. of the pay of employees was deducted from the payrolls by the paymasters and put in bags labeled "Political Assessments." Passengers and freight were carried in cars of individual transporters who were charged a wheel toll for motive power, and a rate per mile on passengers and a rate per ton mile on freight. These individual transporters were obliged to dance when the politicians in charge of the road piped. Free passes abounded. All the public officers demanded free transportation, not only for themselves, but for their political hangers-on. This became a potent factor in political corruption. The state debt grew until bankruptcy stared the people in the face. It was conditions such as these that finally drove the people to elect a legislature that would sell the public works. The price obtained was more than their value, but only one-quarter of the amount of public money expended on them. The system, when sold, was in such a condition that it had to be rebuilt at once.

Such were the results of the first extensive experiment of government ownership and operation of railroads in this country. It is a record that does not constitute a potent argument in favor of Mr. Bryan's scheme. Compare that record with the history of corporation control of railroads, and the latter, with all its evils, is infinitely to be preferred. It is fearful to contemplate what would be the political consequences of government ownership of the great railroads of this country even under a better system of civil service than that which now prevails. Even admitting that government ownership might now be conducted on a much higher plan of efficiency and honesty than that which prevailed in Pennsylvania over half a century ago, is it reasonable to believe that government operation of railroads would be as efficient and economical as that which now prevails?

The ideal solution of the railroad problem is that towards which we are now rapidly approaching. It is ownership and operation by private capital subject to rigid government supervision. This secures the benefits of private enterprise and control and at the same time the advantages of public regulation in the interest of equitable rates.—The Railroad Gazette.

Opportunity for Inventive Genius.

"Is there such a thing as a typewriter," asks a correspondent of Office Appliances, "which carries above the platen a roll of paper that will constantly feed the machine without the necessity of the operator pausing at the end of an article (newspaper item or report) to insert a new sheet or otherwise provide paper for the next piece of work? In rapid writing, such as we are obliged to do in telegraph and newspaper work, such a contrivance would be wonderfully useful. Oftentimes we work under great stress of hurry and the mechanical necessity of supplying the new sheet for each new item or article is a serious handicap that might well be eliminated. Our pages of 'copy' require no headings similar to letterheads, and there is no reason why we cannot use a continuous sheet, cutting off each page at the length desired. I have often thought that if such a roll of paper could be hung above the platen of the typewriter and a sharp-edged bar provided in front against which the sheet could be torn off when the writing of any given bit of copy is completed it would expedite the work very greatly."

A Confession from Dr. Rheem Induced by the Appearance of a Face in the Illustrated October 1 Issue.

Editor TELEGRAPH AGE:

In your paper of October 1, I see the faces of many familiar old time friends; among these that of my dear friend George M. Myers of Kansas City, with whom I was associated for several years in Omaha, recalls the fact that in addition to being a retired capitalist he is also a retired inventor, although his talents in that direction have never been made public.

So far as I know he never made but one invention, and while that was a good one, he made the mistake that has been made by other inventors of telling his supposed best friend about it, and that best friend thoughtlessly made it public before a caveat could be filed. As I happened to be the best friend in this case, simple justice demands that even after the lapse of nearly thirty years, the inventor be placed right before the world, and the unscrupulous persons who have amassed great wealth through the use of Mr. Myers' invention, be given an opportunity to be ashamed of themselves; hence this confession.

At the time this happened Mr. Myers and I were rooming at the house of Col. J. J. Dickey. Myers was taken down with the typhoid fever; had a bad case of it. All of his friends were alarmed as to the possible outcome. One day his physician told me that the crisis had come and that if he lived through the day he would recover. On the evening of that day, I was sitting by his bedside attending to his wants; he was very restless, and was rolling and tossing over the bed; suddenly he sat up in bed and asked me for paper and pencil. When I asked him what he wanted with it, he replied, "I have a new scheme for making chicken soup by which I can make one chicken do the work of six, and I want to draw a diagram of it." He then lay down, turned over on his side and dropped into a quiet sleep from which he awakened the next morning greatly improved.

In the exuberance of my delight at his prospective recovery, I went out on the street and gave the snap away, for which I am heartily sorry; as any man who can eliminate five-sixths of the expense side of any proposition should have all the benefit accruing from such elimination.

It was an honest invention as it has resulted in still giving the human race the much prized article of diet, although it led up to the making of chicken soup without any chickens at all, as has been shown by the recent investigations in the manufacture of food products. Any one who knows Mr. Myers as well as I do, will know that if he had been allowed to get his patent, things would have been "different."

L. M. RHEEM.

Minneapolis, Minn., October 24.

"Is the telephone a profession or a business?" "Neither; it's a calling."

The Telegraph and the Ocean Cable.

The Morse telegraph invention lingered for years in the hands of its starving inventor because capitalists were indifferent or incapable of appreciating its merits.

It was several years before Congress voted an appropriation to allow its inventor to make a practical test of it, and burlesque bills were offered, to provide means for communicating with the Man in the Moon, and for a talking machine between New York and New Orleans, to aid experiments in mesmerism, and bring about the millennium.

"He's a very good but shiftless painter, if he would only stick to his job," some one said of Morse. "The idea of telling by a little streak of lightning what a body is saying at the other end of a wire!"

His instrument, it was said, was all very well as a mantel ornament, or for a mistress to call her maid, but the wires couldn't cross rivers, oceans, and deserts.

Even after the line was up between Washington and Baltimore, and Silas Wright sent a despatch to the Democratic convention at Baltimore, declining its nomination of him to the vice-presidency, it was not accepted as true until a committee went to Washington and returned with the confirmation of the report.

There was similar, though less, objection offered to the overland telegraph. Senator Benton declared that it would be impossible to operate it, because the Digger Indians would cut the wires, to make hooks for digging up the roots and beetles on which they lived.

When it was first proposed to lay a cable from Dover to Calais, it was denounced as a "mad freak," a "gigantic swindle." So little was known about it that when a fisherman hauled up the line with his trawl, he thought it a new species of seaweed. Some thought the signals were to be given by pulling on the wire like a door-bell, so they argued that the ocean bed was too rough and uneven for that.

While some objected that it would kill all the fishes, others believed that the fishes would gnaw off the insulating gutta percha covering and put the line out of business.

Lieutenant Maury, a marine, but not a cable expert, ventured to press the opinion that there never would be a time calm enough, the sea smooth enough, and a wire long enough, or a ship big enough to lay an Atlantic cable.

When after a few weeks of operation the first Atlantic cable gave out, some declared that it never had worked and no messages ever had been sent, and some doubted if it ever had been laid.

Letters from our Correspondents.

SPOKANE, WASH., NOTES.

The Western Union Telegraph Company has just moved into its new office in the Wolverton Building, No. 114 Wall street. The operating room is located on the second floor. Its equipment includes a new hundred-wire switchboard, one of the finest west of Chicago for its size. Mr. T. P. McKinney has been chief operator of this office for the past fifteen years.

J. L. McDonnell, chief operator at Seattle, was a Spokane visitor Saturday, October 20.

There are centered at Spokane a large number of telegraph men. The Northern Pacific despatchers' office is one of the largest in the United States, employing twenty-one trick despatchers and three chiefs. Besides these there is a large force employed at the Northern Pacific relay office, and the Great Northern despatchers and relay offices. The personnel of the employing interests is as follows:

T. P. McKINNEY.
Chief operator, Western Union Telegraph Company, Spokane, Wash.

Western Union Telegraph Company.—A. D. Campbell, manager; Miss E. Middlemiss, cashier; Mrs. Ada Griffitts, counter clerk; Mrs. Della Washington, delivery clerk; James Keenan, night manager; John J. Maloney, night delivery clerk; Martin Noak, route clerk; Miss Minnie Kelly, Miss Jessie Nickum, and Miss Katie McDougald, bookkeepers; Miss Grace Mintzer, copy clerk; William Falk, A. Melville and W. D. Whetsel, linemen.

The following constitutes the operating staff: T. P. McKinney, chief operator; C. W. Clowes, night chief; D. F. Ingold, traffic chief; R. E. Long, late night chief. Operators.—J. W. Seeker and G. W. Brady, Chicago duplex; C. T. Koch and A. Thiede, Helena duplex; Wm. F. Straub and H. R. Palmer, Portland duplex; J. H. Bench and M. Culp, Seattle duplex. Way wires.—G. H. Frederick, Mrs. Blanche Ingold, J. H. Nichols, A. F. Washington, E. G. Schuppell. Split tricks.—C. A. Clark, G. H. Smith, F. R. Brooks, J. P. Smith, G. M. Parmelee, J. J. Fuller. Check clerks.—Francis Kohlhepp and Marie Boettcher, days, and William Kreitz, nights. Associated Press.—W. H. Bellmain, days; F. W. Black, nights. The Publishers' Press.—A. W. Neimeyer. W. L. Watkins, operator at the Warwick Turf Exchange.

The Postal Telegraph-Cable company's staff: D. Fletcher, manager; C. A. Nickum, chief operator; O. Finnigan, night chief; C. Peterson, J. F. McLaughlin, operators; Misses Frances Newell and Julia Mernaugh, clerks; Simon Ostry, night clerk.

AMERICAN TELEPHONE AND TELEGRAPH CO. NOTES.

Mr. Earl Harlan, late wire chief at St. Louis, Mo., has been appointed manager of a new territory, created by late extensions of the company's lines. His headquarters will be at Brookfield, Mo.

Mr. H. P. Fairman, lately with the Chicago Telephone Company, at Chicago, has been appointed wire chief at St. Louis.

Mrs. Ora Marshall, sister of Earl Harlan and of Paul K. Harlan, manager for the American Telephone and Telegraph Company, at St. Paul, Minn., died at Las Vegas, N. M., October 18. Mrs. Marshall, before her marriage was an operator at the Long Distance Exchange, when it was located at Madison, Ill.

ST. LOUIS, WESTERN UNION.

G. R. Alger has been fully occupied lately in assisting H. W. Granade, city foreman, looking after the underground work for the new office. Mr. Alger has been placed in charge of the commercial news department, relieving Mr. W. H. Schroder, who is transferred to the superintendent's office.

Mr. R. L. Holden, assistant wire chief, is back again from his vacation.

Henry Gosting, assistant chief operator, who has been in California, returned October 8.

"Mike" O'Neill has been transferred from night to day service at the board.

The marriage of Mr. George Goehringer and Miss Marie Huning occurred on October 17.

G. A. Riber, our quadruplex chief in Chicago division, has been away on a ten days' vacation.

Bristo P. Meyers has gone to Denver, where he rejoins his mother, who is in poor health.

The St. Louis Aid Society is prospering. Twenty-three new members were added to the roll during the past fiscal year ending August 31, since which time three new applications are awaiting official action. There were two deaths, namely, Thomas P. McLaughlin and Miss Kate Cravens. The receipts of the society during the year were $640.41; benefits paid and expenses, $510.30, leaving a net sum of $130.11, which goes to swell the reserve fund.

Of all the busy men in this section, Chief Operator W. E. Bellman holds a leading place, so

actively has he been engaged, in addition to his regular duties, in promoting arrangements for the occupancy of the new office.

The telegraphers of St. Louis will give their annual ball at the Louisiana Hall, 911 North Vandeventer avenue, November 2, to which all operators are cordially invited.

PHILADELPHIA, POSTAL.

Traffic Chief G. W. Dunn has been appointed to the chief operatorship, recently made vacant by the resignation of C. A. Stimpson. H. Thompson, assisted by F. P. McElroy, succeeds to the duties of traffic chief.

Among those who appreciate the joys of an autumn vacation are Mr. and Mrs. C. C. Figgs, who spent the month of October in Virginia.

The excellent service furnished by the Postal at Tom's River, N. J., during the recent murder trial conducted there, was the subject of much newspaper comment. O. C. Balmer, assistant to M. J. O'Donnell, both of this office, handled in eight days, over two wires, a total of 325,000 words of press matter.

NEW YORK, WESTERN UNION.

Mr. Morris Harner, southern traffic, and Mr. R. E. Tobin, all night chief, have returned from their vacations.

Mr. Fred. R. Johnson has been detailed to accompany Mr. Charles E. Hughes, Republican candidate for governor, on his tour through New York State.

Mr. M. F. Bowler, manager at Waterbury, Conn., was a recent visitor.

Miss J. Powell, Miss Agnes and Miss Alice Brooks are back again from the conduct of summer offices.

Mrs. Murray has resumed duty in the eastern division.

Mr. Frederick Fricke, of the Commercial News Department, was married to Miss Hilda Jones, of Brooklyn, September 21, and on October 6. Mr. Frederick Jordan of the same department was married to Miss Mary C. Jones, a sister of the former.

NEW YORK, POSTAL.

Mr. E. J. Fullum is now assisting in routing the great volume of business tubed to the cable office.

J. F. Ellis has been promoted from the eastern division to be assistant traffic chief in the western division.

J. Francis and A. Farrell, night checks, have been assigned to the day force.

Howard LeRoy, former check, has been appointed assistant to the western wire chiefs.

F. J. Hinds has been appointed to a position as repeater chief, and C. A. Balsley is assistant to the western traffic chief.

John S. Brandenberg has been transferred from the check force to the service department.

Miss Bessie O'Day has resigned.

Those recently absent on vacation and who have returned, include Mr. F. E. McKiernan, western wire chief, and Mr. D. F. Mallen, night manager, both of whom attended the Old Time Telegraphers' convention at Washington, D. C.

Michael McDermott, former night chief clerk, and for some time past an operator, in the service department, died of consumption, on October 26. He was in the service for twelve years.

A number of the operators will attend the minstrel show and reception given by the Knights of Columbus, on November 12, at the Palm Garden.

The most drastic and far reaching of the Illinois Supreme Court's anti-trust and anti-monopoly decisions is the one handed down at Springfield, that state, in the matter of the American Telephone and Telegraph Company, in its efforts to secure control of the switchboard manufacturing business. The court grants an injunction restraining the American Telephone and Telegraph Company from voting stock it acquired in the Kellogg Switchboard Company. In 1901, Milo Kellogg was sick and went to California, leaving power of attorney with one Dewolf. The latter sold Kellogg's stock in the Kellogg Switchboard Company to the American Telephone and Telegraph Company. Kellogg on his return sought to nullify the sale on the ground that it was made for the purpose of getting control of the switchboard manufacturing business, and would be against public policy. Kellogg was refused the injunction he sought in the lower courts, but the Supreme Court has granted it.

Telegraphers and Electrical Men Are Wanted in the United States Army Signal Corps—Excellent Opportunities Offered in This Branch of the Service.

The Signal Corps of the United States army offers opportunities for employment, permanent in character, to telegraphers and men with a knowledge of electrical work, that should present attractive features to bright young men of good repute. A demand exists for the services of such at the present time in the department referred to, and the Government is desirous of making its requirements known in this respect in a manner as far-reaching as may be.

These men are attached to the Signal Corps. Civilians are not employed, but enlistments of desirable persons will be made as privates, and promotions to the higher grades made on merit as vacancies occur and the soldier's qualifications, conduct and service justify. Promotions are usually rapid in the case of men of high character who show proficiency in special phases of electrical or other signal corps work.

Master signal electricians receive $75 a month in the United States and $90 when abroad; first class sergeants get $45 and $54; sergeants $34 and $40.80; corporals $20 and $24; first class privates $17 and $20.40; privates $13 and $15.60.

The clothing allowance of a first class private is about $138.42 for one enlistment; of a corporal, about $141.66; of a sergeant, about $141.66, and the portion of this not used in purchasing clothing is paid to the soldier in cash, on discharge. When on detached service at a station where there are no troops, as many of the signal corps operators are, the soldier draws $1.15 per day as commutation of rations and quarters. After 30 years' service a soldier is entitled to be retired and receive monthly during life three-quarters of the regular pay he was receiving at the date of retirement, and in addition $9.50 per month as an allowance for clothing and subsistence. Non-commissioned officers not more than thirty years of age are eligible for examination, after two years' service, for commission as officers in the line of the army.

Enlistments in the signal corps are for three years. Recruits, as a rule, are first sent to one of the signal corps schools of instruction, where they remain about six months to fit them for duty in the United States, Philippines, or Alaska, or wherever the exigencies of the service may demand. The schools are located at Fort Wood, New York Harbor; Fort Omaha, Nebraska, and Benicia barracks, California, where a course is given in telegraphy, including wireless, military signalling, electricity, photography, line construction, general instructions concerning the care and handling of Government property and rendering necessary reports, handling moneys received at military telegraph offices, as well as practiced military instructions covering the duties of a soldier.

The opportunities of making use of any special aptitude as that of a machinist, engineer, plumber, and many similar occupations, are most excellent, and in many cases have led to rapid promotion and most agreeable service.

Probably no other branch of the Government service gives its men such an opportunity for varied service in all parts of the world. The care and operation of a complete network of cable and telegraph lines and the installation of a fire-control system in the sea coast defences take them to all parts of the United States, the Philippine Islands and Alaska. Upon expiration of term of service the Government returns a soldier to the original place of enlistment, or allows him in cash an amount sufficient to pay his transportation there.

