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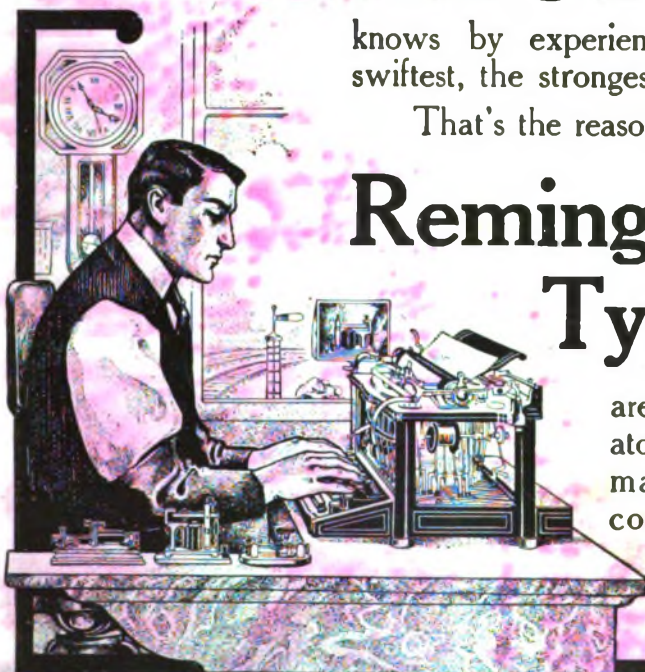
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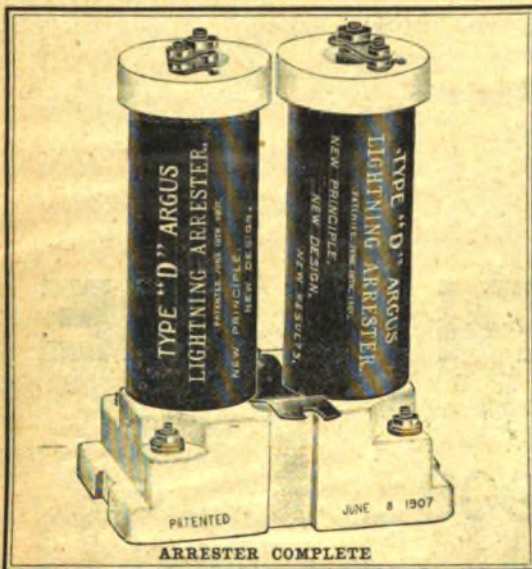
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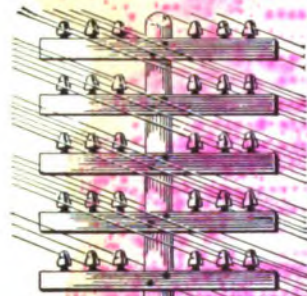
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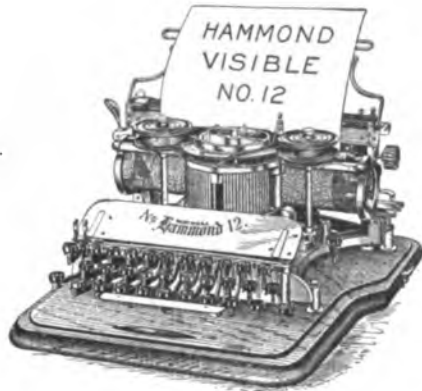
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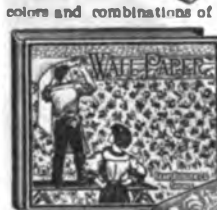
Many expert code operators have examined the revised edition of this code, and all unite in pronouncing it perfect. Mr. George W. Conkling, who has won the championship for sending code in many tournaments, says:

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No. 1.

NEW YORK, JANUARY 1, 1908.

Twenty-fifth Year.

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The amount of information contained in each issue of TELEGRAPH AGE of the utmost practical value to the progressive operator who is ambitious to succeed, to acquire a more thorough knowledge of his profession, and not only to better qualify himself for the position he now occupies, and consequently for advancement, should prompt many to send in their subscriptions to this journal without delay. The first article in each issue, contributed by Willis H. Jones, under the standing head of "Some Points on Electricity," contains more positive instruction concerning the telegraph, than can be found anywhere else, and is worth more to the operator than many times the cost of the paper itself. Subscriptions should be sent direct to this office, or to any of our agents, who may be found with both the Western Union and Postal companies in nearly every large center in the United States.

George H. Usher, general superintendent of the Postal Telegraph-Cable Company, at Atlanta, Ga., was a New York visitor during the holidays.

William H. Young, night manager of the Western Union Telegraph Company, Washington, D. C., contributed an interesting article to the Illustrated Sunday Magazine in its issue of December 15, under the expressive title of "Tales of Newspaper Row," a reference having its location in the capital city. No man possesses a wider range of acquaintance among newspaper men and incidents of their calling while serving as correspondents at Washington, than Mr. Young. His own personal services in the telegraph at the capital, date back to the early fifties, and his fund of reminiscent information upon which he is enabled to draw so liberally, is always at full tide and never lacking in interest.

Our enemies deserve our greatest attention always, sometimes our extreme respect; from them comes amendment and correction.

SOME POINTS ON ELECTRICITY.

How to Become a Wire Chief—A Few Suggestions for Beginners.

BY WILLIS H. JONES.

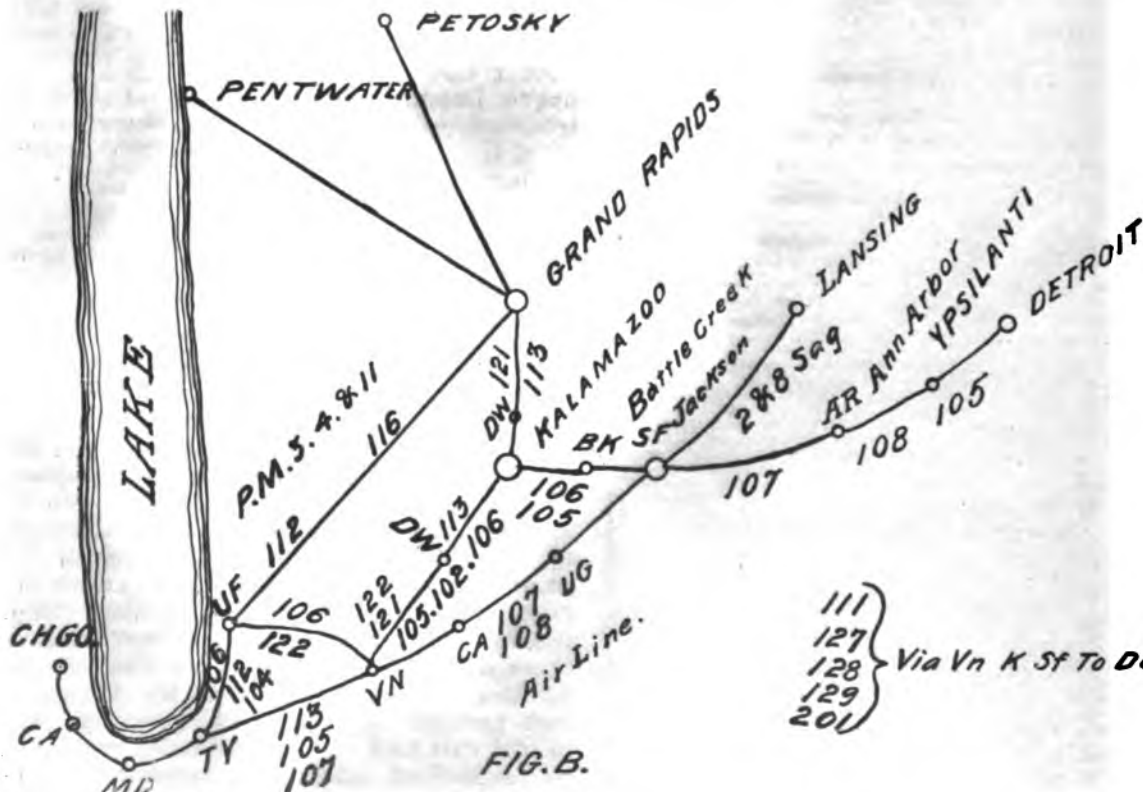
The practical reorganization of the force which has occurred in many of the large telegraph of-

fices throughout the country resulting from the recent voluntary and involuntary shifting about of employees from old to new quarters, has naturally made it necessary to utilize a great deal of new material in the way of providing wire chiefs to fill the various vacancies. For the benefit of such persons the writer will endeavor to give a little rough information which may be of great benefit in the way of helping a beginner to ac-

ticularly the various points at which certain wires branch off from the trunk line to follow the course of another road in order to reach a different locality. In this way the mind will picture the main and side lines somewhat in the form of a tree, the bulk of the wires composing the large trunk or body, up to the point or points where the irregular circuits branch off in other directions in order to reach a different locality. The latter, of course, represent the limbs of the tree. The picture may not show the symmetrical proportions of a respectable tree, but the symbol is certainly quite appropriate.

For example see Fig. A of the accompanying diagram, showing roughly the route of, say, the Wabash Railroad out of Chicago, Ill.

In the switchboard all wires strung along that road have the prefix Wab. placed before their respective number. Other prefixes, in like manner, of course, indicate the route of a different set of wires. Figure A not only shows the route of the Wabash wires, but also the calls of the principal testing stations along the road. It also shows where some of the wires diverge and hence take different routes. By arranging the numbers of these diverging wires on the chart in the positions shown in the diagram the different groups



quire a rapid knowledge of the duties and requirements of a wire chief.

Assuming that he has had but little or no experience in that line his first duty is to study carefully the geography of the country, and especially the routes of the various railroads along which the wires are strung. He should ascertain par-

with their respective routes and terminals may be easily traced and memorized.

Figure A, therefore, means that all wires in the board bearing the prefix "Wab." begin at Chicago and are companion circuits along that particular railroad through all stations as far as they follow that route. In this case all the wires

marked in the diagram are companions as far as station "N. G.," the point where those wires bearing the numbers shown below the letters N. G. terminate. The remaining wires continue companions as far as Jewett, where they separate, one group going over a different road to Wheeling and the other to Pittsburg. The figures 105 underneath "Toledo" indicate that wire No. 105 terminates at that point.