Applicants should address their communications in their own handwriting, to the Chief Signal Officer, U. S. Army, Washington, D. C., accompanied by a certificate of good moral character, with particular reference to sobriety. Experience, if any, as an electrician, telegraph operator or lineman should be set forth. If the application is satisfactory, instructions will be furnished as to the recruiting officer to whom to apply for enlistment.

It will be necessary for applicants to defray their own expense, to the place of enlistment, as their fitness for military service can only be determined by a physical examination.

The Postal Savings Bank in England.

In the fifty-second annual report of the Postmaster General of England, the following interesting statement is made relative to the Government savings banks:

"In the Savings Bank Department the number and amount of deposits and withdrawals show satisfactory results. In 1904 the withdrawals exceeded the deposits by £1,290,000, but in 1905 the deposits exceeded the withdrawals by more than £200,000. The total number of open accounts at the end of 1905 was 9,963,049, and the amount to the credit of depositors was £152,111,140, and there were 139,992 holders of stock of the nominal value of £17,877,644. The arrangement for allowing withdrawals on demand, which came into operation on July 3, 1905, has undoubtedly met a distinct public need, and we are glad to learn that the number of frauds arising out of this arrangement has been small and the loss insignificant. There has been an increase in the number of accounts opened for charitable, provident and trade societies; in the number of penny banks, and in the use of the stamp deposit system. Immediate annuities, 1,840 in number, £45,488 in amount, and deferred annuities 158 in number, and £3,204 in amount, were granted during the year; and 741 insurance contracts were issued, the amount insured being £37,011."

OTHER NEW YORK NEWS.

Mr. Joseph F. Ahearn, president of Local 16, Commercial Telegraphers' Union of America, has been nominated for State Senator in one of the New York City districts.

The James Kempster Printing Company, 117 Liberty street, this city, which does the printing for the Western Union Telegraph Company, was partially destroyed by fire on the morning of October 23.

Assessment No. 455 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the death of Kenneth McKenzie at New York; James H. F. Walker, at Atlanta, Ga.; Alfred S. Brown, at New York, and Sylvester J. Tinsman at Washington, N. J.

Great preparations are being made for the coming entertainment and reception of the New York Telegraphers' Aid Society, which is to be held at the Lexington Avenue Opera House and Terrace Garden, Fifty-eighth street, near Third avenue, Wednesday evening, November 14. The event this year will mark the twenty-sixth anniversary of the society and the officers and various committees are working industriously to make the affair a success. Mr. R. J. Marrin, chairman of the entertainment committee, being especially active in advancing its interests. The proceeds of this entertainment are for the benefit of the relief fund of the society.

George J. Gould, who is a great admirer of the game of baseball, gave a dinner Thursday evening, October 25, at the New York Athletic Club, to the Missouri Pacific Baseball Club, in honor of its long score of sixteen victories, with only one defeat, as the record of the season. The membership of this club embraces employees of the Missouri Pacific, Wabash, Iron Mountain and Southern railroads, Western Union Telegraph and other companies dominated by the Goulds and having headquarters in the Western Union Building, at No. 195 Broadway. Mr. Gould was not present, but W. A. Hamilton, a relative, acted as toastmaster, and M. J. O'Leary, secretary of the Telegraphers' Mutual Benefit Association, was chairman.

At the thirty-second annual convention of the American Bankers' Association, held at St. Louis, October 16 to 19, inclusive, Collin Armstrong, treasurer of the New York News Bureau; Henry Meyers, manager of the Hamilton Press, and E. W. Kimmelberg, also of the news bureau, were in attendance for the purpose of demonstrating to the delegates thereto the practical features of the bulletin service of the New York News Bureau in furnishing important financial and commercial news of the day to its subscribers. Items of such character were transmitted to St. Louis by special wire during the days of the convention and distributed on printed slips. The news of this service, the largest of its kind in the United States, is published daily, afternoons, in The Wall Street Summary, New York.

As has already been announced, the Magnetic Club, of New York, will hold its next reunion at the Hotel Astor, on Wednesday evening, November 21, at half past six o'clock, the occasion being the customary event of the fall dinner. Active preparations are going forward to make this an attractive affair, and while it is yet too soon to announce positively the names of all who will speak on the occasion, it is stated that several well-known after-dinner spellbinders will be present and contribute by their oratorical efforts to make the function one of much enjoyment.

A funny spectacle was witnessed in New York City during the strike of the messenger boys in the financial district a few days ago, when one of the youngsters, who was making a speech from the steps of the sub-treasury, informed his admiring listeners that the president of the company where he worked was a "skin" and had been dealing "hot air" out to them long enough; what they wanted was free uniforms, more money and less "chin music."

The Electrical Trades Exposition Company will hold its second annual electrical show at the Coliseum, Chicago, January 14-26.

The National District Telegraph Company of Minneapolis, a subsidiary company of the American District Telegraph Company of New Jersey, has purchased the American District Telegraph Company of Minneapolis.

LAKE CHARLES, LA.

Population 12,000; Assessment $3,237,000; Post Office receipts $25,000; Bank Capital $455,000; Bank deposits, $2,650,000; Parish Seat of Calcasieu Parish, population 45,000, assessment $20,000,000, containing 3,600 square miles of territory. Buildings erected in 1905, $260,000. Lake Charles has in the Kansas City Southern an air line to Kansas City; in the Watkins-Iron Mountain route through Alexandria, a direct line to St. Louis and Chicago, and in the Southern Pacific main line an air line east to New Orleans and west through Houston, Texas, to the Pacific Coast. Saw mill, annual cut 150,000,000 feet, valued at $1,500,000, employing 1,275 laborers, annual payroll $750,000. Rice lands irrigated 138,000 acres by 500 miles canals and laterals. One of the most promising industries of the Parish is that of stock raising, there being on the assessment rolls 44,725 head of cattle, 85,625 sheep and 34,000 hogs. The local demand for butchers stock is growing rapidly. Lake Charles is ten miles distant from the largest mine in work with an output daily of 35 cars of pure sulphur. Our oil field in this Parish is yielding more oil than all the Texas fields combined.

Lake Charles side drive, equal to any in the world, is nearing completion. The Majestic Hotel, the finest between New Orleans and San Francisco is just completed and open for business. Summer days in winter months; hunting and fishing the year round. The yachting on the beautiful lake is unsurpassed in any country. Electric street car line. The Postal Telegraph-Cable Company of Texas, with its up-to-date offices and splendid service, keeps pace with the progress and development of the city.

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

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"83% of the energy of the battery appeared as heat in the spark when using the Edison Spark Coil."

By reason of increased output we have been able to cut the price of the Edison Spark Coil from $3.25 to $2.50. As the Edison Cell is the cheapest form of battery energy, the Edison Spark Coil is the most economical.

The Edison Primary Battery is the best for all purposes. Its well thought-out construction makes it easy to set up and handle, while it is the only kind of cell that stands up to its work without loss of voltage to the end of its guaranteed life.

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SAVES $9,711,655 A YEAR

Unusual Opportunity Now Offered The Man of Small Means to Become Independently Rich.

Every great electrical invention has made fortunes for its original stockholders. The American Bell Telephone Company has paid $200,000 for each $100 invested in its stock at its organization. People then laughed at the idea of there ever being a general need for the telephone. It was hard to make investors see the possibilities of the business. Those who did are among the world's richest people.

Such chances are not often offered the small investor. The first such opportunity in a great many years, that gives every promise of duplicating the telephone in profits and universal demand is the Electric Signagraph and Semaphore.

Some of the best known railroad experts in America declare these instruments will prevent railroad collisions. They give absolute privacy to party telephones, make it possible for a train to be stopped by the train despatcher at any point on his division, and permit the sending of private telegrams to any one of 100 or more telegraph offices without the knowledge of other operators and without in any way interfering with the regular telegraph circuit.

RAILROAD APPROVES SYSTEM.

No extra wires are required. The cost is so small and the advantages are so great that it is predicted by some of the best experts in America that all railroads will adopt the system. The Telephone Companies have offered 25 cents a month rental for the Signagraph, to be used on party telephone lines. One Signagraph is required for each telephone. Only 300,000 instruments will earn the stockholders of the Electric Signagraph and Semaphore Company $900,000 a year.

There are 300,000 miles of railroad in the United States, less than 10 per cent. of which is equipped with a signal service because of the inefficient systems heretofore used and their great cost. If only one-twentieth of this mileage—less than 5 per cent.—were equipped with the Signagraph and Semaphore the stockholders would earn $600,000 a year—85 per cent. on the present selling price of the stock in addition to the revenue offered by the telephone company.

50,000 LIVES LOST.

More than $9,000,000 were lost last year in property destroyed in railroad collisions, and 50,000 persons were killed or injured. This amount would cover the entire cost of the Signagraph and Semaphore system over every mile of railroad in the United States for two years and make the horrors of railroad collisions unknown.

Experts admit the necessity for these instruments. Far-sighted investors are putting their money into the company.

FACTS ABOUT THE ELECTRIC SIGNAGRAPH & SEMAPHORE

Gives the train dispatcher constant and complete control over every train on his division.

Enables him to stop any train at any desired point.

Makes head-on and rear-end collisions impossible.

Saves thousands of lives and millions of dollars now lost annually in wrecks.

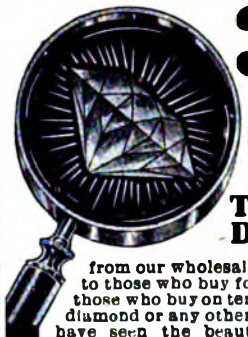
Reduces operating expenses to railroads millions of dollars annually now paid in salaries to night operators, tower men and for maintenance of inadequate block and signal system.

Gives absolute privacy to party telephones, no matter how many instruments are on one wire.

Every statement made herein will be verified to the letter. A limited amount of the treasury stock is now for sale. No one will be asked to invest a cent until he has thoroughly satisfied himself of the merits of the proposition. All who can are urged to come and see these instruments in operation. Those who can not and want to know the full details of the company, its organization, its patents, and what experts say of it should write at once for full particulars.

Stock is now rapidly selling at 45 cents a share, par value $1, fully paid, and non-assessable. The price will be advanced to 50 cents a share as soon as the present block of 50,000 shares is disposed of. The right is reserved to advance the price without notice. One month ago this stock was sold at 25 cents a share. The merit of the proposition explains the advance. Those who care to take this stock before the price advances may send their remittances with the distinct understanding that the entire remittance will be returned at any time within ten days of the date of the order if they are not thoroughly satisfied with the proposition. In order to insure securing stock at the present price remittance should be sent at once with the above understanding. Payments are accepted in cash or installments of one-fourth down and one-fourth the first of each month until paid for. No subscriptions of less than 100 shares will be accepted. A discount of 5 per cent. will be allowed on all subscriptions accompanied by remittance in full.

Address all inquiries to or call in person on National Mortgage and Bond Company, Key 519, First National Bank Building, Chicago.



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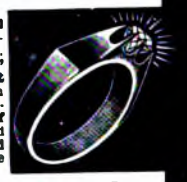

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$6.30 a Month buys this beautiful ring. Price $63.00. For all cash in 10 days $57.96.

Comparisons PROVE; and we will send you this ring *on approval prepaid, no money down,* no obligations, not a cent to be paid to anybody by you unless you choose to buy *after* thorough examination

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VOL. XXIV., No. 22. NEW YORK, NOVEMBER 16, 1906 Whole No. 564.

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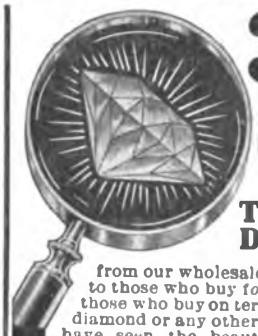

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from our wholesale catalog not only to those who buy for cash, but *also* to those who buy on terms.—Do not buy a diamond or any other jewelry until you have seen the beautifully illustrated Marshall catalog *and compared values.*

Special

Here is one of several special offers — a pure white diamond in Belcher setting. This is a Marshall "F" grade diamond, the finest grade of diamond known in the world, absolutely perfect in cut and color, of unsurpassed brilliancy, and far superior to the so-called highest grade carried by the majority of jewelers.

$6.30 a Month buys this beautiful ring. Price $63.00. For all cash in 10 days $57.96.

Comparisons PROVE; and we will send you this ring *on approval prepaid, no money down,* no obligations, not a cent to be paid to anybody by you unless you choose to buy *after* thorough examination

Send for Catalog

SIGN This Coupon Today

You need not bother with a letter; just send the coupon in an envelope.

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TELEGRAPH AGE

No. 22. NEW YORK, NOVEMBER 16, 1906. VOL. XXIV.

CONTENTS.

SOME POINTS ON ELECTRICITY.

Questions and Answers.

BY WILLIS H. JONES.

Mr. D. B. Grandy, of St. Louis, writes as follows:

What is the most generally accepted theory of the action of the Smith-box arrangement in connection with quadruplex operation. Is it that the discharge current of the condenser hastens the period of no magnetism, or that the disappearing current is prolonged?

The generally accepted theory is that the condenser current flowing through the third coil of the neutral relay, whether it is a discharge or recharging current, shortens the period of "no magnetism," owing to the fact that being in close proximity to the home apparatus it really begins to replace the departing magnetism in the relay core before the effect of the reverse line current can act. In this way the arriving line current, retarded by the mechanical operation of the polechanger, finds its work at least partially completed. The period of "no magnetism" is, therefore, shortened to the extent represented by that initial fraction of a second the condenser current precedes that of the line current.

In regard to the suggestion that possibly the disappearing current may be prolonged by the action of the Smith box device, it should be apparent that such is not the case. Furthermore, the prolongation of the disappearing current is the last thing desired for the following reason: When a magnet is energized by a current of, say, positive electricity, the magnetic lines of force in the core circulate in the opposite direction to what they do when the current is of negative sign. Hence, if the distant polechanger reverses the polarity of the battery the current must also reverse the direction of lines of force in the relay core. To prolong the disappearing magnetism of wrongly directed lines of force in the relay core would obviously only result in offering opposition to the arriving current as it would first have to drive the existing magnetism out before the field would be clear for currents in an opposite direction.

In summary, then, it appears that the Smith-box condenser current during its discharge shortens the period of no magnetism by its initial work in clearing the way, and re-energizing the relay core preparatory to the arriving line current, while the current which flows through the third coil during the period the condenser is receiving its charge also performs initial or preparatory duties in the way of assisting the operation of remagnetizing the neutral relay.

Another correspondent desires to know:

What is there in a dynamo battery different from that of a gravity battery that prevents the employment of the old style continuity preserving contact polechanger for quadruplex apparatus?

There is no appreciable difference in the quality or character of the current, the two mentioned sources of electricity provide. The trouble lies in the arrangement of the battery. Where chemical battery is used for quadruplex operation the row of cells comprising that battery are not used for any other purpose, hence if, say, 300 cells, are assigned to a multiplex set, both polarities are obtained by alternately shifting the line wire from one end of the row to the other. It is, therefore, impossible to ever get more than 300 volts pressure between contact points. The continuity preserving contact pattern of polechanger is especially constructed for that purpose.

Where the dynamo current is used it will be found that the machine is furnishing current not only for, perhaps, several other quadruplex apparatus, but also for single line and various other circuits. For that reason such machines furnish but one polarity of current and have one brush permanently grounded. It is obvious then that such a battery cannot be "turned

around" by means of a polechanger. For this reason it is necessary to obtain current from two separate machines, one positive and the other negative. Under these conditions if the two dynamo batteries of 300 volts each should become short-circuited, as would be the case with each reversal of the clockface type polechanger, the resulting 600 volts pressure at the contact points would cause excessive sparking. Hence for the dynamo arrangement a device which will prevent short-circuiting is required. The walking-beam pattern accomplishes this by creating a high resistance between the two batteries in the way of an air-gap between the contact points upon each reversal of polarity. The distinction between the results of short-circuiting two quadruplex batteries of 300 volts pressure, one being dynamo and the other gravity, is that in one case we short-circuit 300 volts and in the other 600 volts.

Still another correspondent asks:

Why do we not get a static return discharge from the artificial line or rheostat of a multiplex circuit at reversals, the same as that from the main line; the resistance and volume of current therein is just as great?

Because the coils comprising the artificial line are wound in such a manner as to create a non-inductive conductor. This is accomplished by winding the coils in such a way that the current doubles back on its course through the different spools.

In the definition of "dynamotor," given in this column in the preceding issue of this journal, the words "either two separate armatures or" appearing in the twenty-third line, second column, page 531, should have been omitted.

Recent Telegraph Patents.

A patent, No. 833,904, for a telegraphic code, has been taken out by Daniel H. Wilcox, of Buffalo, N. Y. The code has dots and dashes but is designed to have the dashes first and the dots last in each character.

A patent, No. 834,659, for a telegraph cut-out, has been obtained by Fred A. Clogston, of Bridger, Mont. A special construction of switch having a casing with knobs which are turned to cut in and out the various sounders of the station.