By one glance at the numbers and positions of the various groups of wires on a small chart of this kind one readily acquires a rapid and correct knowledge of their respective routes, lengths and terminal points.

In like manner Figure B gives a bird's-eye view of the routes of the Michigan Central Railroad wires, which bear the prefix MC to their numbers. This diagram is more complex than that of Figure A, because the wires take so many different routes in reaching their respective terminals, but the method of tracing them is the same. They all start out together, but their numbers need not be indicated on the chart except at such point or points where they leave the main line, or the diagram might leave one in doubt as to which of two possible routes a wire or number of wires follow from a junction of roads.

The notations on the chart may be made to suit one's individual fancy. Any mark that will assist the memory is all that is required. A self-made map or diagram of this kind soon becomes permanently pictured in the mind, and thus lays the entire field before one's eyes in the shortest possible time.

COMBINATION CIRCUITS.

Sometimes a circuit, particularly in the case of way wires, consists of a combination of parts of two or more wires connected together at some station or stations in order to include a city or town not on the original route. Thus a wire, say, between Chicago and Buffalo, following the Lake Shore Railroad could not include Detroit in one circuit as an intermediate point, but by cutting, or rather dividing the wire, say, at Jackson, Mich., and connecting the west end of it to the east end of another Chicago-Buffalo circuit at Jackson which runs through Detroit, we get to the same destination (Buffalo), with a continuous wire which does include Detroit. The other ends of the two divided wires may then be joined together in like manner and thus restore the other circuits between Chicago and Buffalo. When such connections are permanent the circuit is called a combination circuit, and a wire chief should not only memorize both numbers the circuit bears, but the point at which the two numbers meet.

(To be continued.)

Recent Telegraph Patents.

A patent, No. 872,824, for electric telegraphy, has been granted to Isidor Kitsee, of Philadelphia.

Two lines are provided with polarized relays and an electromagnet and are thus adapted to receive reversals, translate them into Morse characters and transmit them to the second line.

A patent No. 873,042, for an apparatus for receiving and strengthening the reproduction of messages, signals, etc., has been awarded to Emil S. Hagemann, of Copenhagen, Denmark. This telegraphophone apparatus comprises telephone transmitting and receiving circuits, between which is an instrument for recording the message and simultaneously reproducing it in an augmented manner in the receiving circuit.

A patent, No. 873,078, for an electromagnet for telegraphophone purposes, has been issued to Peder O. Pedersen and Valdemar Poulsen, Copenhagen, Denmark. This magnet is for the recording body of a telegraphophone and has its poles applied thereto in a line oblique to the direction of motion thereof.

A patent No. 873,083, for a telegraphophone, has been taken out by Valdemar Poulsen and Peder O. Pedersen, of Copenhagen, Denmark. The magnetic record on the recording body is obliterated by uniformly magnetizing the body and then remagnetizing it in the opposite direction. It thus becomes ready to receive a new message.

A patent No. 873,084, for a telegraphophone, has been granted to Valdemar Poulsen, of Copenhagen, Denmark. A record-receiving body for a telegraphophone consists of a sheet of magnetic material in the form of a cylinder and has means for tracing magnetic lines throughout its surface.

The following patents have expired:

Patent No. 442,139, for a multiple telegraph or telephone, held by A. M. Rosebrugh, of Toronto, Ont.

Patent No. 442,267, for telegraphy, held by E. B. Ives, of New York.

Patent No. 442,497, for printing telegraph, held by W. W. Taylor, of Mansfield, Mass.

Personal.

Sir Oliver Lodge has accepted the presidency of the Faraday Society, London, England, in succession to the late Sir William Perkin.

Mr. Charles Blizzard, third vice-president of the Electric Storage Battery Company, Philadelphia, read a paper on "Development in Storage Battery Practice" before the Telephone Society of New York on Nov. 26. The subject is one with which Mr. Blizzard enjoys a most intimate familiarity, from long experience in all departments.

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Western Union Telegraph Company.

EXECUTIVE OFFICES.

The following is a correct list of the officers and directors of the Western Union Telegraph Company as existing January 1, 1908:

Robert C. Clowry,
President and General Manager.

George J. Gould,
J. B. Van Every,
Thomas F. Clark,
G. W. E. Atkins, } 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.

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Thos. T. Eckert, Chairman.
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George J. Gould, C. Sidney Shepard,
Edwin Gould, John B. Van Every,
Jacob H. Schiff, James Stillman,
Frank J. Gould, Thomas F. Clark,
William L. Bull, Morris K. Jesup,
Joseph J. Slocum, E. H. Harriman,
Thomas H. Hubbard, Howard Gould,
James H. Hyde, John J. Mitchell,
Charles Lanier, Henry A. Bishop,
J. Pierpont Morgan, Harris C. Fahnestock,
Chauncey M. Depew, Henry Walters,
Henry M. Flagler, G. W. E. Atkins,
James D. Layng.

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Robert C. Clowry, Jacob H. Schiff,
John T. Terry, Frank J. Gould,
George J. Gould, William L. Bull,
Edwin Gould, Joseph J. Slocum,
Thomas H. Hubbard.

J. C. Barclay, Assistant General Manager, New York.
C. H. Bristol, Gen. Supt. Construction, New York.
G. F. Swortfeger, Asst. Gen. Supt. Construction, New York.
Wm. Holmes, Supt. Tariff and Check Bureaus, New York.
H. E. Roberts, Superintendent Supplies, New York.
J. E. Van Berschot, Asst. Supt. Supplies, Chicago.
W. J. Dealy, Supt. Commercial News Dept., New York.
Ralph E. Bristol, Storekeeper, New York.

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B. Brooks, General Superintendent, New York.
A. G. Saylor, Asst. Gen. Supt., New York.

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- 6 D. C. Dawson, St. John, N. B.
- 7 F. E. Clary, New Haven, Conn.

WESTERN DIVISION.

Theodore P. Cook, General Superintendent, Chicago, Ill.
L. McKisick, Asst. Gen. Supt., Chicago, Ill.

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- 2 G. J. Frankel, St. Louis, Mo.
- 3 J. C. Nelson, Omaha, Neb.
- 4 J. C. Smith, Dallas, Texas.
- 5 C. Corbett, Cleveland, O.
- 6 John F. Wallick, Indianapolis, Ind.
- 7 I. N. Miller, Cincinnati, O.
- 8 James Swan, Minneapolis, Minn.
- 9 S. E. Leonard, Denver, Col.

SOUTHERN DIVISION.

J. Levin, General Superintendent, Atlanta, Ga.

SOUTHERN DIVISION DISTRICT SUPERINTENDENTS.

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- 2 G. W. Lloyd, Atlanta, Ga.
- 3 B. F. Dillon, Jacksonville, Fla.
- 4 J. R. Terhune, Nashville, Tenn.

PACIFIC DIVISION.

Frank Jaynes, General Superintendent, San Francisco, Cal.
I. N. Miller, Jr., Asst. Gen. Supt., San Francisco, Cal.

PACIFIC DIVISION DISTRICT SUPERINTENDENTS.

- 1 A. H. May, San Francisco, Cal.
- 2 R. T. Reid, Seattle, Wash.
- 3 F. H. Lamb, Los Angeles, Cal.

EUROPEAN AGENCY.

T. W. Goulding, European General Manager, London;
George Crighton, superintendent at London; T. Healey, superintendent at Liverpool, and E. Chambers, superintendent at Penzance.

CUBAN AGENCY.

Eugenio Fortun y Varona, Manager, Havana.

Mr. John A. Hill, assistant superintendent at New York, recently received the third degree in Masonry. Many of Mr. Hill's telegraph associates witnessed the raising ceremonies.

Mr. S. C. Mason, a forty-niner of the telegraph, and who has been prominent in telegraph circles in Chicago for many years, has resigned his position as storekeeper of this company and has retired from active business.

At the annual meeting of the stockholders of the Southern and Atlantic Telegraph Company, G. W. E. Atkins was elected a director. Other directors were reelected.

This company's office at San Francisco, was removed on November 10 to a new five-story building at Pine and Montgomery streets, a point across the street from its former location. The operating room is located on the fifth floor, with the exception of the Wheatstone department which is on the fourth floor. The entire building with the exception of a few rooms is occupied by the telegraph company and everything pertaining to the equipment is new and strictly up-to-date.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

For the purpose of perfecting the organization, effecting economies and to facilitate the handling of business and correspondence, the following changes in the official staff have been ordered made, as of January 1, 1908.

The traffic department will be separated from the electrical engineer's department, and S. B. Haig has been appointed superintendent of traffic, with headquarters in New York.

Charles Shirley has resigned as superintendent of city offices, New York city, and has been appointed assistant superintendent of traffic, with headquarters in New York.

The position of superintendent, leased wire department, will be abolished, and everything pertaining to leased wires formerly looked after by Superintendent H. F. Hawkins, will be handled by the superintendent of traffic.

The position of superintendent, commercial news department, will be abolished. The traffic

features formerly taken care of by John Costelloe, will be handled by the superintendent of traffic. All correspondence in reference to rates, reports, accounting, etc., should be referred to the superintendent of tariffs.

H. F. Hawkins has resigned as superintendent, leased wire department, and has been appointed assistant secretary of the company.

EASTERN DIVISION.

E. B. Pillsbury has been appointed division superintendent, with headquarters in New York city.

C. F. Leonard has been appointed superintendent, city offices, New York city, vice Charles Shirley, transferred.

The seventh district will be merged with the first, and A. L. Edgecomb, now superintendent at Portland, will be transferred to Boston, and as superintendent will have charge of the enlarged first district.

The eighth district will be merged with the second. E. Kimmey, of New York, will be superintendent of the enlarged second district.

Richard P. Martin, now superintendent of the eighth district, at Hartford, Conn., will be made manager of the Hartford office.

WESTERN DIVISION.

T. W. Carroll has been appointed division superintendent, with headquarters at Chicago.

The ninth district will be merged with the first, and H. G. McGill, now superintendent at Milwaukee, will be transferred to Chicago, and as superintendent will have charge of the enlarged first district.

The lines and offices from Terre Haute to Indianapolis, Ind., but not including Indianapolis, and the lines and offices from Terre Haute to and including Evansville, and the line from Indianapolis to the end of the cable on the Kentucky side of the Ohio River, at Louisville, will be transferred from the first district to the third district, under the jurisdiction of S. H. Mudge, superintendent, St. Louis, Mo.

The lines and offices of the Illinois Central and the Yazoo and Mississippi Valley Railroad will be transferred from the southern division to the western division, except the city offices along these lines, which will continue in the southern division, as at present.

F. W. Conger, superintendent city offices, Chicago, will have entire charge of Chicago main and branch offices.

The title of J. F. Looney, assistant electrical engineer, will be changed to division electrical engineer.

SOUTHERN DIVISION.

Instead of eight districts as at present, there will be four, the latter to be arranged on strictly state lines.

First District, G. W. Ribble, superintendent, Richmond, Va., to comprise the states of Virginia, North Carolina and South Carolina.

Second District, G. E. Paine, assistant general superintendent, Atlanta, Ga., to comprise the

states of Georgia and Florida, except the line from Mobile to Pensacola.

Third District, Jesse Hargrave, superintendent, Birmingham, Ala., to comprise the States of Alabama, Mississippi and Louisiana, and the short line from Mobile to Pensacola.

Fourth District, C. B. Arrington, superintendent, Nashville, Tenn., to comprise the States of Kentucky and Tennessee, including the line from Cairo, Ill., to Rives, Tenn.

The following districts to be abolished:

Third District, M. H. II. Duvall, superintendent, Augusta, Ga.

Fourth District, C. H. Groce, superintendent, Chicago, Ill.

Fifth District, W. J. Slater, superintendent, Louisville, Ky.

Sixth District, W. A. Porteous, superintendent, New Orleans, La.

Seventh District, C. B. Arrington, superintendent, Jacksonville, Fla.

Eighth District, C. A. Garland, superintendent, Memphis, Tenn.

The title of J. P. Edwards, assistant electrical engineer, will be changed to division electrical engineer.

PACIFIC DIVISION.

The title of H. C. Shaw, assistant electrical engineer, will be changed to division electrical engineer.

The following is a complete list of the directors and officers of the Postal Telegraph-Cable Company revised in accordance with authorized changes, in effect Jan. 1, 1908:

CLARENCE H. MACKAY, President.

VICE-PRESIDENTS.

Edward J. Nally, first vice-president and general manager.
Charles C. Adams, second vice-president.
Charles P. Bruch, third vice-president.
George G. Ward, fourth vice-president.

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Clarence H. Mackay, George G. Ward, Edward J. Nally
Charles E. Hosmer, Edward C. Platt, Charles C. Adams
Charles P. Bruch, James W. Ellsworth, George Clapperton
Edward Reynolds

Edward C. Platt, treasurer. John O. Stevens, secretary.
Theodore L. Cuyler, Jr., asst. treas. Henry F. Hawkins, asst. secy.
Edward Reynolds, auditor. John Doran, supt. complaint and
Isaac Smith, supt. of tariffs. claim department.
Walter D. Francis, supt. of supplies. Stephen B. Halg, supt. of traffic.
Charles Shirley, asst. supt. of traffic.
Moses M. Davis, electrical engineer. Christopher A. Rhodes, traveling
John P. Skirrow, asso. elec. eng'r. auditor
Fernand E. d'Humy, asst. elec. Edward S. Butterfield, gen'l agent,
engineer. money transfer service.

EASTERN DIVISION.

Edward G. Cochrane, general superintendent, New York.
Edward B. Pillsbury, division superintendent, Chicago, Ill.
Charles H. Lane, superintendent of construction, New York.

DISTRICT SUPERINTENDENTS.

1. Arthur L. Edgecomb, Boston. 2. Leona Lemon, Philadelphia, Pa.
2. Edson Kimmey, New York. 4. Harvey D. Reynolds, Buffalo.
Christopher F. Leonard, supt. city offices, New York. 5. Charles E. Bagley, Pittsburg, Pa.
6. Albert C. Kaufman, Albany, N.Y.

WESTERN DIVISION.

Welcome I. Capen, general superintendent, Chicago, Ill.
Thomas W. Carroll, division superintendent, Chicago, Ill.
Charles M. Baker, superintendent of construction, Chicago, Ill.
John F. Looney, division electrical engineer, Chicago, Ill.

DISTRICT SUPERINTENDENTS.

1. Hiram G. McGill, Chicago, Ill. 5. Alpheus B. Richards, Kansas
Frederick W. Conger, supt. city City, Mo.
offices, Chicago, Ill. 6. W. P. S. Hawk, Salt Lake City,
2. Edgar W. Collins, Cleveland, O. Utah.
3. Solomon H. Mudge, St. Louis, Mo. 7. William C. Black, Denver, Col.
4. Henry J. Kinnucan, Detroit, Mich. 8. Charles F. Fox, Des Moines, Ia.

SOUTHERN DIVISION.

George H. Usher, general superintendent, Atlanta, Ga.
 Guy E. Palne, asst. general superintendent, Atlanta, Ga.
 Benjamin S. Price, superintendent of construction, Atlanta, Ga.
 James P. Edwards, division electrical engineer, Atlanta, Ga.

DISTRICT SUPERINTENDENTS.

1. Geo. W. Ribble, Richmond, Va. 3. Jesse Hargrave, Birmingham, Ala.
2. Guy E. Palne, A. G. S., Atlanta, Ga. 4. Chas. B. Arrington, Nashville, Tenn.

PACIFIC DIVISION.

Leonard W. Storrer, general superintendent, San Francisco, Cal.
 Jed G. Blake, asst. general superintendent, San Francisco, Cal.
 Harry C. Shaw, division electrical engineer, San Francisco, Cal.

DISTRICT SUPERINTENDENTS.

1. William Hearn, San Francisco, Cal. 2. John A. Forehand, Seattle, Wash.
3. Chas. L. Lewis, Los Angeles, Cal.

LEGAL DEPARTMENT.

William W. Cook, general counsel, New York.
 Loesch, Scofield & Loesch, general attorneys, Western division,
 Chicago, Ill.
 W. B. Vanzize, patent attorney and expert, New York.

Resignations and Appointments.

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

Mr. L. E. Rudd, manager at Jackson, Miss., has been appointed manager at Lexington, Ky., vice E. T. Moore, appointed manager at Knoxville, Tenn. J. H. Whitman of Corning, N. Y., has been appointed manager at Jackson, Miss., vice L. E. Rudd.

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

Mr. C. H. Dougherty, of Richmond, Va., has been appointed manager at Greenville, N. C.

Mr. Maurice J. Kenyon of the American Telephone and Telegraph Company, formerly of New York, is now located at Chicago as representative of the leased wire department of that company.

The Railroad.

Mr. John A. Hulit, of Topeka, Kan., the inventor of the telegraph selector bearing his name, has been testing out his instrument on the Pennsylvania lines at Pittsburg.

Mr. D. C. Moon, who has just been appointed general manager of the entire Lake Shore and Michigan Southern Railroad system, with headquarters at Cleveland, O., began his career as a railroad telegraph operator.

A. H. Smith, vice-president and general manager of the New York Central Railroad Company, who was placed on trial as being responsible for the disaster of the express train on the Harlem division, was acquitted, in accordance with the order of the judge, who said that he did not consider Mr. Smith responsible for the accident.

At a meeting of the Pittsburg branch of the American Institute of Electrical Engineers, December 4, Mr. J. H. Schoeff, of the Westinghouse Electric and Manufacturing Company, abstracted Mr. Armstrong's New York paper, "Comparative Performance of Steam and Electric Locomotives," emphasizing important points. Among them was the fact that at higher speeds

the electric locomotive develops comparatively more tractive effort than the steam locomotive; also that the electric locomotive figured better on mountain grades for hauling freight.

Radio-Telegraphy.

The Swiss military authorities have recently received, at a wireless station on the Righi, messages in a variety of languages, from unknown sources.

The Australian commonwealth government has decided to install wireless telegraph installations at a number of points round the coast, the successful tenderer being required to sell his Australian rights to the government.

The Kieff station of the wireless telegraph line the Russian government is constructing to connect Sebastopol with St. Petersburg, has picked up Marconi transatlantic messages, including a number of press despatches sent from the American side and also messages transmitted from Paris and Casablanca.

The government of British Guiana has authorized the West India and Panama Telegraph Company to provide wireless telegraphic communication between Georgetown and Port of Spain, the cable system being unreliable owing to the local conditions. The government bears no part of the cost, but has agreed to continue the payment of the subsidy of £3,000 a year for five years.

It is stated that a project for establishing a system of wireless telegraphy between Vancouver and New Zealand and Australia is being considered by the British government. It is the outgrowth of a proposition to connect the various British islands in the South Pacific. Mr. F. J. Cross, an American electrical engineer, says the project is quite feasible and that he was commissioned last July to report on it. He returned recently on the steamer "Aorangi" from the Fiji Islands. His report is now en route to Winston Churchill, the colonial secretary in the Imperial government. The only station on foreign soil may be located at Honolulu. The entire cost is estimated at less than \$500,000. Mr. Cross says: "In the alternative scheme stations will be established in the Samoan group, now occupied by three powers, and the Marquesas Islands, owned by France. The British islands to be hooked up include Fanning Island, Tonga group, the Fiji group, and Ellice Island. From Fiji to New Zealand, the distance is about 1,540 miles, and from Fiji to Brisbane the distance is less."

Mr. J. L. Kollarohs, of Bowling Green, Ky., in renewing his subscription for the ensuing year, remarks: "Telegraph Age is a paper that an up-to-date and wide awake operator cannot do without. Its pages are newsy and full of interest and keep abreast with the science of the craft".

The Belin System for the Electrical Transmission of Photographs.

(Abstracted by the Electrical Magazine, London, from an article in the British Journal of Photography.)