A patent, No. 834,520, for a sound magnifier for telegraph instruments, has been awarded to Frederick O. Hanson, of Victoria, Kan. Patentee has a membrane connected by a multiplying lever with the relay contacts so that the click is intensified and a sound reflector is connected to focus the sound to the operator.

A patent, No. 833,226, for a system of telegraphy, has been issued to Isidor Kitsee, of Philadelphia. A plan for making ordinary Morse keys at points along a single line wire effective to act as pole changing transmitters. It is done by grounding high potential side of a battery which normally overpowers a weaker battery.

Personal Mention.

Mr. M. D. Butler, who recently resigned as manager of the Western Union Telegraph Company, at Indianapolis, Ind., after holding the position for twenty-seven years, was presented on October 27 with a handsome thirty-third degree Masonic charm. The charm was presented as a token of the friendship and esteem of the operators and clerks, and was given because of the resignation of Mr. Butler from his position. The charm was of solid gold richly inlaid.

A group of high telegraph officials were recent visitors in Washington, D. C. They included Col. Robert C. Clowry, president and general manager; G. W. E. Atkins, acting vice-president, and H. D. Estabrook, solicitor of the Western Union Telegraph Company; William H. Baker, vice-president and general manager and Charles P. Bruch, vice-president and assistant general manager of the Postal Telegraph-Cable Company.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Mr. F. E. Clary, superintendent at New Haven, Conn., was a recent visitor at this office.

Mr. Frederick B. Shaw has been appointed manager at Taunton, Mass., vice James E. Lewis, retired to devote his time to his office outfitting business.

Mr. S. H. Strudwick, of the North Sydney, N. S., cable station has been in the city for some time past on business connected with the service.

John Spellman, for the past forty years in the supply department, died at his home in Brooklyn on November 9, after a short illness.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

Mr. E. J. Nally, fifth vice-president of the company, has been absent a few days in Chicago. Mr. Nally will probably bring his family on from Chicago to New York, where they will make their permanent home, about the first of January.

Messrs. C. P. Bruch, vice-president and assistant general manager; Theo. L. Cuyler, Jr., assistant treasurer, and Thomas E. Fleming, assistant secretary and special agent, were in Boston, November 14, called thither on business connected with the company.

Mr. Albert C. Kaufman, superintendent of the company at Albany, N. Y., was a recent visitor at these offices.

New York Visitors.

Mr. Wilfred King, managing director of the Exchange Telegraph Company, London, England.

Mr. F. N. Andrews, a well known former telegrapher of Birmingham, Ala., has become associated with the Globe Steel Filtration Process Company, of that city, a new corporation, whose ability to produce by special process the finest grade of steel from the lowest grade of iron, promises most excellent results.

The Cable.

A patent, No. 833,225, for a system of telegraphy, has been secured by Isidor Kitsee, of Philadelphia. An adaptation of the bridge quadruplex method to a submarine cable system.

It is reported that Messrs. Siemens Brothers and Company, of London, have laid plans before the Brazilian minister of industry and communications for the laying of a cable to unite Brazil and North America.

The "Revue Industrielle" publishes an article on German submarine telegraphs, stating that Germany now possesses about 30,000 kilometres of cables, and is independent of cables owned by England. It is also stated that the Shanghai-Yap cable, in the neighborhood of the Linkin Islands, is laid at a depth of 8,000 metres—that is 4,368 fathoms.

Cable communication is interrupted with:

Venezuela	Jan. 12, 1906
Messages may be mailed from Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902
Canary Islands—	
Island of Palma	July 12, 1906
Steamer from Teneriffe.	
Island of Lanzorote	Sept. 18, 1906
Steamer from Las Palmas.	

At a sale of papers in New York, November 9, belonging to the effects of the late Cyrus W. Field, there was included the original cable message received and read by Mr. Field at the Crystal Palace in New York, September 1, 1858, the day of the cable carnival celebrating the laying of the Atlantic cable. This, which was sold for $30, was the first public message over the cable, and is printed on a telegraphic slip three feet five inches long, exactly as received by the operator.

The right having been granted by the Cuban Government to land a cable on that island to connect with this country, on and after December 5 next, the date of expiration of the exclusive contract awarded forty years ago by Spain to the International Cable Company for a like service, the Commercial Cable Company of Cuba, a subsidiary company as it name indicates, to the commercial Cable Company, as has been previously stated, will lay and operate a cable between Havana, Key West and to a point in Florida, thence connecting with New York by the lines of the Postal Telegraph-Cable Company. The new company will have offices in Havana, at Cuba and Obispo streets, and it is believed that it will be ready to begin business shortly after the date named.

Preparations are being made by the army signal corps for laying the extension of the Alaska telegraphic cable southward from the Juneau-Sitka loop to Wrangell and Ketchikan. It is expected that, barring accidents, the cable will be in operation before the end of the year. The laying of this extension line will bring into instant communication with one another and with the United States, all Alaska points as far westward as Seward, on Resurrection Bay.

The tolls for commercial messages sent over the cable and land lines will probably remain as they are for the present at least. There have been several efforts to secure a material reduction of rates, and the tolls have been cut down on two occasions, but there is little likelihood that the secretary of war will favor a further reduction in the near future. The present tolls approximate the charges for similar services on many of the commercial cable lines of the world, although they are a little higher, probably, all conditions considered, than the rates on the cables between the United States and England.

The going ashore of the steamship Mongolia, bound from Yokohama to Honolulu and San Francisco, on the Midway Islands, on board of which was George G. Ward and party, had the effect of enabling the general manager of the Commercial Pacific Cable Company to pay an involuntary visit to a remote ocean station of his company. The ability to promptly advise the outside world of the plight of the ship and its passengers was quickly availed of with the result that relief in the shape of the Government transport Bedford was soon speeding on its way to the scene of the wreck to embark the passengers, while the Iroquois and the cable steamer Restorer brought supplies. In the meantime in order to while away otherwise idle moments, a play was written, the scene of which was laid at Midway Island itself. It was a model composition, in which Robinson Crusoe and his man Friday figured, the former of whom recites a poem and Friday demands a raise in salary. A party of Cook's tourists, all women, being introduced, became captivated with Messrs. Robinson and Friday. Then there is a grand finale. Before the tarpaulin curtain falls a messenger boy rushes in from the cable office saying that an American manager has just cabled an offer to secure the American rights of the play. Such a shipwreck scene as this is in accordance with strictly up-to-date modern ideas—a quiet lagoon provided for the repose of the ship, a cable ready at hand with which to make outside communication, ice cream for all hands and available theatrical talent that won admiration.

The signal corps of the army has greatly increased the telegraphic facilities in Alaska and the Philippines the past year. Many wireless stations have been established in both countries, and the chief signal officer, in his annual report to the War Department, announces that they are being operated very successfully. Wireless stations have been established at Zamboanga and Jolo, in the Philippines.

The Railroad.

Mr. F. H. Van Etten has been appointed superintendent of telegraph of the Illinois Southern Railway, with headquarters at Chicago.

The Santa Fe Railroad has increased the pay of the telegraph operators along its line of road, the aggregate sum amounting to about $65,000 a year.

Mr. H. D. Teed has been appointed superintendent of telegraph, and Mr. H. C. Sprague has been appointed assistant superintendent of telegraph, of the St. Louis and San Francisco Railroad, both with headquarters at St. Louis, Mo.

Announcement is made that the new standard cipher telegraph code recently adopted by the American Railway Association will go into effect January 1. The new code is the result of four years of hard work by the most expert railroad officials of the country.

Telegraphones have been installed for experimental purposes in a number of the stations on the Southern Pacific system, between Portland, Ore., and San Francisco. The use of the telegraphone is to enable train crews to communicate with the despatcher from flag stations and at such points as the company may not maintain a station.

Within a month it is expected that the Chihuahua division of the Mexican Central Railway will be equipped with apparatus for giving simultaneous telephone and telegraph service. For about a year G. O. Perkins, superintendent of telegraph of this railway, has been experimenting with the telephone, on his telegraph lines, and the results have been very satisfactory to him. Telephones are to be installed at designated stations along the line, and trains provided with an instrument.

The disposition of railroad companies to advance the wages of employees is gaining strength, and already a number of roads have granted such increases. The increase of ten per cent. in the wages of the Pennsylvania Railroad Company employees, granted November 7, will mean an added outlay by the company of $702,952 per month, or $8,435,424 a year. On the Pennsylvania lines east and west of Pittsburg 192,458 men are employed, most of whom are affected by the decision. The same classes of employees received an increase of ten per cent. in 1902 so that the present advance will be equivalent to an increase of twenty per cent. on the rates paid in September, 1902. In addition the Pennsylvania Railroad on October 1 of this year made a readjustment of the salaries of certain classes of employees, numbering 1,058, amounting to $30,733 a month, or $368,796 a year. The action of the Pennsylvania Railroad directors will be followed by similar action on the part of the boards of the companies operating Pennsylvania lines west of Pittsburg. The increase in that territory will affect over 60,000 employees and will involve an increased payroll of between $3,500,000 and $4,000,000 a year. The increase in wages on the Pennsylvania lines will therefore involve a total of about 185,000 men and mean an increased annual outlay by the company of about $12,000,000.

Resignations and Appointments.

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

Mr. Lloyd Chancey has been appointed manager of the office at Albert Lea, Minn., vice E. A. Melmann, who has been assigned to a position in the office at Mitchell, S. D.

Mr. John W. Davis, manager at Independence, Mo., for about twenty-seven years, has resigned to devote his entire time to the telephone business, in which he has been interested.

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

A new office having been opened at Kissimme, Fla., Mr. G. Morrison has been appointed manager.

Mr. George Black, manager of the Hamilton, Ont., office of the Great North Western Telegraph Company, in whose service he has been for the past fifty-two years, has retired and was succeeded by John Jamieson, promoted.

Obituary.

S. H. Whittaker, aged sixty-eight years, a well-known Texas operator, employed by the Western Union Telegraph Company at Dallas, Tex., at one time being night chief operator, died suddenly October 30.

Mrs. Norvin Green, widow of the late Norvin Green, who was president of the Western Union Telegraph Company from April 22, 1878, to February 13, 1893, died at her home in Louisville, Ky., on November 6. She was in her eighty-fifth year.

Daniel J. Ludwig, aged sixty-four years, manager of the Brooklyn, N. Y., office of the Stock Quotation Telegraph Company, died at his home in that borough, on Tuesday, November 13. Mr. Ludwig, who was a native of White Bear, Pa., was a member of the United States Military Telegraph Corps during the Civil War. In connection with his brother Edward J. Ludwig, he assisted in organizing the Commercial News Department of the Western Union Telegraph Company, and was manager of that branch of the service in New York, for many years. He also organized, and was the superintendent of a similar service, for the Baltimore and Ohio Telegraph Company, New York. After the consolidation of this company with the Western Union in 1888, Mr. Ludwig became identified with the Stock Quotation Company with which he remained until his death.

General Mention.

A thrilling escape from their apartment in a burning building at Washington, D. C., was the experience of Mr. and Mrs. William H. McKeldin on the morning of Saturday, November 3. Both were asleep and were nearly overcome with smoke that found its way in heavy volumes into their room. Mrs. McKeldin, in her fright, would have thrown herself from a window, thirty-five feet above the ground, had she not been restrained by her husband. Dragging her to another window, the heavy pane of which he shattered with a blow of his fist, thereby badly lacerating his hand, he shouted for help. A ladder was raised from a truck in the street below, down which the half fainting and struggling form of Mrs. McKeldin was carried, Mr. McKeldin following assisted by a couple of firemen. Mr. McKeldin is a well known telegrapher in Washington, operating a leased wire for the stock brokerage firm of Post & Flagg. He was chairman of the finance committee on the occasion of the meeting of the Old Time Telegraphers on October 9, 10 and 11.

The Boston Postal Telegraph Baseball Club holds a deservedly high place among organizations of like character. During the season of 1906, just ended, it has played twenty-two games, winning all but four of these contests. The team is composed of a group of superior players, fourteen members in all, of whom eleven are employees of the Postal company. The excellence of their playing has attracted attention and has brought them numerous challenges from all parts of the State of Massachusetts. W. E. Stimson is manager of the club, while much of the credit of the club's success is due to George Downey, first baseman. A neat typewritten report of the season's work of the club was recently submitted to Superintendent E. B. Pillsbury, of Boston, who is an enthusiast of the game, particularly as played by the Postal boys.

The Engineering Societies Building, located on West Thirty-ninth street, between Fifth and Sixth avenues, New York, the gift of Andrew Carnegie to the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and the American Institute of Mining Engineers, and other allied bodies, has been completed. It is a twelve-story structure of attractive architectural design and contains numerous and spacious auditoriums. The office arrangements are well arranged, while rooms for the library and museum are at the top of the building. The formal dedicatory exercises will not be held until about the middle of April, 1907, presumably when the building shall have received its quota of occupants.

After considerable negotiation between the Belgian and French governments it has been decided to install the Baudot apparatus between Paris and Brussels. The number of telegrams passing between these two cities averaged 2,000 per day, and the two Hughes sets were found to be insufficient to cope with the traffic. The Belgian staff has been trained in the use of the new apparatus by a member of the French administration, and will commence its work almost immediately. Curiously enough, Brussels is the last of the European capitals working with Paris to adopt the Baudot, which, for several years, has been working regularly with London, Berlin, Basle, Milan, Rome, Madrid and St. Petersburg.

The preparations made to secure election returns this year by the newspaper press of the metropolis were conducted on an unwonted scale. The intense interest shown in the New York State election was reflected by the activities displayed by The Associated Press, The Publishers Press and other news gathering associations, as well as by individual newspapers, all of which had an unusual number of correspondents abroad throughout the State. Leased wires were in demand. The leased wire service of The Associated Press was very effective, not only in the New York detail but throughout the country.

Mr. James T. McDermott, of Chicago, who is reported to be the friend of almost everyone in the populous stockyards district of that city, because, as those who know him say, "His head is on the level and his heart is on the square," will represent Packingtown in the next Congress. He began life as a messenger boy, picked up telegraphy and left the key to begin the campaign which won for him a seat in the National House of Representatives. He is thirty-four years old.

The Digest of Proceedings of the Railway Signal Association, republished to cover the years from 1895 to 1905, compiled by H. S. Balliet, the retiring secretary-treasurer, has made its appearance. It is a substantial volume of nearly five-hundred pages, carefully indexed, and places the literature of the association in more desirable form, at once more readily accessible for reference.

The telautograph, so it is said, has been installed in a Cincinnati hotel for the use of guests in ordering their meals. The guest writes his order and it is immediately transmitted from the dining room to the kitchen. Each order has a duplicate, and aside from the time and labor saved, all dispute as to mistaken orders is avoided, unless the guest writes in hieroglyphics.

Mr. Leon Shaw, of Helena, Mont., a well known telegrapher and newspaper man at that point, was elected to the Legislature of that State at the late election.

The Telegraph in Russia.

Recent developments in the Russian telegraph service foreshadow the time when it will be possible to send direct wires from Edinburgh, Dublin and London, to St. Petersburg and Moscow, says the Electrical Review, of London, without disturbing the intervening local telegraphic traffic, and this might lead eventually to a direct overland route to India. At present there are sixteen Wheatstone circuits working in Russia, the principal ones being between Omsk and Irkutsk, a distance of 1,200 miles (two transcribing stations); Kazan and Omsk, 1,100 miles (1 ditto); St. Petersburg to Rostow (2 ditto); St. Petersburg, 1,000 miles, to Odessa (2 ditto). The longest line is one of 3,200 miles; this is the direct line from St. Petersburg to Irkutsk. There are no intermediate posts in this case, and a special 6 mm. wire is used.

Recently the Government has adopted the Murray system, which has been working for the last two years between London and Edinburgh and Dublin, respectively, and also between Hamburg and Berlin, and which, by the way, is being adopted for a duplex line from Calcutta to Bombay, and for another from Vienna to Prague. As the experiments between Berlin and Moscow were of highly satisfactory character, it follows that only the link between London and Hamburg is required to bring about the result indicated.

As an experiment, the Murray automatic telegraph printer was used in connection with the Baudot code on the line St. Petersburg to Moscow, a distance of 1,770 kilometres, with two intermediate stations. A 5-mm. iron wire was used. From recent reports it appears that while previously by using the automatic Wheatstone apparatus and the Morse alphabet fifty-five words per minute were transmitted, it was possible with the Murray apparatus to transmit ninety words per minute. The installation was then enlarged so as to comprise the following circuit: St. Petersburg, Jaroslav, Kazan, Moscow, St. Petersburg, the sub-stations being Jaroslav, Kazan and Moscow. The total length is 3,082 kilometres. The efficiency obtained is fifty-six words per minute, as against thirty-five to forty on the previous system, which constitutes a record for telegraph printers on such a distance. Finally, an experiment was made with a direct communication between St. Petersburg and Moscow without transcription, a distance of 1,280 kilometres. Again, a 5-mm. pure iron wire was used, with a resistance of 7,100 ohms on the line, and of 8,000 in the relay of the receiver, a battery of 140 volts and a current of 13 milliamperes. The result with the Murray printer and the Baudot alphabet was sixty-three words per minute, against twenty-five. Ten printed messages were transmitted per minute without a single error. Another experiment which gave even better results, seventy words per minute, was made between St. Petersburg and Berlin.