The French scientist, M. Edouard Belin, of Nancy, has been engaged with the question of the electrical transmission of photographs, and the interview and demonstration which he afforded at the Société Française de la Photographie, Paris, inspire confidence that a very considerable advance has been made. M. Belin has made himself expert in sensitometric problems, and it is these studies which have led him, he claims, to the solution of some of the most important problems in technical photography: transmission of a given photograph by wire, a self-registering opacity meter, a registering sensitometer, and last, not least, the transmission by wire of the image of any given person, object, or proof. The last problem, not to be confounded with the first, is the one M. Belin has been longest devoted to, but, having put it aside for the others, its solution is not complete. None the less, he is confident of success, and that fairly soon. The first question M. Belin claims to have completely solved in a manner fulfilling certain stringent conditions. These are:

1. That the image received should be of precisely the same dimensions as that transmitted.
2. That they should be reproduced, or reduced, or enlarged if desired, but the detail should remain on the same scale as if the original size were preserved.
3. That whatever the original, a positive or negative image can be formed at will at the receiver. The value of this for photo-mechanical processes is obvious. The nature of the original is simply telephoned to the receiving station, when adjustment is made accordingly.
4. Further, the image received shall be of the same intensity as the original, or, if desired, can be intensified or reduced. And this is obtained by no subsequent chemical treatment, but during transmission by a simple physical adjustment.

It now remains to describe the apparatus which performs these marvels. The complete model installation, containing transmitter, receiver, motor, and a resistance line of 4,000 ohms, equivalent to several hundred kilometers, is mounted on a stand about a meter square.

The method adopted is entirely different from that of the Korn system, which utilizes the varying electrical resistance of selenium when exposed to light. Belin calls his procedure "Tel-stereography," or transmission of a relief to a distance, and one essential lies in the use of a carbon print as the original transmitted, such a print being, of course, a relief in which the contours are proportional to the intensities of the image.

This print is wound on the cylinder of the transmitter. In perfect synchronism with this revolves the cylinder of the receiver, the synchronism being effected by the use of an alternating

current. As the cylinder revolves a small point or style in contact with it moves along the axis, which is geared on to the cylinder or drum. The conditions chosen are such that the print advances lineally one mm. for six turns of the cylinder, from which results that detail down to one-sixth mm. is faithfully reproduced. The movements of the point or style are transmitted by an arm to a small sliding contact or roulette, working on a minute rheostat. This rheostat consists of twenty very small plates of copper separated by layers of mica and each branching off to a resistance coil.* There are thus twenty variations of the intensity of the current possible. At the commencement, before the alteration introduced by the cylinder, there is simply a large resistance of 4,000 ohms, the movement of the transmitting cylinder and the style then call into play the variations, always according to the contours of the carbon image, and hence in proportion to the values of light and shade.

The variations in the current of the circuit, proportional as they are to the intensities of the image, are registered by the delicate reflecting galvanometer of Blondel, known as the oscillograph. This instrument will respond to variations of current at a frequency of 50,000 per second.

The disposition which enables the registration as a photograph to be effected of these electric fluctuations is thus explained. An aplanatic lens throws an image of the reflected ray from the mirror on to a small hole, this hole being one-sixth mm. in diameter. Behind this minute hole revolves the second synchronized receiving cylinder, on which is a photo-sensitive surface. The hole is so near the film as practically to be in contact with it so that any diffusion of light is avoided. In other words an image of the hole is continuously printed on the film, and this means that detail is preserved to one-sixth mm. Under these conditions, there would still be no variation of the light intensity. The way this is effected—that is, the method by which the deviations of the galvanometer are converted into light intensities—is ingenious. Behind the lens is a scale of tones, that is, of densities (in the sense of Hurter and Driffield), increasing from bare glass to a certain value; in fact, an optical wedge. Various ways of producing this optical wedge may be employed: at present M. Belin uses a photographic plate specially exposed. The scale of densities increases in proportion to the mirror deviations, that is, to the intensities of the current, and the more (or less) it is absorbed, so that the hole is illuminated by light varying in intensity with the intensities of the original image. The density scale is mounted on a revolving axis, so that according to the direction of increase of density, relative to the mirror deviations, a positive or

* M. Belin explained that he had chosen a range of 1-20 as representing the possible range of contrast in photo-mechanical processes.

negative image can be obtained at will on the receiving film, fulfilling the third condition mentioned at the start.

Again, if instead of a scale of tones corresponding to those of the original, one of harder or softer gradation be substituted, the image may be obtained reduced or strengthened in intensity and by purely physical means.

It must be confessed that both the ingenuity and the comparative simplicity of the apparatus make it very promising. The results obtainable at present are very fair, and M. Belin hopes by certain slight modifications, such as a refinement of the rheostat and the cursive point, to greatly improve the rendering. In two or three weeks, with the promised aid of the State telegraph lines, he hopes to give a public demonstration of its capabilities over long distances, an event which will be awaited with much interest. M. Belin states that he can also transmit writing in relief by his instrument, and that the question of speed is one chiefly conditioned by the fineness and perfection of mechanical and electrical details. At present the transmission of a nine cm. by twelve cm. image occupies about thirty minutes.

As to the more romantic problem of simultaneously photographing and transmitting the image of any object, scene, or person, M. Belin would only state that the idea involved was entirely different from that sketched herewith.

How President Lincoln Taught Little Tad to Signal at His Office Door.

In the Wilderness chapter of Mr. David Homer Bates's book, "Lincoln in the Telegraph Office" (which is an expansion of the papers printed in *The Century*), reference is made to the fact that the first news of Grant's initial Eastern battle was brought to Lincoln by Henry E. Wing, then a New York Tribune correspondent (now the Rev. Henry E. Wing of South Norwalk, Conn.). Since the appearance of the volume he has written to Mr. Bates, as follows, with reference to the chapter, which in the September *Century* was entitled "Lincoln's Family Relations":

"Your 'Lincoln in the Telegraph Office' is one of the most valuable collections of authentic personal incidents in the life of that great man that have ever been published. Some of the chapters relating to public affairs have great historic interest, but the one that pleases me most is the chapter on 'Lincoln's Love for his Children.'

"I witnessed an incident in his family life that made a wonderful impression upon me, and which belongs in the account of Lincoln's relations with the telegraph, because of the use of Morse dots and dashes in a private signal between the father and his favorite child.

"At Lincoln's request, made at my early morning interview with him on May 7, 1864, when I brought the first authentic news from Grant's Wilderness fight, I always went to see him when I came from the front.

"In the summer of that year I was at the White House late one night, with my field maps spread out on the table, explaining some details of one of Grant's battles, when my attention was distracted by a gentle knocking on the panel of the door, to which the President gave no heed. Then the door-knob was rattled and a childish voice called, 'Unfasten the door.' Lincoln thereupon rose and drew the bolt, and little Tad (then ten years old), in his nightgown, bounced in, jumped upon his father's lap, and threw his arms about his neck.

"The little fellow, I afterward learned, was in the habit, if he awoke in the night, of creeping into his father's bed; but, on this occasion, not finding him, had come over to the office, which was on the same floor.

"Lincoln, with his boy upon his knee, began with patience to teach him to make a certain signal by tapping on the desk with Tad's fist doubled up in the father's big bony hand.

"There were three quick raps, followed by two slower ones, thus — — — and over and over again these dots and dashes were sounded on the desk until Tad made the signal correctly without his father's help.

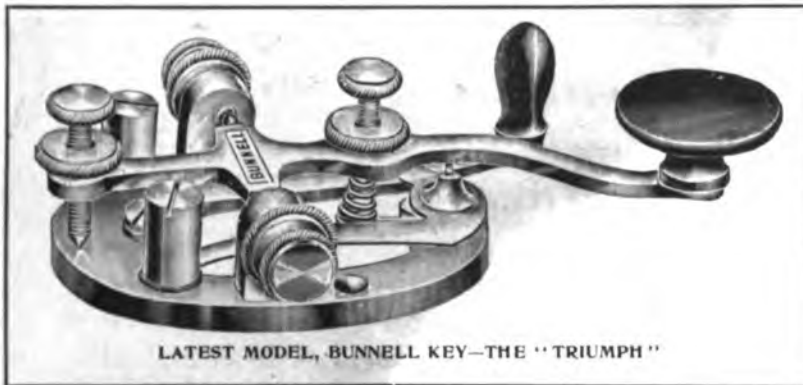
"It appears that the child had before been taught to make this signal on the office door whenever he wanted to come in, and that no matter how busy Lincoln might be or with whom he was closeted, Tad could thus always gain admission. But on this occasion he had forgotten the signal, and so his father paid no attention to the disturbance until he heard his child's voice."—*The Century Magazine*.

Telegraph on Horseback.

An ingenious device by which the horse is made a part of an electrical circuit, has been reported to the War Department by Lieut. A. C. Knowles, Thirteenth Infantry, at Fort Leavenworth, Kan., who has been making tests intended to permit telegraphic and telephonic communications between mounted operators. This will permit the mounted operator to transmit messages to his base wherever necessary without stopping his horse. This is accomplished by placing a small piece of copper, connected to the telegraph or telephone instrument, against the animal's body, thus completing a ground connection through the horse's hoofs. The tests were made over all kinds of ground and conversation was carried on without difficulty between two operators separated by five miles, the horses standing in the grass.

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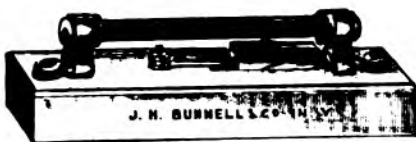
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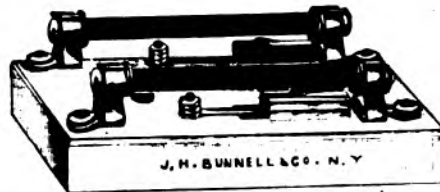
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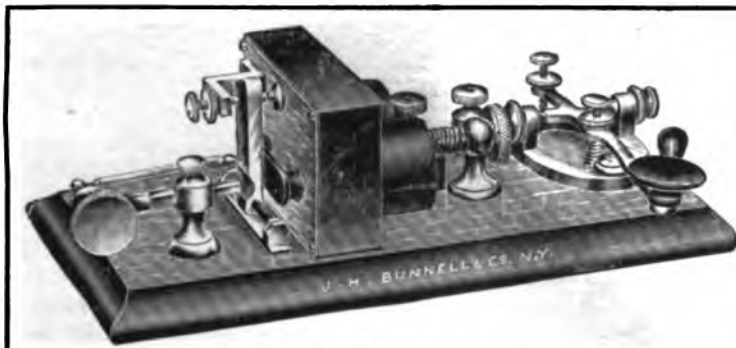
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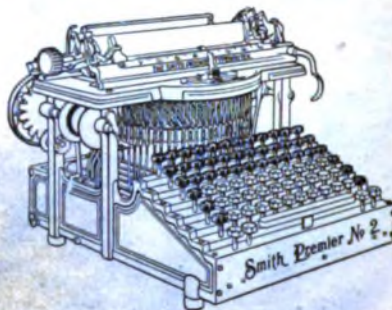
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NEW YORK, JANUARY 1, 1908.