The line on the Russian side consisted of 600 miles of 5-mm. iron wire, and that from the frontier (Eidtkuhnen) to Berlin of a 3-mm. copper wire (4.37 ohms per mile), the total resistance of the line being 7,425 ohms. It apears that the saving is attributed principally to the use of the Baudot alphabet, which is proportionally as 5 to 8 as compared with the Morse code.

A Prayer to the Wiremen.

The following is a copy of several clever paragraphs which have been addressed to the wire manufacturers of the country by S. A. Hobson, vice-president of the Hobson Electric Company, Dallas, Tex. Along with telegraph companies, contractors and supply men all over the country, Mr. Hobson has found it difficult at times to get prompt shipments, owing to the tremendous demand for material.

"We beseech thee, oh mighty Factory! ruling Potentate of the commercial world, to bend thy head and open thine ear, to our humble pleading; for relief from the persecutions of our indignant customers.

"We realize, oh Factory! that we are but thy humble servant, and that our daily acts should but please thy fancy. We further realize that we stand in danger of thy condemnation for having secured so many orders, but we feel that you should overlook our breach of discipline, because we acquired our order-getting habit during the days of thy reign when thou didst command that we send thee more business.

"This was during the great order famine when thy power was endangered.

"We were faithful then and didst have thy approbation and encouragement, but now that thou hast reached the zenith of thy power and glory, it darkens our hearts to feel that thou has abandoned us to the mercy of our clamoring customers.

"Now, oh Factory, we pray thee to 'set up and take notice' of our deplorable conditions, and grant us the blessings of a little bit better deliveries of our prayers for some of thy products, which we have hoped for during the past several moons.

"Now, oh mighty Producer, if thou wilt but answer our prayer, we will grant to thee all the glory and will shout glad hosannah throughout the land."

The Fisheries Company, operating the menhaden fishery industries on the Atlantic seaboard, has arranged to equip with the Atlantic De Forest wireless telegraph its steam yacht Mindora, and the fishing steamships Walter Adams, Alaska, J. L. Lawrence, Joseph Wharton and Arizona. The wireless apparatus is being installed for the purpose of keeping in touch with the movement of menhaden along the Atlantic Coast.

Specifications for Direct Current Relays.*

1. Type.—All relays must be of the enclosed type with all working parts enclosed in a transparent case.

All relays should be sufficiently water-tight to stand a water immersion test of at least ten minutes.

2. Material and Workmanship.—Magnet cores and armatures shall be made of the best quality of soft annealed iron, and all other materials used in the construction of relays shall be of good quality, free from defects; workmanship and finish shall be satisfactory to purchaser.

3. Armature Supports.—Armature supports must be securely mounted on the magnet cores, or the armature supports and cores may be mounted on the same piece of metal, in such manner that the same relative position of armature and cores faces will always be maintained.

Trunnions of armature bearings shall be hard drawn German silver, shall be cylindrical and at least 1/16 inch in diameter.

Trunnion screws must fit tightly in their supports and be provided with jamb nuts.

4. Armature.—Armatures shall be parallel with face of cores when relay is energized. Springs, adjustable stops or other means of adjusting armature vertically will not be permitted.

A minimum air gap of 1/64 inch between armature and magnet cores shall be insured by bone or brass pins driven in end of cores or in armature.

Stop pins must be driven firmly to the bottom of the holes drilled for their reception and secured by cupping.

5. Contact Springs.—Contact springs or fingers shall be mounted rigidly on the armature not less than ⅜ inch from nearest face of same and shall be sufficiently heavy to retain any adjustment they are given.

6. Contact Points.—All contact points shall make sliding contact.

Stationary front contact points of track relays shall be of nonfusible materials and back contact points shall be of platinum.

A closed contact shall not have more than 0.13 ohms resistance.

All contacts shall have a minimum opening of 1/16 inch.

7. Magnet Coils.—All magnet coils must be form wound and convenient of application to core; all insulation shall be applied before coils are assembled on cores and when assembled they must be securely held to prevent vibration.

The wire for magnet coils shall be soft drawn copper covered with a good quality of silk or cotton braid or equally good insulation and of the proper size to give resistance specified.

The ends of wires connecting magnets shall be soldered, non-corrosive flux being used.

Terminal wires of magnet coils shall not be less than No. 20 B. & S. gage.

Magnet coils shall be encased to prevent mechanical injury to wire.

8. Binding Posts.—Binding posts shall be of brass of such cross section that they will not turn in the base or frame on which they are carried. The stud carrying thumb screws for fastening wires shall not be smaller than 10-32.

9. Insulation.—An air gap of not less than ⅜ of an inch, or approved insulation equivalent thereto shall be provided between any part of the relay carrying current and any other part thereof. Parts so insulated shall withstand a test with an alternating current of 3,000 volts for one minute.

10. Resistance.—All track relays shall be of four ohms resistance, unless otherwise specified.

11. Adjustment of Relays. Track four ohm.—Four-ohm track relays shall be adjusted to release at not less than thirty mil-amperes after an initial charge of 110 mil-amperes has been given for one minute.

After relay has been adjusted to release as specified, the current through coils shall be reversed when armature shall pick up at not more than 65 mil-amperes.

Sixteen ohm.—Sixteen-ohm track relays shall be adjusted to release at not less than fourteen mil-amperes after an initial charge of fifty-five mil-amperes has been given for one minute.

After relay has been adjusted to release as specified, the current through coils shall be reversed, when armature shall pick up at not more than thirty-six mil-amperes.

All Track Relays.—If after a relay has been adjusted as specified, the front contact points are adjusted so they do not make contact when relay is energized, the initial charge is applied and gradually reduced to 40 per cent. of normal release current, the armature shall release.

12. Adjustment of Relays—Line Relays.—Relays shall be adjusted so armatures will pick up and give good sliding contact as follows: One hundred ohms at not more than 1.7 volts; 250 ohms at not more than 2.6 volts; 500 ohms at not more than 3.6 volts; 750 ohms at not more than 4.4 volts; 1,000 ohms at not more than 5.0 volts.

* Committee Report, Railway Signal Association, Washington meeting.

At the second annual smoker of the telegraphers of Albany, N. Y., and vicinity, held in that city November 3, local Manager W. H. Doherty, of the Western Union Telegraph Company, spoke on present-day conditions and the high standard of men that was demanded because of the elevation of the craft. George W. Hardy, of Amsterdam, N. Y., spoke on the various classes of operators and the general good feeling that exists among them. He told of the higher salaried men, those who worked diligently, and the others who could do better but wouldn't. The great need of a good education was pointed out as one of the first requisites of a first-class operator. Some others who were present favored organization as a means of securing higher pay.

Some Valuable Telegraph Books.

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

POCKET EDITION OF DIAGRAMS.

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

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

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

PHILLIPS CODE.

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

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

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

The price of the book is $1 per copy.

"Telegraphers of To-day," illustrating the personnel of the telegraphic profession 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 anaylsis 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, ohmeter 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.

Telegraph Age.

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

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

TERMS OF SUBSCRIPTION.

One Copy, One Year,	$1.50
One Copy, Six Months,	.75
Foreign Countries,	2.00

ADDRESS ALL COMMUNICATIONS TO

J. B. TALTAVALL, - Editor and Publisher,
253 BROADWAY, NEW YORK.

E. H. BOWEN, Associate Editor.
WILLIS H JONES, Electrical Editor

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

CABLE ADDRESS: "Telegage," New York.
Telephone, 4143—Cortlandt.

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NEW YORK, NOVEMBER 16, 1906.

Women Telegraphers in New York Hotels.

The woman who assumed to pronounce with adverse comment upon the mental and physical characteristics of "girl telegraphers" stationed at the various hotels in New York City, and who makes the material of her so-called "study" the theme of an article published under bold headlines in the evening edition of a New York daily newspaper, might be engaged in better business. No criticism of woman is so severe as that expressed by woman, and as a rule none is so unjust, so mean, and so contemptible. Moreover, it is a disgrace to journalism to print an article, wholly without warrant or excuse, which thus singles out for coarse remark and holds up to public ridicule, a class of respectable and hard-working young women who are holding honorable positions in the telegraph service. Particularly is this so when the objects of the attack are powerless to help themselves and are compelled to bear and suffer in silence the base calumny cast upon them. It was a cruel and outrageous thing to do, and the fact that a woman was employed to undertake the write-up of vilification casts a sad reflection upon an "ambition" (a quality the telegraph girls are said to lack) satisfied to decry in the public press defenseless women in expressions at once flippant, untruthful and vulgar of utterance.

This attempt to place a stigma by an irresponsible writer, encouraged by a newspaper, upon those who, by reason of their avocation, are brought into close touch with the public, whom they serve, and who should on this account be protected rather than censured, is of the "smart aleck" sort, and will fail utterly. The young women who are in the employ of the Western Union and Postal telegraph companies, and occupying the exposed positions referred to, while annoyed and pained undoubtedly by this unprovoked reflection cast upon them, need have no fears for they are protected by their own inherent sense of womanly modesty, dignity and worth, and the public will continue to respect them accordingly.

Make the Most of Your Opportunities.

"What a splendid opportunity! If one could only be made to understand what it means to be faithful." These words are taken from a letter just at hand from an operator in the West, a long time employee of the Western Union Telegraph Company. They are resonant with the ring of a fine conception of manly conscience and perception of duty. Written by one who has passed the meridian of life, who has abundantly proven his own ability within the sphere in which he has been placed, who has demonstrated his faithfulness; a man who asks no favors, and who like Longfellow's blacksmith, "looks the whole world in the face," the expressive words with which this article is opened may well be accepted as a glowing text from which a common sense sermon, dedicated to young men especially, might be fittingly elucidated. Our correspondent is moved to speak in the vein he does because of the too evident cynical spirit of dissatisfaction abroad in the land of which he has been a close observer, and because of many editorials, approved by him, that have appeared in this journal, pointing out to young men the favorable opportunities for study and for the successful fitting of oneself for the battles of life that the telegraph undoubtedly furnishes; also of the need on the part of the individual to be faithful to the interests which he represents and of which he should consider himself a constituent member during his connection therewith.

It is not always what a person "gets out" of the business in which he is engaged during the earlier stages of his career that necessarily should dominate his decision to hold on or let go; the point of view that should prevail, have weight and give controlling direction, is whether it is affording him the right opportunities, and if so whether he is making the best use possible of his position, of his endowment of mind and heart to gather, and store up knowledge for future use. No one can be really successful in life unless he has a good foundation to work on. If the foundations are not properly built the superstructure is liable to fall. The gaining of a proper foundation in youth and young manhood, therefore, implies the exercise of the quality of faithfulness exhibited alike to employing interests and to self.

As we have said over and over again, and now reiterate the statement, the telegraph provides one of the most excellent schools in which to fit

oneself for better things. Abundant proof of this may be had by examples of men who have risen to the top in the telegraph itself, as well as by others in nearly every walk of life who have quit the service of the dots and dashes and found large success in other avocations. All such will bear testimony to the value and helpfulness derived from their telegraph experience. A man possessed of ambition, who is energetic and forceful, and who is responsive to the best intuitions of his moral nature may look with confidence, not only upon his present condition, but upon his future career. We are not arguing that a man should be satisfied with narrow environments, and scant pay. Not so. But we do say that while so situated, no matter what the cause, he should be content until such time as he can successfully extricate himself and do better. Faithfulness will surely bring him promotion.

The telegraph companies are censured sometimes by employees because of the alleged meagreness of their pay schedules, and the individual, animated by what he characterizes unfair treatment, says: "What's the use! I'm doing by the company as well as it is doing by me." Possibly, but are you doing by yourself all that you should do? Because the schoolmaster is deemed to be harsh is no reason why the scholar should be a dullard. Finding fault and shirking duty are not going to improve the situation. Rather make the most of the opportunities you have close at hand, and if a proof of your acquired abilities becomes apparent the probabilities are that you will be called to a better position in the telegraph service or welcomed to a broader field of endeavor elsewhere. In any event, whatever course one elects to follow, sobriety of thought and earnestness of purpose are enjoined as fundamental to success.

Competition there will be; competition brightens and quickens, and never before were there such avenues opened for business success as the world now offers to the right kind of bright men.

In the telegraph the services of better men are demanded, are being searched for to-day; men are wanted competent to fill the higher places, every grade above that of operator all the way up to the rank of superintendent; even the chief executive officers must be recruited from the lower ranks as changes inevitably occur. Who is there to acceptably fill these places? The call is for men who have and are taking advantage of their opportunities, no matter how modest their present surroundings. This is no idle statement. It is the truth, and men in the telegraph service who desire to remain and do well in their chosen calling should ponder carefully these words.

It is folly to stunt mental growth, and so retard and make impossible promotion, simply because one deems the treatment he receives to be unfair. Duty to oneself, a display of saving common sense, would dictate a different course, for every man will rise or fall as he personally is responsible.

Mr. Young Would Amend By-Laws.

Mr. William H. Young, president of the Old Time Telegraphers' and Historical Association, who believes that some of the by-laws governing the tenure of office in that organization might be amended with advantage, in his speech before that body at the recent convention held in Washington, D. C., had this to say respecting the matter:

"In my humble judgment the time is ripe to make some changes in the policy and plans of our association, to be considered carefully and systematically. I would therefore suggest that our laws be changed so as to provide that the officers and executive committee shall be chosen to serve for three years and authority conferred upon them during the year's recess to take up and consider a permanent and durable system, while retaining the present order of fraternal gatherings under certain restrictions, the most important and vital of which should be to require every member attending these yearly meetings to pay his proportionate share of the expenses. Local committees can be depended upon to make all suitable arrangements wherever it may be decided upon to meet. The suggestions offered are somewhat in the nature of an entering wedge, as we haven't the time or information to act intelligently at this meeting."

Classifying Membership in the Old Time Telegraphers' Association.

Editor TELEGRAPH AGE:

Referring to Mr. J. N. Worls's suggestion regarding the Old Timers' Association, adverted to editorially in TELEGRAPH AGE of November 1, it seems to me the better plan would be to establish two classes for membership in the association, the second class to embrace those with twenty years' experience, and class 1 to take in the older ones, say, thirty, thirty-five or forty years, preferably forty. Then from time to time as the twenty-year members reach the greater age limit, thirty, thirty-five or forty years, as the case may be, the executive committee to transfer them from the second to the first class.

The suggestion is crude and would have to be worked out so as to be clear and just to the entire membership.

DAVID HOMER BATES.

New York, November 12, 1906.

The new office of the Western Union Telegraph Company at Asheville, N. C., on Patton avenue opposite the government building, of which George R. Calvert is manager, was opened for business on October 25. The office is modern in every respect, the entire equipment being almost wholly new. There are large plate glass windows, the floor is laid in tile, while the wood furnishings are of quartered oak.

S. J. Small, President of the Commercial Telegraphers' Union of America.

Sylvester James Small, president of the Commercial Telegraphers' Union of America, whose portrait is presented herewith, is a man in the full vigor of middle life. He is a native of Pennsylvania, having been born near Hanover, that State, in 1865. His entry into the telegraph service was in the employ of the Western Union at Chicago in 1881. Still pursuing his avocation as an operator, he left Chicago for St. Paul late in 1883, thence in the following year, going to Helena and Butte, Mont. In 1885, at twenty years of age, he gave up telegraphing and devoted the next two years to farming and cattle raising. Not finding this mode of life congenial, although the open air occupation served to promote health,

SYLVESTER J. SMALL.
President of the Commercial Telegraphers' Union of America.

he sought the Pacific Coast, and there returned to the telegraph service, finding employment for several years with the Western Union at Portland, Ore., afterwards engaging with the Postal at that point, with which company he remained until 1903, when he entered the service of The Associated Press at Seattle, Wash. He was holding this position when his election as president of the Commercial Telegraphers' Union of America occurred in 1904, at the convention held at St. Paul, he being chosen to succeed Mr. Will C. Long, of Dallas, Tex., who in turn was elected editor and manager of the official journal of the organization, a post he continues to fill. This took the control of the union out of eastern, placing it in western hands, although Mr. Wesley C. Russell, of Washington, was continued as geneneral secretary-treasurer.

Mr. Small, who is possessed of marked executive capacity, has an engaging personality, being affable in manner, gifted with tact and conservatism of statement, and has guided the affairs of the telegraphic organization of which he is the head, with which ability.

The Commercial Telegraphers' Union of America has been prosperous during the past few years and its officers state that they have secured many concessions in the way of increases in salaries and reduction of working hours for its members, from press associations, commercial telegraph interests, as well as from numerous brokerage firms in different parts of the country.

The Sort of Men Wanted.

An employer having some responsible positions vacant writes to an agency and defines the men required as follows:

"Men who are not for sale; men who are honest and sound from center to circumference, true to the heart's core; men who will condemn wrong in friend or foe, in themselves as well as others; men whose consciences are as steady as the needle to the pole; men who will stand for the right if the heavens totter and the earth reels; men who can tell the truth and look the world and the devil right in the eye; men who neither brag nor run; men who neither flag nor flinch; men who have courage without whistling for it and joy without shouting to bring it; men to whom the current of everlasting life runs still and deep and strong; men who know their place and fill it; men who mind their own business; men who will not lie; men who are willing to earn what they eat and perform what they are paid for doing."—Canadian Manufacturer.

Can Electromotive Force Be Produced by Centrifugal Acceleration?

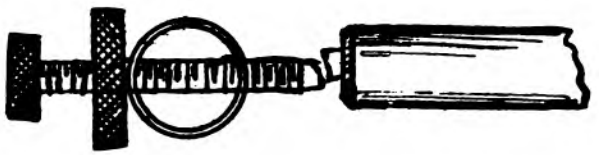
Having done his share in demonstrating the existence of mechanical pressure of light, Professor E. F. Nichols, of Columbia College, New York, is now attacking the fundamental problem whether centrifugal acceleration gives rise to an electromotive force. Such an electromotive force would be conceivable on the electron theory of the propagation of electricity through metals. On this theory we may imagine electricity to be conducted through metals in three ways. Either the negative electrons or charges carry the currents, while the positive electrons are stationary; or the positive electrons move and the negative electrons are stationary; or both kinds of electrons move with the same or with different velocities. In any of these cases we should, with certain assumptions, conclude that high mechanical velocity should affect the distribution of the electrons in a metallic conductor, and thus give rise to an electromotive force.

Some Points on Platinum Points.

BY LOUIS CASPER, OF CHICAGO.

The importance of perfect alignment of contact points of instruments in telegraph service cannot be overestimated if a high working efficiency is desired. It is not only extremely advantageous to have points strike squarely in order to make good connection and utilize all the cross-section of the same, but it will be the means of mitigating if not entirely avoiding sparking due to irregular wear which occurs when points are poorly aligned.

The accompanying figure somewhat enlarged, illustrates what will logically occur with constant pounding on only a portion of the surface of the points. Only the portion that is in contact will wear away and form indentations which is sure to cause sparking sooner or later unless filed down to a level with the lowest angle of the points, which by the way is a very undesirable thing to do when the price of platinum has reached an almost prohibitive stage within the last few months.



A frequent cause for points being out of line is often due to poor or worn out trunnion bearings of the armature or binding screws. If the screws in such cases are tightened so as to hold the points in alignment, the armature will bind; so the lesser of two evils is often adopted by permitting the points to come out of line by loosening up the binding screws sufficient for free movement.

Such instruments are mere makeshifts and had better be consigned at once for repairs, for just as long as they remain in the circuit, there will be a defect that cannot be wholly compensated for or remedied.

In view of the high price of platinum now prevailing, it might be suggested instead of frequent filing, to occasionally burnish the points with a perfectly smooth piece of unpolished tool steel. The writer found this an excellent medium to clean points with very little wear, only using a very fine Swiss file at long intervals.

The Remedy for Unrest.

When President Roosevelt in his Harrisburg address told us that wise legislation and resolute enforcement of the law are not in themselves sufficient to keep us in the straight and narrow path, but that more depends upon the training of the individual citizen in conscience and character, he spoke advisedly. The unmasking of Hipples and Stenslands is altogether too frequent, and bespeaks an utter absence of that sense of obligation and recognition of duty which we have a right to expect in all men,—but, certainly, which is not too much to expect in men in fiduciary positions. The individual is our weakest link, and the strength of the Republic's chain depends on him. With thieving bank presidents, defaulting cashiers, and directors who do not direct—what security is left to us? Of what avail is legislation if the moral sense of the citizen is blunted or lost to decency and honor? If duty, in its largest sense, weigh less heavily than the desire for personal gain or material advantage, conscience ceases to exert an influence and honesty yields to expediency. There is a widespread belief just at present, which is intensified by sensational journalism and political demagogues, that dishonesty is rampant in every line of business. This is constantly reiterated, and occasional derelictions are eagerly seized to further drive it home to the people.

That all this makes for evil no sober-minded citizen will question; nor, likewise, that it is time for those in authority to think more of the interests entrusted to them and to the obligations such impose, than of their own personal aggrandizement. Legislation and enforcement of law are powerful elements for good; but in the self-respect and righteousness of the individual is our surest safeguard, our most stable reliance. In the realms of business, signs are not wanting which indicate an era of reformative effort; but it will take some time to cleanse the temples and oust the unworthy. The difficulties for complete regeneration are formidable, and the resolute must not be deterred by the obstacles that beset their path; for only in overcoming them can they regain the confidence of the people, and lull to rest their discontent, distrust and disfavor on which political parasites fatten.—The Wall Street Summary.

The Status of the Liquid Barretter.

Of the many types of detectors devised for manifesting the presence of impinging electric waves on the aerial of a wireless telegraph receptor, says the Scientific American, none are more interesting in their various aspects than the liquid barretter of Fessenden.

Different from the coherer, the action of which was discovered by Branly, improved upon by Lodge, and perfected by Marconi, the liquid barretter, or, as it is perhaps better known, the electrolytic detector, is the result of the effort and ingenuity of one man, and to him alone is due the credit for evolving the idea, developing it experimentally, and finally applying it to the commercial reception of wireless telegraph messages.

The first detector Fessenden called a barretter —a euphonious name derived from "barretor," an old French word meaning "exchange," since it possessed the property of exchanging the energy of the oscillations surging through it for a continuous current—was based on the fact that a loop of wire having an exceedingly small diameter requires an infinitesimal amount of current to heat it. To obtain this heating effect by means of electric oscillations set up in the antennae, the loop was made of a silver wire 0.002 inch in diameter and having a platinum core 0.00006 inch in diameter, the tip of which was immersed in nitric acid and the silver dissolved away, leaving a minute area of the platinum exposed. The ends of the loop were fastened to leading-in wires, which were sealed in a small glass bulb, the completed arrangement appearing very like a miniature incandescent lamp.

The action of this barretter is based upon the following theoretical considerations, namely, that if a wire having a specific heat factor of such value that the latent energy required to raise its temperature to a certain excess above the air is relatively compared with the energy lost by radiation during the time of a signal, then if such a wire is connected in a local battery circuit when a given amount of current flows through it there will be a corresponding change in the magnitude of the current produced by the local battery. Thus it will be seen that such a detector is purely thermal in its action.

The hot-wire barretter formed an exceedingly sensitive detector, but it possessed the serious objection of burning out whenever the oscillations surging through it carried any excess of current. This difficulty led Fessenden to conduct a new series of researches, and in one instance a very small column of liquid was substituted for the platinum wire previously used. Many different modifications were tried, and among them may be cited a wire inserted in the liquid, so that the resistance might be concentrated in the neighborhood of the power.

This form finally became the liquid barretter, the subject of much litigation. It consisted of a Wollaston wire having a platinum core of two or three mils, the silver sheath being dissolved away in acid as before, and the exposed point of this was immersed in an acid or alkaline solution; the wire served as one of the terminals of the circuit, a small platinum vessel containing the electrolyte providing the other. This device was patented by Fessenden May 5, 1903.

Its inventor accounted for its action on the theory that the electric waves decrease the resistance of the barretter, since the temperature coefficients of liquids is generally negative, and as the resistance is decreased instead of increased, the efficiency of the detector is further improved.

The great value of the detector was quickly recognized by those versed in the art, and it was not long before there were a half dozen claimants in the field, who used it, insisting that to them belonged the perquisite of discovery and invention. Among these may be mentioned as the most aggressive Vreeland and De Forest in the United States, Schloemilch in Germany, and Ferrie in France.

Samples of Items Received Daily.

We are in daily receipt of many items sent to us for publication which, of course, do not find place in our paper. One day recently we received a peculiar and interesting assortment of paragraphs which naturally found their way into the paper basket. One of these stated that a lady operator on the Erie railroad had brought suit for $2.000 damages because she had been hugged by one of the employees for ten minutes. The amount demanded was at the rate of $200 per minute.

Another lady operator on the Alton road indignantly resigned her position because the company insisted upon excluding her husband from behind the railing of the office during business hours.

Still another item informed us that because of a scarcity of messenger boys at Birmingham, Ala., a few girls were hired by one of the telegraph companies, with the result that the women's clubs of that city are up in arms against the movement and are waiting on the mayor and other city officials in the endeavor to prevent the girls from earning their livelihood by such a "shocking" occupation.

Then the story is told that at Richmond, Ind., two messenger boys, aged fourteen and thirteen years, respectively, had become drunk by drinking whiskey, which another messenger boy of the mature age of eleven had stolen, the drinking being further prompted by the advice of a young telegraph operator nineteen years of age. The entire party were placed under arrest, but the burden of punishment seems to have fallen on the elder, who, in default of paying a fine of $20 and costs, was hustled off to jail.

The Wheatstone Bridge.

BY FRANCIS W. JONES.

Electrical Engineer of the Postal Telegraph-Cable Company.

The Wheatstone bridge has been and will continue to be one of the most important instruments in the hands of electrical engineers, and students should understand its fundamental principles. As an aid in this direction, the accompanying diagram of a bridge quadruplex has been arranged to conform in general to the various conditions of the differential quadruplex shown by diagram in Telegraph Age, November 1.

In the diagram A B are two stations, connected by line wire. At A is the Field key system, with resistance R'=600 ohms, R²=1200 ohms, R³=900 ohms, and connected to a Wheatstone bridge, in the cross wire r1 of which, the polarized and neutral relays are connected. E.M.F.=355 volts.

Resistance r3, r4 and r5 of three sides of bridge are shown in diagram, and the joint resistance at point y to outgoing current is 562 ohms.

The line resistance is composed of one side of bridge r3 400 ohms, line 1888 ohms, and the joint at x 712 ohms, making a total of 3000 ohms, which are balanced at A in artificial circuit by r5 400+R⁴ 2600=3000 ohms.

The proportions above assigned to the r3 and r5 sides of bridge, are given to conform to the previous diagram referred to, as appearing in this journal in its November 1 issue, and are not the best to produce a maximum effect of received current in the relays.

It is necessary to be able to ascertain the manner of calculating the conjoint resistance of the bridge at the points x at A or B, and of the proportions of incoming current carried in each circuit of the bridge.

Inspection of the diagram will show at B that the point x to the incoming current, takes the place of the point y to the outgoing current, and so turns the bridge around for purpose of calculation; r1 and r2 will correspond in position to the artificial circuit, and r3 and r4 (composed of 600 ohms the joint resistance of 900 and 1800) will correspond to the line circuit, and r5 to the cross wire r1 containing relays.

R the conjoint resistance at x=712 ohms.
r1=400, r2=2600, r3=400, r4=600, r5=400, then

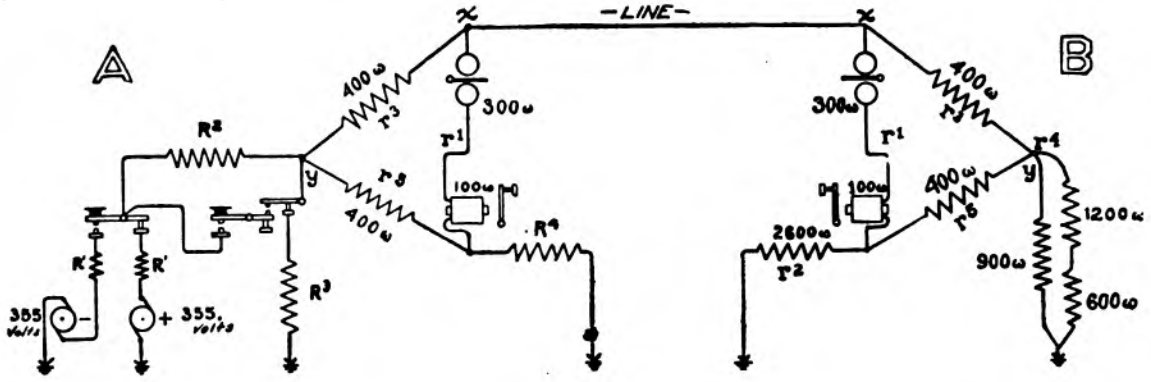
$$R = \frac{r1\ r3(r2+r4)+r1\ r5(r3+r4)+r2\ r4(r1+r3)+r2\ r5(r3+r4)}{(r1+r3)\ (r2+r4)+r5\ (r1+r2+r3+r4)}$$

The quantity of current arriving at B over line from A with both keys open will be .028 ampere at x, and of this current .011 goes via r1 (relays), .006 ampere via r2, .017 ampere via r3, .022 ampere via r4, .005 ampere via r5.

Call the current in r1 a, r2 b, r3 c, r4 d, and r5 e then a, b and e can be found by following formulae, assuming the current from line to be 1 ampere.

$$a = \frac{r3\ (r2+r4)+r5\ (r3+r4)}{(r1+r3)\ (r2+r4)+r5\ (r1+r2+r3+r4)}$$

$$b = \frac{r4\ (r1+r3)+r5\ (r3+r4)}{(r1+r3)\ (r2+r4)+r5\ (r1+r2+r3+r4)}$$



BRIDGE QUADRUPLEX

$$e = \frac{r2\ r3 - r1\ r4}{(r1+r3)\ (r2+r4)+r5\ (r1+r2+r3+r4)}$$

(r1) a will be .404 ampere,
(r2) b " .211 "
(r3) c " .596 "
(r4) d " .789 "
(r5) e " .193 "

Inspection will show that all the current from line must go via r1 and r3 so that .404+.596=1 ampere. And that all must go via r2 and r4 so that .211+.789=1 ampere, also that current in r3 is .193 less than in r4, consequently .193 must arrive in r4 via r5, therefore c+e=d.

Having ascertained the proportion in which 1 ampere divides at x among the several branches of the bridge, it is easy to calculate the division of any other quantity by dividing it by 1000 and multiplying respectively by each of the above proportional parts of 1 ampere. The formulae will also solve the problem of resistances and currents in the arms and cross wires of any Wheatstone bridge.

Testing by Ammeters and Voltmeters.

Editor TELEGRAPH AGE:

In the article bearing the above title appearing in TELEGRAPH AGE November 1, page 542, I have inadvertently added instead of substracted the arriving currents from A in the branch circuits R^3 and R^4 of B when the positive pole of the dynamo at A and the negative pole of the dynamo at B were connected to line.

It is obvious that currents of opposite polarity will not flow simultaneously through the same circuit, therefore at point x, at B the currents in R^3 and R^4 will be determined by the difference in potential at that point, between the current from A and that from dynamo at B via R^1.

The positive potential of the dynamo of A at point x being 84 volts it will fall, to 14 volts at point x at B, at which point the B minus potential will be 84, therefore the currents in R^3 will be .07744 amp. and in R^4 .02334 amp. due to the difference in the two potentials, or a minus potential of 70 volts at x.

A similar process of calculation must be followed when the No. 2 key at A is closed.

FRANCIS W. JONES.

The Vanishing Municipal Telephones in England.

Another instance of the folly, if not worse, of permitting the government to acquire control of the telegraph and telephone, as in England, has received fresh illustration by the recent action of the British postoffice, in taking over the Brighton telephone system. The Electrical Review of London, in its issue of November 2, pays its respects to the transaction, editorially, as follows:

"Last month the second of the municipal telephone systems to be sold to the postoffice, that of Brighton, was formally transferred, in exchange for a small check of £49,000. The lucky escape of the Brighton town council from its telephonic adventure was made the occasion of a short ceremony from which the note of mutual admiration common to such proceedings was conspicuously absent. Town councillors would not be true to their colors did they not keep up the policy of bluff to the last moment. At Brighton, within about a year, there have been three sensational local government board inquiries on municipal trading ventures involving large expenditures of public money, which have revealed incapacity, ignorance and irresponsibility to an extent unusual even in municipal trading circles. Not the least sensational of these inquiries was that relating to the telephone business of the Brighton corporation, and rather than face another such public exposure of business and technical incompetence, the leading spirits of the telephone committee, aided, of course, by the local members of Parliament, have been engaged for a long time past in strenuous endeavors to sell the telephone system to the postoffice.

"These endeavors have been successful, and the postoffice buys at a handsome price a telephone system which, from the commercial point of view, has been thoroughly unsuccessful. To the astonished postoffice representative the mayor of Brighton is reported to have said that the Government had, 'so to speak, put a rope round our necks and strangled us.' The mayor is also reported to have made the following remarkable statement: 'He had every confidence in saying that the postmaster general was buying from the town a sound, genuine business, and had, moreover, made an exceedingly good bargain. But for the circumstances which had arisen, the corporation would never have entertained the idea of selling the concern at the price now paid.'

"No doubt the municipal trading whole-hoggers, to borrow a Parliamentary phrase, who constitute one of the deep-seated causes of the financial troubles of the country, would like to indulge unchecked and uncontrolled in borrowing money on the security of the rates, that fatally easy process which has been so vastly abused during the past twenty years. And when the local government board at last begins to make real instead of perfunctory inquiries and to put some check on municipal borrowing, it is perhaps pardonable poetic license on the part of the representative of a corporation which has indulged in a veritable orgie of borrowing to describe this wholesome process as 'putting a rope around our necks and strangling us.' As detached spectators of the evils which have arisen from the municipal trading craze, we can only heartily say—more power to the rope.