The Book Department of Telegraph Age has always been a prominent and carefully conducted feature of this journal. The desire has been and is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished; promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientele. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same.

The Death of Lord Kelvin.

In the death of Lord Kelvin, which occurred December 16, an obituary notice of whom is published elsewhere in this issue, the telegraph profession loses its most eminent member. Nothing that we could say could better express the estimate of worth of the great man who has passed away than the tribute to his eminent abilities uttered by Mr. Edison:

"Lord Kelvin certainly had the master mind in science, for the world seldom sees such a man as he was. First of all, he was great as a mathematician, and then he developed into the greatest of scientists. I think it is safe to say that he gave more attention to such subjects as the power of the tides and the properties of the crust of the earth than any other scientist. Kelvin may truly be said to have been the life and soul of the Atlantic cable, and they are still using the instruments which he invented so many years ago. It is a matter of history that he was also identified with practically all the other great cables which have been laid. When he was completing the modern mariners' compass, I felt greatly flattered when he called upon

me to take some of the readings from the improved instrument."

Twenty-five Years.

It is with becoming modesty that Telegraph Age announces its twenty-fifth year, and tenders this anniversary number to its readers. In contemplation twenty-five years is a long look ahead; in retrospect the time seems to shrink to far narrower proportions. Yet the past quarter of a century in which this journal has had its life, and during which it has been able to contribute a share to the thought and expression in the great realm of telegraphy, for which it has stood the exponent, marvelous changes record the development and progress made in the general electrical field. A comparison of conditions as they existed twenty-five years ago, with those with which we are familiar to-day opens a vista for thought, for profound contemplation. The revelation of what man is capable is awe-inspiring; it discloses the God-like attributes of mind that possess the human race. We are, indeed, "Living in a grand and awful time." During the period referred to the telegraph has widely extended its reaches. The world is gridironed by its lines; it traverses under sea in all directions, and in newer form is already transmitting messages through the air without wires. The news and information of the world is more immediately at our disposal than ever before.

The span of twenty-five years entitles Telegraph Age to rank with the oldest of the electrical technical journals. With but one or two exceptions it is the senior of all. In surveying a field in which there is so much to arouse enthusiasm, to stimulate thought and encourage endeavor, the editors of Telegraph Age feel new hope and courage for the pursuit of their own course. They have at least the consciousness of having tried to furnish their readers with a telegraphic newspaper that keeps abreast of the times, and in advocating measures that they believe to be right.

In presenting in this issue the large number of engravings, showing well-known faces embraced within the scope of the telegraph, many of them of men of conspicuous reputation, it will be observed that included in the list are those of the general managers of every individual telegraph company in the United States and Canada.

We desire to thank our friends for their kindly co-operation and aid in contributing to make this number the interesting and successful issue it is. There has been a loyalty among the readers of Telegraph Age and a heartiness of expression manifest for its welfare, especially of late, that has been thoroughly appreciated by its conductors, and no occasion is more opportune than the present to acknowledge this tribute of esteem, of confidence and even of affection that has been poured in upon us in such generous measure.

Telegraph Age wishes its readers a Happy New Year!

Telegraph Messages Not Commodities.

Attorney General Jackson, of New York, learned of certain contracts and arrangements between the Western Union and Postal telegraph companies. Concluding that they were in restraint of trade and in violation of the Donnelly anti-trust act, he brought suit against the companies. He obtained an order from Justice Platzek compelling directors of both companies to appear before a referee and give testimony as to those contracts and arrangements. The two companies had denied that a merger was contemplated. The order was, therefore, contested on a motion to vacate it before Justice Hendrick. December 21 the motion was granted.

In his opinion the justice says the vital question to be determined is whether or not a telegraph company produces and sells a commodity in common use, such as comes within the prohibition of the Donnelly act. He concedes that it does not. He finds that the telegraph companies here are not included in the act and if they were, is quite certain that the transmission of a message from one point to another does not make the message so transmitted a commodity within the meaning of the act.

The justice further asserts that the reasons urged by the attorney general might be laid before the legislature as arguments for the enactment of laws to correct any evils which may exist, but do not touch existing law.

Andrew Carnegie, the Father of the United States Military Telegraph Corps.

On the menu card of the never-to-be-forgotten dinner of the surviving members of the United States Military Telegraph Corps at the Hotel Manhattan, New York, March 27, 1907, Mr. Carnegie was called the "Father of the Corps," because of his appointment as assistant general manager of government telegraphs in April, 1861, and of his having called into being the organization which rendered such skilful and valiant service during the Civil War. David Homer Bates and Richard O'Brien, the two survivors of the "Original Four" operators who went to Washington in April, 1861, in response to Mr. Carnegie's telegram of April 22, 1861, to David McCargo, superintendent of telegraphs, Pennsylvania Railroad, calling for operators for government service, were present at that memorable dinner. When the toastmaster, Mr. Bates, introduced Mr. Carnegie he recalled to his memory the telegram to Mr. McCargo and the latter's reply, whereupon Mr. Carnegie responded with tears in his eyes:

"Comrades, not more than once or twice in a man's life is it given to him to live as I have been living while hearing those despatches read by Mr. Bates. They carry me back—back—back, almost to the very beginning of my career." Here Mr. Carnegie's recollections almost got the better of him. He tried to go on, but there was a lump that rose in his throat and his voice became husky and

broken when he had recovered he went on with a rush. "Well, it is a proud moment. I have not lived in vain if it has been given to me in vindication of the great principle of manhood of humanity to be of some service to a government like this, where every man has equal privileges and equal rights."

After Mr. Carnegie went to Scotland for his usual summer sojourn, Mr. Bates wrote him that under the provisions of the Act of Congress approved by Grover Cleveland January 26, 1897, he was entitled to a certificate of honorable service in the military telegraph branch of the United States army. The application which Mr. Carnegie signed and forwarded to the War Department, upon his return from abroad in November last, was refused on the ground that the records of the department failed to show that he had rendered or had received pay for any such service. It did not seem right that because the War Department records were defective our chief comrade should be deprived of his certificate, and accordingly the claim was strengthened by the testimony of Colonel William Bender Wilson, president of the United States Military Telegraph Corps (who was also called to Washington by Mr. Carnegie in 1861, arriving there May 2, and who served as manager of the War Department telegraph office until March, 1862). In addition, supporting affidavits were procured from Messrs. Bates and O'Brien, and we are glad to inform the readers of Telegraph Age that the justice of Mr. Carnegie's claim for a certificate of honorable service under the Act of January 26, 1897, has now been recognized by the Secretary of War and the certificate has been granted.

Pensions for the Members of the United States Military Telegraph Corps.

Hon. William Lorimer, of Illinois, has introduced and will champion in the national House of Representatives the following bill:

A bill, extending the provisions of the pension laws of the United States to persons engaged in the operation and construction of military telegraph lines during the war of the rebellion.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all persons placed upon the roll of military telegraph operators under the provisions of an Act approved January 26, 1897, entitled "An Act for the relief of telegraph operators who served in the war of the rebellion," and who have been granted suitable certificates of honorable service as provided in said Act, are hereby declared to have been a part of the Army of the United States; and the provisions of all laws granting pensions to the officers and enlisted men who served in the war of the rebellion, their widows, minor children, and dependent relatives, are hereby extended so as to apply to the said persons: Provided, That the

rates of pensions hereunto shall be the same as that granted to private soldiers."

The bill was referred to the Committee on Invalid Pensions, of which Hon. Cyrus A. Sulloway is chairman.

It is desirable that all members of the corps and their friends should secure the support of their Congressmen for the bill. Mr. Andrew Carnegie, who was the founder of the corps and is proud of its achievements, will add his efforts to secure the passage of the bill. Mr. Carnegie's deep interest in the measure is shown by his noble-hearted action in creating an "Honor Pension Roll," to which shall be eligible living members of the corps who have been or who may be granted suitable certificates of honorable service, provided for in the Act of Congress approved January 26, 1897. This "Honor Pension Roll" will continue in force until Congress provides for placing the members of the corps upon the pension rolls of the government. All applicants for the Carnegie pension should apply through the executive committee of the United States Military Telegraph Corps; applications to be addressed to Colonel William Bender Wilson, president, Holmesburg, Philadelphia, Pa., or Mr. David Homer Bates, secretary of the executive committee, 658 Broadway, New York.

Communications From the Naval Fleet.

From the ships of the naval fleet, now on its way to the Pacific Coast, the greatest precautions will be taken to prevent any information from reaching the outside world, except through the Navy Department. Half a dozen newspaper reporters, who will be permitted to accompany the expedition, have been pledged to send to their newspapers or the distributing agencies only such information as shall be approved by the fleet censors. The conditions imposed on them will prevent them from conveying to a foreign power through the newspaper intelligence regarding the actual equipment, operation and accomplishment in the way of experimental work on any of the warships. No detailed account of the "peace mission" will be countenanced until its conclusion.

On the elevated bridge from which Admiral Evans will direct the maneuvers of his fleet, an intricate system of signals will be manipulated. In the day time flags and semaphores are used in signaling orders to the other vessels of the fleet. At night when the outlines of each of the warships is traced in electric lights a system of electric light signals winks orders in dots and dashes much after the manner followed in cable stations, where the mirror is used. It is a pretty picture these lights make when in operation. The operator of them winks a call to some other ship and follows is up by calling the others until pretty soon every ship is winking its reception of or response to an order. Each ship is equipped with a duplicate system of signals as well as a wireless telephone and wireless telegraph apparatus.

Book Review

Now that matters in the telegraph world are settling down once more on a rational basis it must soon become apparent to the thoughtful men in the profession that there is no more rapid way to advancement for the individual than to acquire a thorough working knowledge of electricity and magnetism and of the systems and apparatus employed in telegraphy. Sometimes men are deterred from undertaking the necessary study for this purpose in the belief that a college course, or at least a correspondence school course, is essential therefor. This view, however, is not well based, since an opportunity to acquire this knowledge at small cost is fortunately presented in Maver's "American Telegraphy and Encyclopedia of the Telegraph," a fact which hundreds of students of this work have freely attested, and many of whom have acknowledged the assistance which it has afforded them in attaining the advanced technical positions which they now hold. "American Telegraphy" is indeed admitted to be a very good substitute for a college course in telegraph engineering, and the operator who may master its contents will find himself well prepared to fill any technical position within the scope of telegraph engineering. Concerning this book Mr. F. B. Crocker, professor of electrical engineering at Columbia University, of New York, has written: "I often say to my students and others it is one of the very few electrical books which is thoroughly satisfactory. Its clearness and completeness are remarkable, and yet it is not voluminous." Regarding this book also no less an authority than E. J. Nally, vice-president and general manager of the Postal Telegraph-Cable Company, wrote in an article in the Saturday Evening Post addressed to beginners in the telegraph business: "Easily first of the standard books which the young telegrapher should read is William Maver's treatise on 'American Telegraphy.' This is a meaty volume of some 500 pages (now 656 pages), which deals in a most comprehensive way with all phases of the telegraph art as it obtains on this continent." Copies of this valuable book will be forwarded on receipt of the price, \$5, by addressing J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Mr. J. P. Spanier, the general agent of the Western Union Telegraph Company's cable service at Naples, Italy, from which point he represents his company's interests in Italy, Southern France, Switzerland, Russia, all of southeastern Europe, Egypt and other North African countries, in renewing his subscription recently, takes occasion to express his appreciation of Telegraph Age which he says, "I read with much attention and find very interesting indeed, keeping me as it does in close touch with the telegraph situation in America."

Death of Lord Kelvin.

William Thomson, first Lord Kelvin, the noted scientist, died at Glasgow, Scotland, December 16, 1907.

The famous man of science whose death is announced in the foregoing despatch began life without a title or any heritage but that of brains. William Thomson's ancestors for several generations lived in the North of Ireland, though they had a Scotch derivation. His father, born on a farm, showed a passion for science at an early age, and is said to have learned how to make a sun dial for any latitude when only eleven years old. The elder Thomson (James) was educated at the old College of Glasgow, was appointed professor of mathematics in an institute in Belfast (where William was born on June 25, 1824), and in 1832 complied with a request to make his Alma Mater the scene of his activities, which were still devoted to the same class of instruction. From that day onward, in spite of numerous temporary absences, Glasgow remained the home of his distinguished son. William received a part of his education directly from his father and a little of it from the institution to which the latter had been called. Subsequently he entered St. Peter's College, Cambridge, where he was graduated in 1845. He won notable honors there, being first Smith's prizeman of his year as well as second wrangler. It is believed that the senior wrangler owed his triumph to facility in writing, for one of the examiners was heard to say that he was "unworthy to cut Thomson's pencils for him." Nor was intellectual pre-eminence achieved at the sacrifice of physical well-being. Thomson was devoted to athletics while at Cambridge, and rowed in the winning boat in a race with Oxford.

At the age of twenty-two, and only a year after his graduation, the young scientist was chosen professor of natural history in the University of Glasgow, after having spent several months in the laboratory of Regnault, in Paris. Repeated invitations were afterward given to him to assume similar posts elsewhere, but his loyalty to the great city on the Clyde remained unshaken. In 1896, three years before terminating his service there and exactly half a century after his appointment, he received a wonderful tribute of admiration and affection. The university and civil authorities of Glasgow, the leading scientific societies of America and Europe and many individuals who were themselves distinguished (including the Prince and Princess of Wales) united in that demonstration. By personal presence, by formal address, by letters, telegrams and cable messages, they made his jubilee celebration an event practically without a parallel in the history of science. Lord Kelvin was elected chancellor of the university in 1904.

One of the first great enterprises with which Professor Thomson was identified was that which has made the name of Cyrus W. Field memorable. Electric signals sent through a submarine

cable were found to undergo a peculiar retardation that threatened to blur them beyond recognition. Faraday had long before furnished a partial key to the evil, but Thomson supplied the remedy. By his advice it was made possible to design a cable so that a reasonably satisfactory clearness and speed could be secured. The correctness of his statement of the laws involved was disputed by an electrician of the cable company, Dr. Wildman Whitehouse, but the Glasgow expert disposed of the argument so effectively that he was retained on the spot as consulting engineer. He officiated in that capacity both for the cable of 1858 and that of 1866. He was also electrical engineer for the French Atlantic cable in 1869; the Brazilian and River Plate cable in 1873; the West Indian cables in 1875, and the Mackay-Bennett Atlantic cable in 1879.

He contributed to the success of these enterprises in several other ways. He prescribed a method of testing the conductivity of a submarine wire while it was being laid, in order that any defect might be promptly discovered and cured. He also invented instruments wherewith to receive messages. Those employed for land wires were not sensitive enough. Thomson so mounted a mirror on a tiny magnet that the feeble electric impulses which traversed a cable would cause it to sway. A beam of light was thus deflected, first to the right and then to the left, on a blank white wall in a dark room. The magnet was suspended by a silk fibre, and its movements were practically unimpeded by friction. This invention was supplemented by one which would leave a permanent trace on a strip of paper. It was called "the siphon recorder." Use was made of it to receive some of the greetings sent to its author in 1896. Without question he did more than any other scientific man to promote submarine telegraphy, and that was the cause of his being knighted in 1866. Subsequently he devised a sending key for use with a cable, and he did much to perfect apparatus for taking deep sea soundings, while a ship was under way, thus greatly facilitating the exploration of cable routes.

Two inventions which have been of much value to the mariner are Sir William Thomson's improvement on the construction of the compass, and his provision for overcoming the influence of a ship's magnetism on that instrument. The former was effected by making two changes. The compass card was lightened, and for the few coarse needles which were attached to it he substituted a large number of small ones. The other object was attained by placing on opposite sides of the compass, and near it, small globes of iron whose size and distance were subjects of careful computation.

For measuring charges of "static" electricity, apparatus of different types has been used. Sir William originated one of the most serviceable, the quadrant electrometer, and made useful additions to some of the others. In fact, it is prob-

ably true that he did more than any other electrician, living or dead, to introduce accurate methods of measuring electricity. A machine for predicting the level of the tides in any part of the world is probably the most important of his non-electrical inventions.

The wide experience, deep insight and sound judgment of this man in time made him such an authority in electrical science that his opinion was eagerly sought regarding many industrial enterprises in which those qualifications would be of value. When a number of American capitalists first seriously proposed to "harness Niagara" a board of experts was convened to study the possibilities of the plan; and the Glasgow professor of natural philosophy (who was elevated to the peerage in 1892) was its chairman. The first visit which he made to this country after the project had begun to materialize was in 1897, and he made a trip to the Falls for the express purpose of seeing what had there been accomplished. He regarded the achievement with profound enthusiasm.

In the work of other electrical inventors Lord Kelvin ever evinced the liveliest and most unselfish interest. At the dinner in his honor given by the American Institute of Electrical Engineers and Columbia University in 1902 he publicly and cordially praised Mr. Edison, who sat beside him, for perfecting the incandescent lamp. A few months later George Westinghouse held a reception in London, largely for the purpose of exhibiting an invention of Cooper Hewitt, the so-called "current rectifier." Lord Kelvin evinced much delight with the apparatus. It was on that occasion, by the way, that he commended the introduction to England of certain American business methods, of which he regarded his host a fine exponent. As might have been expected, he showed a much more sympathetic emotion than curiosity when Marconi began to attract attention in England. The first commercial messages transmitted in England were despatched (in 1898) from Glum Bay, Isle of Wight, by Lord Kelvin. One went to Sir George Stokes, in Cambridge, a second to his assistant, in Glasgow, and a third to Lord Rayleigh and Sir William Preece, in London. Shortly after the opening of the twentieth century much was heard about the composite nature of the atom. The latter, instead of being indivisible, is believed by a number of experts to be a collection of tiny, negatively electrified particles so small that a thousand would be needed to equal the bulk of a hydrogen atom. Professor J. J. Thomson, of Cambridge (who is no kinsman of the Glasgow scholar), has been a conspicuous advocate of this theory. One of the first men whose opinion was worth considering who admitted its credibility was Lord Kelvin, though he was careful not to commit himself fully on the subject. The expression was the more notable because he had once fancied that an atom might have a construction and an internal motion like those of a

ring of smoke ejected from a locomotive smoke-stack.

In the recent investigations in regard to radium and radio-activity, Lord Kelvin took a deep and lively interest, while maintaining a consistently conservative stand. When Professor Soddy reported, and Sir William Ramsay by later experiments confirmed, the apparent transformation of a gaseous emanation of helium into radium, Lord Kelvin would not assent to the theory, based upon those experiments, that one element could be evolved from another. He also refused to accept the theory, lately advanced, that the heat of the sun or the earth is due to radium, asserting that nothing so far brought forward was sufficient to controvert the older theory that the heat of those bodies was due to gravitation.

A department of work which appeals less strongly to the popular mind than to trained scientists is Professor Thomson's development of the relation which exists between heat and mechanical power. The period that lay between 1840 and 1850 may be said to have marked the dawn of definite ideas on this subject, but it also witnessed a lively conflict between the views of Joule and Carnot. Thomson's own study of the matter enabled him to reconcile these doctrines, and he co-operated with Joule in experiments which aided in dispelling the uncertainty. These related to thermal effects in fluids, and their results were communicated to the Royal Society in 1862. In one of his early papers Professor Thomson gave an instructive table of the efficiencies of the best steam engines and boilers of that day, comparing the actual duty performed with that which theory required. As early as 1848 he published an article on an absolute thermometric scale, and in 1854 he modified his proposition. Two long articles from his pen in the "Encyclopedia Britannica" have been republished under the title, "On Heat and Electricity." In 1867 the first volume of "A Treatise on Natural Philosophy," the joint work of himself and Professor Tait, appeared, and a second edition was issued in 1879. This work, in which the effort was made to base a complete theoretical analysis upon the doctrine of the conservation of energy, was never carried beyond the division of mechanics, but it contains much material of the highest value.