"But when the mayor of Brighton goes on to say that the postmaster general, in buying the Brighton municipal telephones, is buying a sound and genuine business, and has made a good bargain, he is carrying the policy of bluff a little too far into the realms of the ethereal. It is well known that the Brighton municipal telephone business is a stationary one, and that its finances are thoroughly unsound. The very small business established—about 2,000 telephones in a total population of nearly 200,000—has only been secured by dint of strenuous canvassing by the whole corporation, and by the exercise of all the pressure a trading town council can bring to bear, in devious ways, on individual tradesmen; while the conduct of the concern as a whole, as revealed at the local government board inquiries, has been a burlesque on business methods. What the postmaster general thinks of his 'bargain' is revealed by his official circular, in which he says that the rates are unremunerative, and will have to be raised, and that he will have to reconstruct the exchange (only four years old) with up-to-date equipment."

Some Recollections of My Early Connection With the Telegraph.

BY DR. JAMES J. CLARK, WASHINGTON, D.C.

Read at the reunion of the Old Time Telegraphers' Association and the United States Military Telegraph Corps at Washington, D. C., October 9, 10 and 11, 1906.

I first became associated with telegraph matters in Philadelphia in the year 1845. A telegraph office was about being opened in a room on the third floor of the Exchange Building. I was then about seventeen years old. Alfred

DR. JAMES J. CLARK,
of Washington, D. C.

Vail, Henry O'Reilly and James D. Reid came to my father's place of business to see him about making telegraph instruments, they having been referred to him by the Franklin Institute.

My father, William Clark, was then engaged in the manufacture of mathematical and nautical instruments. I was detailed by my father to do the odd work about the telegraph office, such as attaching platinum at points in the instruments and drilling holes and soldering and soldering wire in anvils for keys, etc. At that time the keys did not have legs as they now have, and, in fact, many of the niceties were lacking then.

One day about the early part or middle of the year 1846, Messrs. Vail, O'Reilly and Reid came to the shop with a drawing. It was a drawing of a new relay—at that time called a receiving magnet. The drawing was in the hands of Mr. Vail and he was chief spokesman. The magnet was to be made with fine wire covered with silk. The receiving magnets then in use were very large and were wound with No. 16 or 18 wire, covered with cotton and shellaced. These receiving magnets would weigh over 100 pounds apiece. I remember seeing Mr. Reid come to the shop with one of these coils on his shoulders and it was quite a load for him.

The drawing represented what was then considered a small receiving magnet and was to be kept secret. It was to be boxed in so as not to show any part of it except the two screws to restrict the motion of the lever, the nut for adjusting the reacting spring and the two ends of the wire from the magnet. When finished I took it to the office and it was put into the circuit while I was there, and it worked so well that Mr. Vail almost danced.

Mr. Vail when leaving the drawing at the shop said he did not think we could get silk-covered fine copper wire in this country, and thought we would have to send to France for it. We thought, however, we could get it covered and had Mr. Joseph Moore, who was then manufacturing cotton-covered bonnet wire, cover this wire for us with silk. The first of the magnets was supplied with No. 26 wire, but we soon got to using No. 28 and then again with No. 30 wire, and that was our standard for a long time.

The first magnet was placed on a heavy block with the spring passing along a channel cut in the bottom of the block and passing to the back of the instrument and was adjusted by a slide and nut. It was quite a good while after this that we commenced placing the instrument on a plain block as it is now placed and adjusting the spring by winding a thread on a spindle.

Mr. O'Reilly about this time was building a line from Philadelphia to the west when he got into some disagreement with the Morse patentees and there was an injunction granted by the court restraining him from proceeding with his work, and also against our making instruments for him. We, however, kept on making the instruments for him and O'Reilly kept up the fight until he got far out west when the Morse patentees succeeded in stopping him by a suit in the United States Circuit Court of Kentucky.

Mr. O'Reilly was at that time using an instrument which he contended was not an infringement of Morse. We did not make this instrument. It was called the Columbian instrument and was the product of Samuel Zook and Edmund Barnes, and was very often called the Zook and Barnes instrument. The circuit court of Kentucky stopped the use of this instrument, it being declared an infringement of the Morse patents. The case was appealed to the Supreme Court at Washington and was there tried, and it was decided to be an infringement, which effectually stopped Mr. O'Reilly. I made all the exhibits for this trial and attended the court during the trial.

The exhibits were so arranged that any of the instruments could be brought in circuit and worked, and most of them were placed on the judges' desks as they were wanted. The connections had all been made before the opening of court—the wires being festooned in front of the judges' desks and we sent messages through them, Mr. Joseph B. Tree, of Richmond, Va., now retired, at one end of the line and I at the other.

In the suit between the Morse and Bain lines

in Philadelphia, I also made the exhibits for the court on the Morse side. Among the exhibits were two representing the complainant's and defendant's lines respectively. They were each to represent five stations—New York, Philadelphia, Wilmington, Baltimore and Washington, and made with batteries so they could be worked. I made these instruments, but did not wish to be in court as we were then doing a good deal of work for the Bain lines. A messenger, however, came from the parties in charge of these exhibits in the court and said these two models would not work. I went to the room at the side of the court room and examined the models and found that the strength of the batteries had melted the wire. We used No. 30 wire for connections and very small Grove batteries, about the size of a good sized thimble.

These lines were worked with a part of the main battery at each station. I cut out all the batteries except that of Wilmington, which was the smallest, and the models then worked very well. I stayed in this room and heard Mr. George Harding explain the case to the court and the models were brought back to the room. I told Mr. Harding about the wire melting and that the Wilmington battery alone was used. When the models were taken back to the court he explained the matter to the judges. They were quite astonished that such small size batteries would be so powerful and it was a matter of comment all around. The Grove battery was the only battery used at that time. This suit put the Bain line between New York and Washington out of business, and the line was bought in by the Morse line, at that time called the American Magnet Line.

About the beginning of the War of the Rebellion I was in Washington and noticed that orderlies were riding at a furious rate through the streets of the city carrying messages from the departments to the navy yard and arsenal, and also to Arlington. When I got back to Philadelphia, I told George Harding of this and said I thought these points should be connected by telegraph. He said of course they should and said he was going to Washington that night and would speak to Secretary Stanton and Secretary Chase about it. In a couple of days he saw me and said he had mentioned the matter to Chase and Stanton and they were very much in favor of it. He said I should go to Washington at once, that he had mentioned my name in connection with the matter. I went to Washington that night and saw Mr. Westervelt, who was then superintendent of telegraph and we agreed we would do the work together. Mr. Westervelt had just been directed to return north with instructions for each office not to receive cipher messages for or from the south. We went back together; he stopped in Baltimore and I went on, and as the train I was in was passing out of the Baltimore station the train carrying the Sixth Massachusetts Regiment was coming in and there was great hurrahing.

By the time we got to Philadelphia we had the news of the regiment being attacked in the streets of Baltimore and the bridges between Baltimore and Philadelphia burned, and Washington cut off from the north. A few days after this Mr. Westervelt reached Philadelphia by the way of Harrisburg and told me the work we proposed to do had been accomplished by some parties in Washington, that they had strung the wires on trees and posts and against houses or any way to reach the points. He further said he understood that Mr. Sanford, who was then president of the American Telegraph Company, had made arrangements for building these lines properly. He gave me an order for some instruments. It was in this way the military telegraph was commenced.

I made several inventions and among them I think the first successful closed circuit repeater, which was known as the Clark repeater, and which with some mechanical changes is still in use. I sold this patent to the United States Telegraph Company, which was afterwards merged into the Western Union.

I made the first relays that were used as sounders. These were made for Wells, Fargo and Company, who built a line across the continent in opposition to the Western Union and used these instruments because they were not permitted to use a local circuit, as the Morse patent covering that device was still in force.

These instruments were made with a double base, the upper base being about three-sixteenths of an inch thick and was struck by the lever of the relay, which was made heavier than usual. It answered very well. The first of these instruments had the upper base made from the sounding board of an old piano.

I remained in the business of manufacturing telegraphic instruments and materials till about the year 1867, when I retired.

It is related as a veracious incident that a greyhound recently proved the fleetfootedness of that breed of canines, and of its ability to outdo the speed of the telegraph, at least that it did so on the occasion in question. In the railway wreck at Carthage, Mo., lately, a greyhound became released from the car in which it was being transported. Granted liberty and obeying its animal instincts in obtaining its bearings, it immediately started on the dead run for its former home at Fayetteville, Ark., distant by a short cut nearly 90 miles from the scene of the accident. The dog's master was in another car, and as soon as extricated therefrom caused a telegram to be sent to his family at Fayetteville informing them of the disaster and of his safety. But the dog had arrived before the message, the latter corroborating what the appearance of the animal predicated.

Reporting the World's News Before the Atlantic Cable.

Although a submarine cable was laid across the Atlantic in 1858, this failed to work after a few days, and not until July, 1866, forty years ago last summer, was permanent communication established between the two hemispheres by the electric nerve along the ocean bed, converting the crystal basin into a whispering gallery for the peoples of the earth.

Looking backward now upon the progress of telegraphy meanwhile, especially upon the development of the wireless agency, and observing how the ordinary happenings of the remotest parts of the globe are immediately recorded in our daily prints, we find it difficult to realize that only forty years ago this striking feature in modern journalism, the foreign cable news, was nonexistent. The great battles of the American Civil War were not chronicled in Europe till nearly two weeks after they occurred. Their effect upon the movements of European diplomacy and finance was not known in the United States for a similar period; and because of this isolation occasions of national estrangement and discord arose which are impossible with the speedy interchange of communication which we now enjoy.

In the early '60's it took the average ocean mail boat thirteen days to make the voyage between Liverpool and New York—seven from Liverpool to Cape Race, the "half way house of the ocean highway," and six between Cape Race and New York. This Liverpool-New York service was the original and most effective avenue for transmitting newspaper budgets. Gradually, however, boats between Queenstown and Nova Scotia reduced the time, and the land line sped the messages quickly to the great publishing centers. Then the telegraph was extended to Galway, on the west coast of Ireland, and to St. John's, on the east coast of Newfoundland, between which ports a line of packets plied, that partly bridged the ocean gap still further.

Yet only in part was this so, for the steamers made only fortnightly trips, and in Newfoundland the telegraph line ran through three hundred and fifty miles of primal wilderness, where nightly tempests at times played havoc with miles of wire and suspended traffic for days. This line had cost a million dollars to build, a bridle path having to be cut through the island from west to east, every stream bridged and all the materials carried along on pack horses as the work proceeded. The first winter after it was completed freshets and storms carried away every bridge but one, and threw down so many sections of wire and poles that eighty thousand dollars had to be spent in effecting repairs the next spring.

Hence it was by no means certain that when a steamer reached St. John's from Galway her news, however important, could be sent through to New York; and more than once the situation was saved only by the energetic and resourceful action of the telegraph corps. An instance of this occurred in June, 1861, when the prompt transmission of the important intelligence brought by the Galway liner Prince Albert possibly averted war between England and the Northern States. The former had just previously recognized the Southern Confederacy, an act that set the North ablaze with indignation while the angry diplomatic correspondence which ensued threatened to plunge the two countries into war. The gravity of the situation was intensified by the inability to obtain trustworthy news, and the "jingo" prints in the Northern States were daily inflaming popular sentiment against Britain.

The Prince Albert glided into St. John's Harbor on this eventful Saturday night in June, less than six days from Galway, with the welcome intelligence that England was determined to preserve a strict neutrality, and details as to the proposed procedure in that respect.

It was of prime importance that this news should be in the American papers on Monday morning. Under normal conditions this would be easy, but the previous day the wires had been cut and poles uprooted in several places by the rival factions in a political contest in the island, and the nearest point from which New York could be reached was La Manche, one hundred miles from St. John's—first by wagon over rough and hilly roads, then by boat across two bays, and finally on foot along a rough path through the woods.

The telegraph manager determined upon the effort, and chose his most trusted assistant, Thomas Scanlan, an operator as skilful as he was physically capable, to carry it out. Scanlan started from St. John's at midnight, with the precious despatches in a knapsack, and after a series of mishaps and hardships that would have shaken the nerve of a less courageous man, finally reached La Manche station. The lines west of him were uninjured, and he soon sent his momentous messages on to New York, and on Monday morning the papers in the American cities proclaimed to the people the glad tidings that war with England was no longer a possibility.

The magnitude of the fratricidal struggle waged between North and South in these years awakened the world's keenest interest, and the craving for news had to be met by still more enterprising feats than the Galway liners made possible. Accordingly a telegraph line was run from St. John's to Cape Race, sixty miles away, and a news boat service was organized there, to receive from and convey to ocean liners passing east and west the latest intelligence of the two hemispheres.

There were then in active service the Cunard, Inman, Allan, Anchor and Fulton lines, the former three maintaining regular weekly sailings in connection with this scheme, and if the packets came in their turn it meant four "good" ships weekly—i. e., their news formed a proper sequence; but if not, they were counted "bad." One year ninety-four good ships were secured, each representing five hundred dollars to the

organizers of the service, and every year of the five that this method was employed between eighty and ninety steamers connected with the news boat.

By arrangement with the leading ship owners on both sides of the Atlantic, every ocean liner of the day carried a budget of despatches on leaving port, and on reaching Cape Race lay to, if the weather was fair, for the news boat to come off to her, when transfer of messages was effected. By night or day the boat was on hand, a vigilant and unceasing watch being maintained at Cape Race lighthouse for passing steamers. But in foul or foggy weather, when the boat could not put out, the liner sounded certain blasts of her whistle, according to code, to signal her presence and identity, and tossed overboard a metal canister containing her despatches, written on tissue paper. The canister had a weighted, leaden bottom, its cover was thickly greased before being put on, so as to prevent the water entering, and to it was fastened a rod with the ship's flag. As soon as the weather admitted, the news boat started in search of this canister, which the daring fisherfolk of the neighboring coves were always on the alert for, as a reward of forty dollars was given for every canister brought by them to the telegraph office within twelve hours of its being cast into the waves.

The contents of the canister were forwarded from the cape to St. John's, then across Newfoundland by the telegraph line to Cape Ray, thence by a short cable under the sea to Cape Breton, and from there by land line through the Maritime Provinces and the New England States to New York. As a west bound liner had six days' steaming to do to reach that port from Cape Race, the messages got there four or five days ahead of her as a rule, while on the east Cape Race, the messages got there four or five days ahead of her as a rule, while on the east bound trip despatches wired on to Cape Race within five days after her sailing could still be transferred to her and sent on to England. The service was well and efficiently organized and practically continuous from May 1 until December 31 in each year; though, of course, there were inevitable breaks in its perfect continuity, caused by the mishaps to the liners, storms delaying or forcing them past, ice preventing their approach, and in at least one instance by the shipwreck of a splendid ocean steamship which ranks among the most gruesome tragedies of Atlantic navigation.

This was the loss of the Allan liner Anglo-Saxon on April 27, 1863. She was making in from sea for Cape Race, through dense fog, to deliver her despatches, when she struck in the early morning at Chance Cove, two miles north of the lighthouse. She had four hundred persons aboard, of whom two hundred and thirty-seven perished. The news boat's crew rescued the one hundred and thirty survivors and sustained them till steamers came from St. John's with provisions and clothing, and soldiers to bury the dead, who were laid in great trenches as the sea washed them ashore. Chance Cove was then the home of several families of fisherfolk; but they soon after abandoned it, alleging that the ghosts of the drowned haunted the scene and their cries of distress made life unendurable. It is a notable fact that the place has never been settled since.

More than one other liner narrowly escaped the same fate, for so intense was the rivalry between different flags that the greatest risks were taken to connect with the news boats, and several times the steamships were almost among the reefs and shoals when warned away by the fisher boats plying their lines on the codding grounds, or the blast of horns with which at intervals they marked their presence and guided oncomers to escape collision. One great liner brought up on a certain morning within a stone's throw of the cliffs, and another was sighted within the cordon of smacks, and held up only by a quick fusillade of gunshots. But a miss is as good as a mile with sea folk, and averted tragedies count for nothing.

Collisions, too, occurred at intervals, and there is reason to believe that the mysterious disappearance of more than one fishing schooner on the Grand Banks in those days should be ascribed to these hurrying liners. Once the Hibernian cut down a smack within sight of Cape Race, shearing the stern clean off her. The skipper's nine year old boy was sleeping just where the steamer's prow entered, but his father hurried by and called out to him just in the nick of time to save him from being killed in the collision.

The crack packets in the '60's were the Cunard boats Scotia and China, the former a paddle and the latter a screw steamer, both of thirty-eight hundred tons, carrying two hundred and fifty-seven passengers, and making thirteen knots. The Inman liners were the Etna and Hecla, almost equal to the others, and the Allans had the Nova Scotian and the Anglo-Saxon, and after the latter the Hibernian, while the Fulton and Riga plied for an American company. All carried large contingents of immigrants westward, and the rush of these to the rail to obtain news of the Civil War from the Cape Race news boat after being a week out would often cause the steamer to list badly.