Lord Kelvin's other published writings are comprised in "Electrostatics and Magnetism" (one volume), "Mathematical and Physical Papers" (three volumes), "Popular Lectures and Addresses" (three volumes), and "Baltimore Lectures" (delivered at Johns Hopkins University, in 1884).

Next after his inheritance of intellect and a passion for the investigations of natural phenomena, perhaps Lord Kelvin's most helpful quality was his fine mastery of mathematics. This not only gave him a precious instrument of research, but it also promoted close reasoning.

Two of several visits to America were made by

Lord Kelvin in order to attend meetings of the British Association for the Advancement of Science. Ordinarily, those gatherings are held on the other side of the Atlantic, but every now and then Canada is honored. The meeting of 1884 was in Montreal, and that of 1897 in Toronto. Unlike some American scientists, he was unfailing in his attendance on the annual assemblies of such organizations long after it ceased to be in their power to confer any distinction upon him. His loyalty was betrayed not only at home, but even when it involved the trouble and expense of an ocean voyage.

To enumerate the honors and decorations bestowed on this great man would be almost impossible. He has had almost countless degrees from the leading universities in Great Britain and America. He has been elected president of many scientific bodies, among them the Royal Society of Edinburg, the British Association for the Advancement of Science, the Institution of Electrical Engineers and the Royal Society of London. The office last mentioned has, since Newton's day, been regarded as the highest to which a British scientist could aspire. He was a foreign associate of the Academy of Sciences, in Paris, and an honorary member of other similar organizations. He was a grand officer of the Legion of Honor, in France; a knight of the Grand Cross of the Royal Victorian Order, a Knight of the Ordre pour le Mérite, of Germany, and a commander of the Order of Leopold of Belgium. He was also a member of the Order of the First Class of the Sacred Treasure, of Japan, and of the Order of Merit established by Edward VII in 1902. That he was made a peer by Queen Victoria at the opening of the year 1892 was a source of delight to his scientific friends, who felt not only that the compliment was deserved, but also that it was a public recognition of the value of science. At the same time, it involved the abandonment of a name which has still adhered to many of the recipient's inventions. The new one was derived from a stream, the Kelvin, which empties into the Clyde at Glasgow, and beside which the present university buildings in that city stand.

The Marconi Company's Reply to Prof. Fessenden.

An article in the Scientific American in November last, written by Prof. R. A. Fessenden in criticism of the Marconi company, and which was republished in Telegraph Age, has elicited a reply from Mr. J. Bottomley, vice-president of the Marconi Wireless Telegraph Company of America, addressed to the Scientific American, which we give herewith:

"With reference to an article which appeared in your esteemed issue of November 16 last, over the signature of Prof. R. A. Fessenden, I am directed by Commendatore G. Marconi to inform you, for publication in your journal, that beyond denying generally the statements of Prof. Fes-

senden and dissenting from assertions made and conclusions arrived at in said article, he regrets that exigencies of business prevent him from entering into controversy on the subject, but that he simply invites reference to actual statements made by him before British and Italian scientific societies, for which statements he holds himself fully and solely responsible.

"Com. Marconi desires me further to state that he intends to reserve detailed information respecting transatlantic wireless telegraphy for inclusion in papers which he has promised to read during this coming winter before American and British scientific societies."

Recent Improvement in Fire Alarm Apparatus.

Inking registers for fire alarm service have generally been considered as objectionable, as the ink must be frequently renewed, and the printing is liable to vary in legibility. For these reasons the inking register has been quite generally superseded, except for "multiple pen" registers, by punching registers. The punching register, although a marked improvement over printing registers, has had slight imperfections of its own.

The Gamewell Fire Alarm Telegraph Company has recently brought out a new punching register which is apparently perfect in every detail and will doubtless supersede its predecessors. The new register cuts two sides of a triangle and depresses the edges of the paper. The apex of the triangle shows the direction in which the paper is traveling and thus adds to the value of a detached tape as a record. There are no "blanks" falling away from the paper to be disposed of as in the present type of round hole registers.

The most important feature of the new register is that it is available for the large multiple pen registers, which receive records from several circuits on wide paper.

The production of this new register is in line with the general policy of the Gamewell Company to bring all details in fire alarm telegraphy as near as possible to perfection, and to introduce all improvements in devices as soon as their value has been fully demonstrated.

Col. Plum a Life Member of Telegraph Age Clientele.

Colonel William R. Plum, of Lombard, Ill., a retired lawyer and the historian of the Society of the United States Military Telegraph Corps, writes in this kindly and appreciative vein when recently renewing his subscription to Telegraph Age:

"It is now forty years since I quit the telegraph, which more than paid my expenses through college, but were it a hundred, I know I would still want to keep in touch with the fraternity, which I do largely through your valued paper. Please consider me a life member of your clientele."

PERSONNEL OF THE TELEGRAPH

THE CONSIDERATION OF THE PERSONNEL OF THE TELEGRAPH IS ALWAYS A SUBJECT OF INTEREST. WHEN REVEALED THROUGH BIOGRAPHICAL SKETCH, GIVING, BRIEFLY THOUGH IT MAY BE, A RECORD OF THE LIVES OF MANY WHO ARE STILL WITHIN THE RANKS, OR OF THOSE WHO HAVE STEPPED THEREFROM AND HAVE WON SUCCESS IN OTHER AVOCATIONS, THE RESULT IS TO SHOW IN PLEASANT LIGHT AND IN CLOSE JUXTAPOSITION THE INTENSE PERSONALITY OF THE WORKING FORCE OF THE TELEGRAPH, LOVE FOR THE SERVICE AND LOYALTY TO EMPLOYING INTERESTS; FURNISHING A REVELATION, INDEED, OF WHAT MAY BE TERMED THE "HEART BEAT" OF THE BUSINESS. IN MANY OF THE SKETCHES THAT FOLLOW A WHOLESOME LESSON MAY BE LEARNED OF THE DIGNITY AND POWER OF INDIVIDUAL CHARACTER THAT HAS ENABLED OPERATORS POSSESSING OPPORTUNITIES NO GREATER THAN THOSE HELD IN COMMON WITH THEIR FELLOWS, TO RISE ABOVE THEIR SURROUNDINGS, AND WHO HAVE FOUND SUCCESS IN PROMOTION THAT HAS CARRIED THEM TO THE HIGHER POSITIONS WITHIN THE GIFT OF THE TELEGRAPH, OR IN GAINING PREFERMENT IN BUSINESS ALLIED OR FOREIGN THERETO.



COL. ROBERT C. CLOWRY.

President and General Manager of the Western Union Telegraph Company, New York.

Robert C. Clowry, President of the Western Union Telegraph Company.

The Western Union Telegraph Company has always been well officered. The executive heads have been men of strong character, who have brought to that office personalities that stand out in distinct and rugged perspective as viewed in retrospect at this point of time and place in the company's history. Under these men, who in the past have administered its affairs and aided in shaping the destinies of this great company, the present chief executive, its president and general manager, Col. Robert C. Clowry, has faithfully served a long stewardship, working diligently with intelligent motive and conception of duty, until at length he, too, in the evolution of position, was bid to the high office he now holds.

It is a pleasure for Telegraph Age on an occasion so opportune as that of its twenty-fifth anniversary, to refer in this public manner to the worth and ability of Colonel Clowry, to write words that express the sentiment of truth and that are directed by a sense of high personal regard and profound respect, a tribute to the fine character of the man, to the purity of his life and to the great work he has accomplished. For the best purposes in life are frequently not realized when merited words of acknowledgment for duty well done, for the appreciation of conscientious effort, for generous comradeship and for all those refined and kindly sensibilities in human character that by contact confer happiness and repose in others, are left unsaid until death shall have silenced the actor whom we loved and were really glad to honor, but of whom we carelessly or selfishly neglected to speak. As William Winter expressively writes in his beautiful tribute to Stoddard, who recently died: "The memoirs that the world needs for its guidance and help, are those of the men and women who are genuine, who have borne the burden and heat of the day, who have helped to strengthen and beautify the passing life of their generation."

In the ceaseless activities of a long life Colonel Clowry has been true to his ideals, faithful to obligations to employing interests, those due to his fellow men, and to the intimate ties of domestic relationship. He has achieved success because it has been earned. Never a laggard, always alert, he has given an equivalent all his life for what he has received. Honest blood is in his veins, and the country home out in Illinois, which he left at an early age to begin the battle of life, was typical in its sturdy Americanism, in the simple life that was lived there and in the resulting integrity of purpose that inspired and controlled individual membership of the family. Such a heritage is of priceless value. It is manifest in the lives of many eminent Americans, boys from the farm who have reached exalted position, for its subtle influence is felt in unending measure, holding errant nature in check, yet directing to security of pathway. To such a birthright, about which cluster tender, abiding and refining memories, does Colonel Clowry

owe his origin. Its physical and moral influences are moulded in his person and character. He grew up to youth and manhood governed by principles of rectitude because he knew no other way; that was his training, his ancestry asserting itself.

The telegraph early engaged Colonel Clowry's attention, and from the humble position of a messenger boy he has passed upward to the top, through all grades of the service, including exciting army experiences in the military telegraph during the Civil War, in which he displayed intimate practical knowledge of his subject, such as to establish his authority and large talent for leadership. Here in fact, he gained his military title, which was awarded by the government for "meritorious services and devoted application to duty."

The details of Colonel Clowry's career have frequently been adverted to in these columns. A cursory summing up at this time will suffice. Mustered out of the army May 31, 1866, he received an immediate appointment as superintendent of the Western Union Telegraph Company, with headquarters at St. Louis, his district covering the territory with which he was especially familiar by reason of his army record. In December, 1878, he became assistant general superintendent at Chicago under Gen. Anson Stager, succeeding to the office of that incumbent in May, 1880. In October, 1885, Colonel Clowry was elected a vice-president, director and a member of the executive committee of the Western Union Telegraph Company, while still retaining the general superintendency at Chicago. He was elected president and general manager of the company in 1902, and removed to New York to assume the duties of that great office.