The news boat service was one of exceeding hardship and danger. Cape Race is a bleak and rugged promontory, with no shelter for boats and two landing places, with ladders leading to the hilltops, had to be improvised, that the men might enter or leave the boats. One was maintained on either side of the point and used as the weather served; but often it was impossible to launch either, and the crew had to stand by on the rocks and see liners go by, whose canister would not perhaps be picked up till months later, and for whom important despatches were waiting in the station. Even if a launching succeeded, and the ship was reached, a still more perilous task was faced in returning.

Once a boat was cut in two, and was tossed up on the rocks. Another time one upset and nearly drowned her men. A third occasion saw one flung against a reef and so damaged that she sank beneath them, and they had to be saved by ropes flung by the lighthouse keepers from above. Unless in very fine weather, the crew never escaped a drenching, and in winter their clothes always froze on them, and their extremities were often seared with the cold.

At the inclement season and during equinoctial storms the attempt to connect with the ships was specially hazardous. Between New Year and May, the station was rarely used, as the liners kept the southern course, to escape the ice floes. The last steamer ever reported there was on Christmas Eve in 1865. It was a fierce day, with bitter cold and biting wind, and the skipper of the news boat first demurred at putting out. It proved to be a desperate experience. After starting the crew realized their mistake and turned to get back, but did not dare approach the rocks again. So they made for the ship, and in rowing to her every man got frostburned. At her side the boat nearly swamped, and was so full of water that she had to be hoisted to the davits and freed, while the crew were given dry clothing. Then the ship steamed north three miles to a cove, where they could land, and sent them back rejoicing with a generous provision of good fare for Christmas.

Another remarkable experience of the crews was in July, 1865, when the steamer Merlin hove to about a mile from the point, and the boat put off to her. In boarding, as the ship moved ahead, Larner, one of the oarsmen, fell overboard. He could not swim, and had he not fortunately taken off his heavy boots a short time before most certainly would have drowned. As it was he vanished below the surface when the boat got back to him. Another of the crew saw him sinking, and, grasping an oar, spear fashion, dived after him, caught him by the hair, and the oar was light enough to bring them both back to the surface, whence they were got safely into the boat again with their comrades.

Repairing breaks in the telegraph line in the winter was a duty the news boat's men found thickly beset with danger. Once a repairer named Lemoine, during a blizzard in which he and others were camped, left his tent to procure firewood stacked thirty paces from it, and laughingly rejected the suggestion of a comrade to tie a cord around his waist to insure his getting back again. But he lost his way in the blinding drifts, wandered off and perished miserably, and in the spring his body was found three miles from his starting place. Another time Gosney and Larner were repairing a section, when a blizzard sprang up and they retreated to a shack that had been built for such a purpose. They searched in vain for it, and at last walked right over its roof, it being snowed in, and had to get down through the chimney to obtain shelter.

Despite these dangers by sea and land, the Cape Race connection gave Europe the speediest news of the battles of the American Civil War, the changing fortunes of the contending States, the ultimate downfall of the Confederacy, the death of Lincoln, and every other public occurrence in North America till the end of 1865, and similarly through the same agency the momentous occurrences in England and Europe, as well as the Lancashire cotton riots, the ravages of the Alabama, and her defeat by the Kearsage, were soon made known to the American public.

After connecting with the steamer on Christmas Eve, 1865, the short but famous cable between Cape Ray and Cape Breton finally broke, and Newfoundland was cut off from telegraphic intercourse with the world outside until the next spring, as repairing was impossible in these waters in winter owing to the ice floes. By this time, however, the world was all agog for the laying of the new Atlantic cable, which was successfully completed between Valentia, Ireland, and Heart's Content, Newfoundland, on July 28, 1866.

Since this date unbroken intercourse between the two hemispheres has been maintained, while the fact that the Atlantic bed is now crossed by sixteen submarine cables renders it certain that the world will never need to revert again to the methods employed when London and New York were a fortnight apart and the link of connection was the news boat at Cape Race.—P. T. McGrath, in the Sunday Magazine.

The Mackay Statue.

A fine bronze statue of Mr. John W. Mackay, the famous miner and organizer of telegraph and cable systems, has been furnished by Mr. G. Borglum, the sculptor, and has now been sent from his studio in New York to Reno, Nev., where it is being placed in front of the new School of Mines of the State University of Nevada. This school is the gift of the widow and son of Mr. Mackay, who now make this felicitous addition to their gift. The statue is a most spirited representation of Mr. Mackay in simple miner's dress, pick in one hand and in the other a fragment of ore. Altogether the figure is not only a splendid piece of portraiture, but might well be accepted to stand as the representative miner of America.

The Louisiana State Railroad Commission had before that body on November 7 the managers of the Western Union and the Postal Telegraph Companies to explain why their respective companies have not complied with the order of the commission directing that service messages be sent within one hour after the sending of the original telegrams, thus showing whether there has been delivery or non-delivery.

Wireless Telegraphy.

CLOSE OF THE WIRELESS CONFERENCE.

The International Wireless Telegraph Conference closed at Berlin on November 2, the treaty, or agreement, being signed on November 3. A special dispatch says: "In the international wireless telegraph conference Great Britain succeeded in making the American proposal for unrestricted exchange of messages between ship and ship and shore, regardless of the system used, a separate article. The international regulation of the use of wireless telegraphy has been satisfactorily settled on the basis of free intercommunication between all the systems, Great Britain at the same time maintaining a free hand to organize a system of its own. Throughout the conference Great Britain was loyally backed by France, Italy and Japan, the French delegates often supporting the British delegates against their own convictions. Italy, from the first, confessed herself inextricably hampered by her contracts with the Marconi Company."

The motion of the United States to make intercommunication between ship and ship compulsory came as a complete surprise to the conference, and was described as a "regular bombshell," according to the Electrical World. The German Government was not particularly pleased with it, but accepted the motion after some hesitation. Great Britain opposed it out of consideration for the demands of traffic on the ground that it was impracticable, besides being an improper restriction to place upon individuals. France, Italy and Japan supported Great Britain, but the motion was carried.

A further proposal by the United States, to make the motion binding on all the signatory powers, which was also opposed by Great Britain, was rejected by the conference, and a British proposal to make the American motion a separate article, to which the powers signing the convention need not necessarily adhere, was passed.

The articles, if all goes well, will go into force July 1, 1908. It is understood that with regard to Article XVII of the draft of the convention the conference came to the conclusion that the only way of settling the question of imposing the convention upon private wireless telegraph companies would be the introduction of special legislation by each State.

A special dispatch to the New York Evening Post from its London correspondent says: "The policy of our delegates at the Berlin conference on wireless telegraphy has been bitterly attacked by a powerful section of our press this week. They are accused of having wasted without compensation the advantages of the natural lead which we now possess in our already developed system and our territorial monopoly of convenient naval stations. Even now that the convention is complete and ready for signature, it is hard to say what foundation these charges have or how far they have been dictated by partisans interested in the privileges of the Marconi Company. Reports of the proceedings of the conference are still fragmentary, and such inside information as has been divulged seems to have come almost entirely from interested sources, making it impossible as yet to disentangle any clear summary of results.

"The most controversial point turned on the British reservation, on clause three, whereby our Government claimed to exempt such stations, other than naval or military, as they themselves might select, from the operation of the general agreement of compulsory intercommunication. This reservation was maintained by the British delegates, but subsequently was weakened by private assurances, against which the Corriere Della Sera of Milan bitterly complained. This journal, which apparently represents Marconi influences, prophesies litigation between the British Government and that company as to its exclusive rights.

"The London Times' Berlin correspondent tends to support our supposed concessions and maintains that our liberality will be well repaid in time of war by our familiarity with all systems in use and that the Governmental control of all stations on British territory will secure an immense preponderance for Great Britain in the domain of wireless telegraphy. Great Britain was the chief opponent of the proposal by the United States to make intercommunication compulsory between ship and ship, which was subsequently carried against her by the support of Germany and the small nations of Europe and South America. Canada, who has developed a vast Marconi system at the mouth of the St. Lawrence, complains very reasonably that she deserved a separate representation at the conference."

It would appear from the cable dispatches of November 3, and that quoted at length that the representatives of all the powers signed the document but Great Britain, Italy, Japan, Mexico, Persia, and that Portugal did not join in the special article containing one of the United States' proposals—that intercommunication be obligatory between ship and ship. The British delegates some days ago offered as a compromise to accept compulsory intercommunication between ship and ship upon matters pertaining to navigation alone. The United States delegates declined to agree to the compromise, affirming that they were willing to stand or fall on the principle of free intercommunication. They were supported by the great majority of the delegates, who adhered by signature to the article, only those of the six countries named declining. Great Britain, Italy, Japan, France, Spain, Denmark, Persia, Portugal and Turkey did not sign the renunciation privilege, thus excepting from the provisons of the treaty such stations as these governments may select. All the other powers agree to free

ship-to-shore intercommunication with all stations open to the public, naval and military stations excepted. The next conference is set for 1911. The British delegates at the conference were the secretary to the postoffice, Mr. H. Babington Smith, C. B.; the engineer-in-chief of the postoffice, J. Gavey, C. B.; Mr. J. Mackay, also of the postoffice; the assistant director of naval ordnance, Captain A. E. Bethell; the assistant director of military operations, Colonel F. J. Davies, as well as Lieutenant J. G. Loring of the navy and Colonel R. L. Hippisley.

A paper, entitled "The Audion," was read before the meeting of the American Institute of Electrical Engineers, New York, on October 20, by the author, Lee DeForest. The Audion is the name of a new receiver for wireless telegraphy, the invention of Mr. DeForest, and he tells the story in his paper of the development of this device, which is distinctly of a new order, in the most entertaining manner and with an abundance of detail.

In the course of an article by Herr A. Furst, which was published in a recent issue of the Berlin Tageblatt in reference to a visit paid to the wireless telegraph station at Nauen, which is not many miles distant from Berlin, it is stated that the station is able to communicate with safety over a distance of 1,550 miles, and the opinion is expressed that the time is not very remote when it will be possible to telegraph to New York. Specially interesting is the statement that the engineer in charge of the station on the occasion of the visit remarked that he would endeavor to ascertain whether the "brothers" at Poldhu were telegraphing at the time. Shortly afterwards the Morse instrument began to work, and the dots and dashes on the paper strip, it is said, indicated English words which, however, revealed no sense. Nevertheless, the author observes that it was ascertained that the telegrams were in cipher, and were being sent by the English admiralty to the cruiser Carmania at sea. When the Nauen station does not understand anything sent out by Poldhu, the former produces its wave measuring apparatus, and by this means ascertains in a very short time the wave length at which the English station is working. The Nauen receiving apparatus is set accordingly, and the secret is one no longer. It is understood, Herr Furst states, that the people of Poldhu act in a similar manner. The Nauen station is 325 feet high, and the proprietary company is credited with the intention of erecting a second tower which will be 975 feet high, or as high as the Eiffel tower.

It is claimed that a lieutenant of the Swedish army after four years experimenting has invented a complete wireless telephone. Swedish newspapers state that there will be a public demonstration of the invention in December.

The Telegraph Operator Ever in the Fore.

BY JESSE H. ROBINSON, OF WASHINGTON.

While visiting Mount Vernon with the members of the Old Time Telegraphers' and the Society of the United States Military Telegraph Corps on the occasion of their last reunion, I was impressed with the thought that while the telegraphers were not perhaps, first in the hearts of their countrymen, like the illustrious dead whose tomb we were looking upon, they were, nevertheless, on the front line both in peace and in war. Usually the first step towards civilization in new countries is the pushing forward of the telegraph which later is followed by the railroad. The following historical facts are incidents that should not pass unnoticed: To-day the trail leading from the Oregon boundary line through Alaska to Behring's Strait is the one laid out by the constructing engineers of the Collins Overland Telegraph Company. The maps and charts made by the telegraphers who pioneered Alaska in 1866-7 were among the first made for that locality and were used by the Joint High Commission which met in London in October, 1903, for the purpose of arbitrating the question of the boundary line between Alaska and British Columbia. A member of that commission assured the writer that the maps and charts made of Alaska by the telegraphers were of the highest value to all concerned in arriving at a fair and equitable adjustment of the boundary line as agreed upon. The experiments made by the telegraphers in Siberia with metals as to their contraction and expansion developed the fact that they were less liable to break from extreme cold in high latitudes than in the temperatures of the Carolinas, Georgia and Florida. In constructing the Northern Pacific Railroad, this information was of value.

During the Civil War there were many incidents when the duty of the military telegrapher called him to a place in advance of the line of battle, and the following as related by General Locke, is worthy of mention: "Our telegraph operator was sent into Yorktown soon after our troops had got possession of the place; he trod upon one of the shells buried by the enemy, which burst and terribly mangled both of his legs from which he died soon after in great agony. In this instance as in many others the telegraph operator on account of his familiarity with electric wires, was sent into evacuated camps in advance of the troops for the purpose of discovering hidden torpedoes, and if possible preventing their explosion while our troops were directly over them."

Disregarding self and with no other thought than obedience to the call of duty, Lathrop, the heroic telegraph operator referred to, stepped quickly in front of the halted column of soldiers drawn up in line of battle at historic Yorktown and marched to certain death in search of the death dealing devices of the enemy, but by his valor the lives of thousands of soldiers were saved.

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.....Apl. 16, 1905
British System of Timing Messages.....Dec. 1, 1902
Buckingham Long Distance Page Printing Telegraph.....Sept. 1, 1902
Burry Page Printing Telegraph.....Apl. 1, 1903
Cables and Russo-Japanese War.....Apl. 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.....Apl. 16, 1904
Direct Polar Relay Repeater of the Postal Telegraph-Cable Company.....Oct. 16, 1903
Earth Currents.....May 1, 1903
Engraving of Clarence H. Mackay.....Nov. 16, 1902
Engraving of Col. Robert C. Clowry.....Apl. 16, 1902
Engraving of the Late John W. Mackay.....Aug. 1, 1902
Field's, S. D., Amplifier.....Nov. 1-16, 1904
Field's, S. D., Quadruplex.....May 1-16, 1904
Flow of Electricity in the Earth.....Dec. 16, 1903
Ghegan Automatic Repeater.....June 1, Dec. 1, 1903
Ghegan's, J. J., Multiplex System.....Aug. 1, 1904
Gray Submarine Signaling Apparatus.....Jan. 1, 1904
Hand vs. Machine Telegraphy.....Sept. 16, 1902
Hard Drawn Copper Wire, F. W. Jones.....Nov. 1, 1903
Harmonic Telegraph, Prof. F. Lori.....Mch. 16, 1905
Improvements of Roberson Quadruplex.....Feb. 1, 1903
K. R. Law as Applied to Quadruplex Circuits.....Jan. 1, 1904
Ledey Telegraph Key.....Jan. 1, 1904
Life of Storage Batteries.....July 1, 1903
Low Resistance Relays...Oct. 1-16, Nov. 1, Dec. 16, 1902, Jan. 1, 1903
Midway Islands Cable Station.....July 1, 1904
New York Fire Alarm Telegraphs.....Aug. 16, 1903
Passing of the Quadruplex.....Aug. 1, 1903
Phillips' System of High Speed Telegraphy, J. W. Larish, Nov. 1, 1904
Pollak-Virag System.....Mch. 1, 1903
Possibilities of Telephoning Over Tracks to a Moving Train, Mch. 1, 1904
Postal Telegraph-Cable Company, History of (with portraits of officials).....Feb. 1, 1904
Postal Telegraph-Cable Company Rules Governing Construction and Repair of Telegraph Lines.....Apl. 1-16, May 1-16, 1904
Printing Telegraph Systems, Modern High Speed, J. C. Barclay Nov. 1, 1904
Printing Telegraph Systems, Story of.....Jan. 1, 1903
Progress of Telegraphy During Last Thirty Years, W. Maver, Jr. Mch. 16, 1904
Progress in Fire Alarm Telegraphy.....Jan. 1, 1903
Proper Adjustment of Telegraph Apparatus.....Aug. 16, Sept. 1, 1904
Protection of Telegraph or Telephone Lines When in Hazardous Proximity to High Speed Lines.....June 1, 1904
Random Recollections of 145 Broadway, W. P. Phillips....Feb. 1, 1905
Rapid Telegraphy, P. B. Delany.....Nov. 16, Dec. 1, 1904
Recent Improvements in Telegraphy, J. C. Barclay.....Feb. 1, 1905
Reminiscences of New York Telegraphers a Quarter of a Century Ago.....Jan. 1-16, Feb. 16, Mch. 1, 1905

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, 1903
Milliken.....Jan. 16, 1902
Neilson.....Feb. 1, 1902
Weiny-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' Wheatsone 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
Telautography.....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....Apl. 16, May 1-16, 1904
Telegraphone, The.....June 16, 1902, Mch. 1, 1903
Telephone and Telegraph Bureau, U. S., Washington, D. C. May 1, 1903
Telephone in Railway Service.....July 16, 1902, Jan. 1, 1903
Telephony and Telegraphy at Internat'l Electrical Cong....Oct. 16, 1904
Testing Device, Useful and Simple.....Jan. 1, 1904
Transmitting Typewriter Wire Connections.....Feb. 16, 1904
Twentieth Anniversary Number.....Jan. 1, 1903
Twenty Years of Standard Time, W. F. Allen.....Feb. 1, 1904
Typewriting Telegraphs, L. S. Wells.....Aug. 1, 1904
Typo-Telegraph (Dr. Cardwell), F. J. Swift.....June 1, 1905
United States and British Telephones and Post Offices, F. W. Jones.....Apl. 1, 1904
Use of Modern Telephone as Applied to Railroads.....Jan. 16, 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.....Apl. 1, 1902
When is a Storage Battery Fully Charged.....Aug. 16, 1904
Wind Pressure on Telegraph Structures, F. W. Jones.....Dec. 16, 1903
Wire Tables—How to Remember Them, C. F. Scott.....Apl. 16, 1905
Wireless Telegraphy at Sea.....Mch. 1, 1904
Yetman Transmitter (Description and Engraving).....Aug. 1, 1903

Books on the Submarine Cable.

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

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

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LETTERS FROM OUR CORRESPONDENTS.

PHILADELPHIA, WESTERN UNION.

Manager G. W. Deetz of the Atlantic City, N. J., office displayed his sterling qualities recently in handling the enormous newspaper matter occasioned by the wreck on the electric railroad at that point. The wreck happening on Sunday morning, October 28, the office force was very limited, but Manager Deetz mustered together a force of twelve men from among the broker and leased wire men of the town, and handled the press matter for Philadelphia, New York, Baltimore and Washington papers without a hitch. Superintendent J. P. Altberger sent a relief force from this office composed of D. E. McBride, Joseph Mullen and Lewis A. Riley, who also did splendid work. At least 250,000 words were handled.

W. E. Wineland, a well known operator, who was critically ill for several weeks, is dead. The funeral was attended by a representative body from this office, and a handsome floral emblem, expressive of sympathy was sent to the home of the deceased.

V. G. Hudgins, who accepted the managership of the office at Raleigh, N. C., has returned to Philadelphia, the South not being to his liking.

R. C. Murray, Jr., general wire chief, has the sympathy of many friends because of the death of his father.

Under the expert management of chief operator J. P. McLoraine, the recent election returns, incoming and outgoing, were handled without a flaw.

This office was favored recently by the visit of Mr. James Merrihew, of New York. Mr. Merrihew is well remembered by the older employees here by whom he was and is still highly esteemed. While Mr. Merrihew was connected with this company here he endeared himself to all.

ST. LOUIS, WESTERN UNION.

D. B. Culmer, Ray M. Christian and Frank Powers were sent to Salt Lake City, Utah, to help out on election night.

Forty men from the local broker offices were called upon to assist the regular force on the night of the election.

Miss Bettie Bauer and Miss Mae Norton have been transferred from local branch offices to the main office.

R. H. Tucker, assistant wire chief has resigned to go to Los Angeles, Cal., to accept the position of wire chief on the San Pedro Railway. He held a board position here for the past three years. He has gone to his home in Virginia for a leave-taking before he takes up his new labors.

The fifth annual ball given by the telegraphers on Friday evening, November 2, at "Louisiana Hall" was a very enjoyable affair and well attended. The reception committee consisted of the Misses Evylin Deming, Alice Coyle, Agnes Hickey, Anna Boyle, Laura McKnight and Josephine Warren; Messrs. Joseph Barry, Frank Strachan, Tony Gorosky, Francis Sullivan, Clyde Marsh and Michael Cassidy.

ASHFORK, ARIZ., POSTAL.

The force of this office as at present constituted, is as follows: V. V. Stevenson, manager; Fred. Van Dervoort (late of the Western Union Reno, Nev., and the U. S. Signal Corps, Manilla), repeaters, days; Frank Smith (recently of the cable wire, Oakland), first night repeaters; George Denison, all night repeaters; Lawrence B. Reeder, engineer and lineman.

It may be said in passing that Mr. Smith is expert with the shotgun, and keeps the whole force well supplied with quail; also that Mr. Denison holds the rifle marksmanship record and is supplying us with choice cuts of venison. Thus it will be seen that life in the "wilderness" is not without its pleasures.

CHICAGO, WESTERN UNION.

Harry Price, of the east board, nights, has returned from a trip to Oklahoma.

Mr. Frank Richardson, traffic chief, spent a pleasant vacation in Michigan.

Chief Operator L. K. Whitcomb spent his vacation at points further west.

Others who have returned from vacations are: John Dayhoff, assistant night chief operator, and Messrs. Enking and Schwartz, chiefs of Illinois division.

Thomas Allan, of the eleven-thirty split trick, has been assigned as assistant solicitor in Manager F. V. Moffitt's office.

Roy Bennett, recently of this office, is now dispatching trains at Davenport, Iowa, for the Rock Island road.

Harry Deacon, assistant in charge of the city lines, has successfully organized the new Fort Dearborn Camp of the Modern Woodmen, an insurance organization, starting with a substantial membership among the operators.

Charles Jupp, who has been employed here for the past two years, met with a sad end by being asphyxiated with gas, the coroner's jury rendering a verdict of accidental death. It appears that his real name is Egget and that he came from Montreal, where the remains have been taken for interment.

A new club has been organized among the operators and clerks of this office, called the "Thirty Club," its object being to provide sick benefits for its members. It is conducted along the same lines as the "Boosters," which has been in existence here for a number of years. The club membership is limited to thirty-one, and is composed of members of the Chicago Aid Society only. Mr. O. L. Carson is the organizer and has been selected as the first secretary of the club.

Emmet C. Dean of the Illinois division, is acting as temporary manager at Kenosha, Wis.

Louis Casper, of this office, delivered an address on "Multiplex Telegraphy" before the Young Men's Christian Association on the evening of November 7. It is announced that Mr. Casper will speak again at the same place on November 21, on the subject of "Automatic Telegraphs." Those who have heard him describe him as a very interesting speaker.

Miss Millie Fansler, of the Davenport local, has just returned from Marshalltown, Iowa, where she has been filling in as report operator.

Mr. Ray Donovan, late of this office, as operator and wire chief, died October 25 after a prolonged illness.

Thomas L. Flynn, formerly of the New York office, is now assistant to Division Chief Harry Allison of the St. Louis division.

NEW YORK, POSTAL.

W. C. Pearse and E. F. Fullum, who have been ill, are again at their desks.

E. Cassidy, of the city department, after an experience of three months as a letter carrier, has returned and has been assigned to the cable office tubes.

John Roth, service clerk, has been transferred to aid Mr. Harris, as assistant timekeeper.

R. Deman of the service department has been transferred to the Rowland sending machine.

M. D. Cusick, manager of the City Island office, reports the recent death of his father, D. Cusick.

Among recent arrivals is B. Reed, from the Western Union, New York, who has been assigned to the service department.

Other new-comers are: George F. Murray, C. S. Smith, Robert M. Kiley, W. M. Luse, Messrs. Ellsworth and Scharf; W. H. Flynn, J. H. Nugent, Charles J. Mitchell, G. F. Reilly, Miss M. Weldon, Miss M. Schade, Miss G. T. Jones, E. Cassidy and H. J. Johnson.

Resignations include: A. J. Francis, P. F. Menting, A. J. McGivern, F. McGauley, F. J. Secoy, E. K. Gibbon, A. M. Levenson and W. Gainfort.

NEW YORK, WESTERN UNION.

William C. McDonald, aged thirty-five years, a brother of R. C. McDonald, and a native of Montreal, Que., for a number of years and until about a year ago an operator in this office, died at the home of his mother, Sheepshead Bay, Brooklyn, on October 31.

J. J. Smollin, an operator formerly of this office, died at St. Joseph's hospital, October 26.

Mrs. Annie Einwag, of this office, died suddenly of heart disease, November 3, at her home in Brooklyn.

T. Van Tassel, employed in the Commercial News Department for many years, died at his home in Jersey City, on October 28.

Mrs. M. Blanks is absent because of illness.

Mr. Edward H. Miller, wire chief at Pottsville, paid a visit to the general operating department.

Miss Voorhees, of this department, is back again after a two weeks' sojourn in the Pines at Lakewood, N. J.

Mr. H. M. Heffner, chief in the Commercial News Department, has returned from a vacation spent in the Adirondacks. His prowess as a hunter is demonstrated by the exhibition of the skin of a black bear.

Miss Jennie Kenney,, operator at the Park Avenue hotel, New York, has returned from a very enjoyable vacation of three weeks passed at Atlantic City, N. J.

Another who has been absent on a vacation is C. A. Meyer, eastern division chief.

Mr. Frank Tomlinson and Miss Florence Baker were married at Ozone Park, October 31. The general operating force was well represented at the wedding, the toastmaster of the occasion being "Senator" W. L. Ives.

Mr. M. W. Jones, formerly connected with the Long Island Railroad, and later employed in this department, who has gone to the Isthmus of Panama, sends greetings from that distant point.

Election night as usual found this office like the proverbial beehive, but the perfect arrangements allowed the business to be moved as though nothing unusual was happening.

OTHER NEW YORK NEWS.

A. J. Carpenter, a telegraph operator in the employ of Bartlett, Frazier and Company, brokers, New York, died suddenly on October 30. He was about thirty years of age.

The members of the Magnetic Club are anticipating much pleasure on the occasion of the Fall dinner of the club which will take place Wednesday evening, November 21, at the Hotel Astor, the hour named being half-past six o'clock. The club will have as their guests the delegates to the Telegraphers' Mutual Benefit Association, whose annual meeting will be held in New York that day. An excellent programme of entertainment has been provided, which will include the appearance of a number of speakers of reputation. Among them may be mentioned Mr. P. J. Murphy, of New York, head of the Mark W. Cross Company, whose ready eloquence has delighted and whose inimitable stories have moved to hearty laughter audiences on previous like occasions.

Recently a man called at the office of TELEGRAPH AGE to purchase a word counter. He was exceedingly particular to see how the register worked and when asked on what machine he wished to use it replied: "That he did not want the counter for a typewriter but to register the ups and downs of his dumbwaiter."

The annual meeting of the Telegraphers' Mutual Benefit Association will occur on Wednesday, November 21, at No. 195 Broadway in the directors' room of the Western Union Telegraph Company, located on the sixth floor of the building.

BOOKS ON THE TELEGRAPH.

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

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

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

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

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

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

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

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

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

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

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Locating the Magnetic Pole.

Captain Ronald Amundsen, who opened up the Northwest Passage, and has been locating the magnetic pole, is in New York City. He states that the idea of relocating the magnetic north pole, which had been established by the English Admiral Sir James Clark Ross in 1831, came to him after reading the works of Professor George von Neumayer, Germany's greatest authority on the subject. "The primary undertaking was to find the place where the needle stands perpendicular," Captain Amundsen said. "After conferring with Professor von Neumayer, I decided to make an attempt to navigate that northwest passage which has barred mariners for centuries. My ship, the Gjoa, left Christiania in June, 1903. We went as straight as we could to the vicinity of the magnetic pole, and there Lieutenant Hansen and I began observations which were pursued for nearly two years. It may take us years more to work out the notes which we made on these observations, but we have established the exact location of the magnetic north pole. When we had satisfied ourselves of this the Gjoa continued her trip through the northwest passage, and on August of this year we sailed through Bering Straits with the Norwegian flag at our masthead."

On the way to New York from San Francisco, where the Gjoa now lies, Captain Amundsen, Lieutenant Hansen and the crew of the vessel were feted by their countrymen at many points. Captain Amundsen has received the Grand Cross of the Olaf Order from King Haakon, of Norway. The captain has been notified of this award by cable. A prize on deposit with the English Government for the first man to effect the northwest passage will undoubtedly be awarded to Amundsen also, besides a substantial grant from his own government. Great preparations for his welcome home, in which Fritjof Nansen, the explorer, is taking an active part, are in progress in Norway. Captain Amundsen will lecture before the Norwegian Geographical Society and later in London before the London Royal Geographical Society.—Electrical World.

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

The New York Telegraphers' Aid Society Entertainment.

The twenty-sixth annual meeting of the New York Telegraphers' Aid Society was held at the Lexington Avenue Opera House and Terrace Garden, New York, on the evening of Wednesday, November 14, and drew together a vast number of people. The event was celebrated by the presentation of a high-class vaudeville entertainment, made up of eight numbers, which was well received, and by a brilliant reception. Dancing concluded the affair, and it was a late hour when the last of the guests had departed. Committee members worked intelligently and with much zeal to make the event a success, and their efforts in all respects were well rewarded. As the object of these yearly gatherings is for the purpose of raising money for the relief fund of the society, the substantial amount that was realized on this occasion will find a welcome application among the sick and needy entitled to its benefits.

These occasions are rendered the more delightful inasmuch as they afford an opportunity for the craft to meet in social intercourse at least once a year and thus renew acquaintanceship which in the busy lives telegraphers lead might otherwise lapse.

In his greeting, Mr. J. C. Watts, president of the society, said in part:

"To-night we are gathered together to laugh and make merry. These reunions come with regularity and bring to mind the fact that another year has passed away. By your presence here this evening you assure the craft and our numerous friends of the kindly feeling that instills the human heart, and that a real work of charity will find a host of supporters. The net proceeds of these yearly entertainments enables this society to relieve much distress, and when necessary provide a proper burial for those of our fellows, who through ill health or misfortune are without friends or the wherewith to obtain assistance in their dark hours of need. During the past six months (our fiscal year not ending until March 6) many cases have been brought up for consideration, and in this period we have expended the sum of $958.18 from our relief fund. Through your kindness, not forgetting many loyal and generous contributors who cannot be present, this good work is made possible. We trust you will enjoy a most pleasant evening and we extend our sincere thanks to all for supporting a cause which we assure you is a most worthy one."

The officers of the society are: J. C. Watts, president; H. C. Worthen, vice-president; Thomas M. Brennan, treasurer; C. A. Kilfoyle, financial secretary, and W. B. Purcell, recording secretary.

Mr. R. J. Marrin was chairman of the entertainment committee; W. H. Smith of the reception committee, assisted by W. H. Mathews, J. F. King and J. P. Clollery, and J. F. Bannon was the director of the floor committee, his assistants being F. L. Wagner, F. J. Sheriden and C. P. Monett.

Among the visitors at the recent convention of the Old Time Telegraphers' and Historical Association at Washington, D. C., was Mr. T. F. Sloan, who was accompanied by his wife, of McConnellsburg, Fulton County, Pa. Mr. Sloan is the test operator for the Western Union Telegraph Company located about fifteen miles from the place named at one of the highest points in the Allegheny mountains. He is several miles distant from his nearest neighbor and he occupies his office alone. In fact there is not a railroad in the country, and he is established at one of the most isolated spots in this extensive range of mountains. The family of Mr. Sloan resides at McConnellsburg. This being an important test office, Mr. Sloan no doubt manages to keep posted on the events of the day through the medium of the wire. Mr. Sloan has been in continuous service with the Western Union Telegraph Company since 1864.

Through the failure of the Planters' Oil Company, of Augusta, Ga., to establish beyond question that a certain telegraph message was received by the Western Union Telegraph Company, the last named company has won a second victory; this time in the Supreme Court. In the lower court a verdict for the defendant company was directed by the trial judge, and the higher court affirms the decision.

The oil company telephoned a message to the telegraph company, and later instituted a suit for damages because of the failure of the telegraph company to transmit and deliver the message. It was never established, however, that the telegraph company's agent received the message over the 'phone, and because of this doubt a verdict for the defendant was directed.

LAKE CHARLES, LA.

Population 12,000; Assessment $3,237,000; Post Office receipts $25,000; Bank Capital $455,000; Bank deposits, $2,650,000; Parish Seat of Calcasieu Parish, population 45,000, assessment $20,000,000, containing 3,600 square miles of territory. Buildings erected in 1905, $260,000. Lake Charles has in the Kansas City Southern an air line to Kansas City; in the Watkins-Iron Mountain route through Alexandria, a direct line to St. Louis and Chicago, and in the Southern Pacific main line an air line east to New Orleans and west through Houston, Texas, to the Pacific Coast. Saw mill, annual cut 150,000,000 feet, valued at $1,500,000, employing 1,275 laborers, annual payroll $750,000. Rice lands irrigated 138,000 acres by 500 miles canals and laterals. One of the most promising industries of the Parish is that of stock raising, there being on the assessment rolls 44,725 head of cattle, 85,625 sheep and 34,000 hogs. The local demand for butchers stock is growing rapidly. Lake Charles is ten miles distant from the largest mine in work with an output daily of 35 cars of pure sulphur. Our oil field in this Parish is yielding more oil than all the Texas fields combined.

Lake Charles side drive, equal to any in the world, is nearing completion. The Majestic Hotel, the finest between New Orleans and San Francisco is just completed and open for business. Summer days in winter months; hunting and fishing the year round. The yachting on the beautiful lake is unsurpassed in any country. Electric street car line. The Postal Telegraph-Cable Company of Texas, with its up-to-date offices and splendid service, keeps pace with the progress and development of the city.