In this position, with unlimited range permitted for the exercise of his managerial abilities, and assisted by the able staff he has gathered about him, Colonel Clowry has come into the full and realizing possession of his latent strength and power. He is a great executive, directing the vastly extended and complex telegraph system, far exceeding all others in the world in magnitude and in the volume of business handled, of which it may be said he is a constituent part, woven into its very warp and woof through years of active association. His information respecting the telegraph is practical, profound and many sided. This enables him to quickly reach conclusions regarding the multitudinous questions that constantly come up for adjudication. In this he is aided by the action of a judicial mind. He is philosophic in his reasoning, systematic in his methods, and although a hard worker never allows himself to overwork and thus impair his health, his brain and his judgment. He is a keen observer, an excellent judge of men, a quiet yet firm and just disciplinarian, his findings oftentimes being directed and tempered by the influence of a kindly heart. When he deems himself to be in the right and principle is involved, he is tenacious of the position for which he may declare.



GEN. THOMAS T. ECKERT.

Chairman of the Board of Directors of the Western Union Telegraph Company, New York.

General Thomas Thompson Eckert.

General Thomas T. Eckert was born in St. Clairsville, Belmont County, O., April 23, 1822, and having been engaged in the telegraph business for over sixty years, he is now, at the age of eighty-six, in his position as chairman of the board of the Western Union Telegraph Company, the largest telegraph organization in the world, easily the dominating character in any history of the "Telegraph in America."

There is so much to stimulate and encourage youthful ambition in his early career, in his in-fatuation for the telegraph and in the way in which he overcame obstacles in his path when once he determined to learn the new and wonderful art, that we deem it worth while to lay before the readers of Telegraph Age in particular, and the telegraph world in general (we believe for the first time), an account which must necessarily be brief, of how Thomas Thompson Eckert became a telegraph operator.

In the early forties, when Morse was supplicating Congress for the small appropriation of \$30,000 with which to build an experimental line, the official Congressional proceedings in the pages of the National Intelligencer, a weekly publication, were eagerly scanned by old and young to a far greater extent than is now the case when the daily news, gossip and oftentimes the scandal of the whole world are laid before us at the breakfast table, while the proceedings in Congress are read by comparatively few. Young Eckert read the printed accounts of the new and wonderful art and became possessed with its spirit and talked about the electric telegraph almost incessantly, so that he was chided by his parents, who told him the neighbors would soon think him daft. To those who in later years have had business dealings with General Eckert it will not seem strange that the more opposition he encountered when he became Morse's disciple the stronger was his resolve to journey to Wheeling, where it was announced in the spring of 1847 that a telegraph office was about to be opened. Closing his ears to the appeals of his good old father and mother, young Eckert mounted the stage at Wooster, his home, with his entire savings, \$30, arriving at Wheeling only to learn that it was uncertain when the line would be finished and that Cumberland was the nearest eastern telegraph connection. He thereupon engaged himself as a stage driver over the national pike, his pay being free return passage, but alas! he learned at Cumberland that although the poles were erected the wires were not strung and he must go on to Baltimore if his dream was to be realized. On the stage journey to Cumberland a passenger—a Louisville merchant traveling to New York to buy his season's goods—had been attracted by Eckert's skillful handling of the horses and by his story, gleaned from him in fragments, of the purpose of his journey from Wooster. This new found friend offered to pay Eckert's railroad fare to Baltimore, which offer was gladly accepted. At Baltimore the Louis-

ville merchant went with Eckert to the telegraph office, where they were informed by the manager, a man named Rogers, that Prof. Morse's instructions were positive not to give information to outsiders nor allow anyone to come inside the office. Returning to the Fountain Hotel, Eckert was at first in despair, but soon resolved to continue his journey to New York, which he did, by rail, stage, steamboat and horseback, working his way a large part of the distance, in one case leading some horses to the State Fair at Trenton, and from there to Newark, driving a pedler's stage in place of the regular driver, who had indulged too freely in liquor at the Fair. Arriving at New York by packet from Newark, and still with his \$30 in his pocket, Eckert went first to the old Astor House, which at that time was said to be the largest hotel under one roof in the world. The clerk told him the house was full and he could not have a room. Just then the elder Stetson came out of the private office and finding that Eckert was from Ohio plied him with questions about business in the West, which Eckert was only too glad to answer. His manner impressed Stetson so favorably that he gave him a note to the proprietor of a new hotel in Murray street. Arriving there, Eckert found the man was from Wooster, O., and that among his boarders were Henry Jenkins, son of a banker from Columbus, recently come to New York. Young Jenkins had been Eckert's boyhood chum and when he appeared he was overjoyed to see his early friend and insisted upon his going with him to his father's new house far uptown, on 14th street. Eckert's baggage consisted of a homely-looking carpetbag made by himself, he having learned the saddler's trade in Wooster. The next morning, with a letter from Jenkins, Eckert went to the Astor House, where a telegraph office was about to be opened, and there for the first time he feasted his eyes upon the crude relay, key and register, which together must have weighed at least forty pounds. The operator, Augustus Swan, had no such orders from Prof. Morse as in the case of the Baltimore man and at Stetson's request freely gave Eckert full information in regard to the new invention, sending over the wire and embossing upon the narrow strip of paper by means of the register pen, the Morse alphabet, Eckert's name in full, the name of the place he came from and the date, together with a lot of additional matter. Eckert remained several days in New York, devoting nearly all his waking hours to the study of the telegraph, and before he started homeward he had mastered the rudiments and learned most of the alphabet.

Upon Eckert's return to Wooster he was a proud man and, in fact, became the hero of the town, and long before J. H. Wade had extended the telegraph line from Cleveland via Wooster to Cincinnati, Eckert was ready to begin the practical study over an actual wire. The manager at Wooster in 1849, when Eckert was appointed by President Taylor postmaster at Wooster, was S.

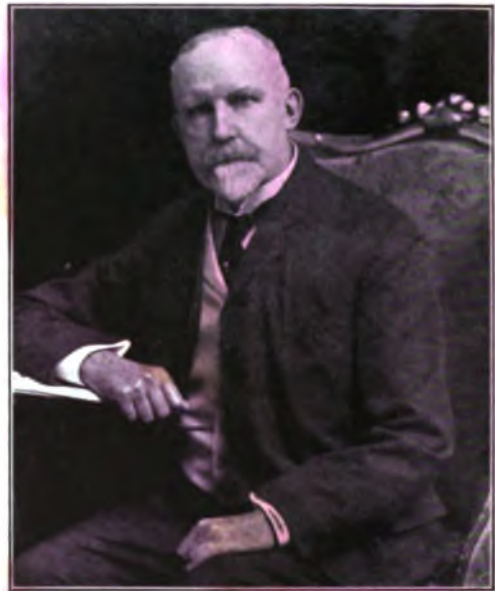
H. Kaufmann, who died a few years ago in Washington, D. C., and when Kaufmann was transferred to Zanesville, Eckert was appointed at Wooster in his place. In 1851 Eckert took a contract jointly with J. H. Wade to build a telegraph line on the Fort Wayne Railroad from Pittsburg to Chicago. He was appointed superintendent of telegraph on that road shortly after the line was completed, which position he held until succeeded by O. H. Booth. About 1859, the Fort Wayne Railroad having gone into bankruptcy and Eckert having received as his share of the contract price \$150,000 worth of railroad stock which became worthless, he left the telegraph business temporarily and went to North Carolina to superintend a gold mine controlled by wealthy men in Baltimore, after one of whom, named Steele, the mine was named. When the war broke out Eckert was suspected by his neighbors of disloyalty to the South, was arrested, released, at the risk of his life, came North with his family, and was called by Thomas A. Scott to enter the government telegraph service at Washington, first as manager of the office at McClellan's headquarters, and in the early spring of 1862 as chief of the War Department telegraph staff, and superintendent of telegraph lines in the Army of the Potomac. These positions he held until after the close of the war, receiving a commission first as captain, then as major, next lieutenant-colonel, and on March 13, 1865, was made brigadier-general for "meritorious and distinguished service." He was also appointed assistant secretary of war. He resigned from the government service August 1, 1866, to become general superintendent of the Eastern division of the Western Union Telegraph Company. In 1875 he became president of the Atlantic and Pacific Telegraph Company, and five years later president of the American Union Telegraph Company, both of which systems were consolidated with the Western Union Telegraph Company in 1881, when he went back to that company as vice-president and general manager. Upon the death of Dr. Norvin Green in 1892, he became president of the Western Union company, and in 1902 retired from active management and was made chairman of the board of directors, which exalted position he still occupies.

As indicated at the beginning of this rather desultory account, it is intended chiefly to cover General Eckert's early telegraph career.

J. B. Van Every, Vice-President Western Union Telegraph Company.

John B. Van Every, vice-president of the Western Union Telegraph Company, a position which carries with it the important duties of auditor, is an executive officer who ranks among those who have been longest in the service. He was born at Rochester, N. Y., July 30, 1839, and entered the employ of the company on June 1, 1864, as assistant to Edward Chapman, at that time auditor of the company. This was at Rochester, and before the company had removed its headquarters to New York. W. H. Abel succeeded Mr.

Chapman, but when he resigned in October, 1872, on account of ill health, Mr. Van Every was appointed auditor, a position he has since continued



JOHN B. VAN EVERY.
Vice-President Western Union Telegraph Company,
New York.

to hold, together with that of vice-president, to which he was subsequently elected. He has administered the affairs of his office with much ability, and has a profound and intimate knowledge of its details, which, coupled with his memory of facts, figures and dates, renders him a veritable encyclopedia of its intricacies of record.

Mr. Atkins, Vice-President Western Union Telegraph Company.

George W. E. Atkins, for many years superintendent of the contract and free service depart-



G. W. E. ATKINS.
Vice-President Western Union Telegraph Company,
New York.

ments of the Western Union Telegraph Company, New York, who was first elected to the position of acting vice-president in charge of the

contract department, is now a full vice-president and a member of the board of directors of the company. This elevation conferred upon Mr. Atkins an added dignity, and widens the scope of his influence and operations, and was accepted as a just recognition of the ability and faithfulness with which he had conducted the affairs of his important office.

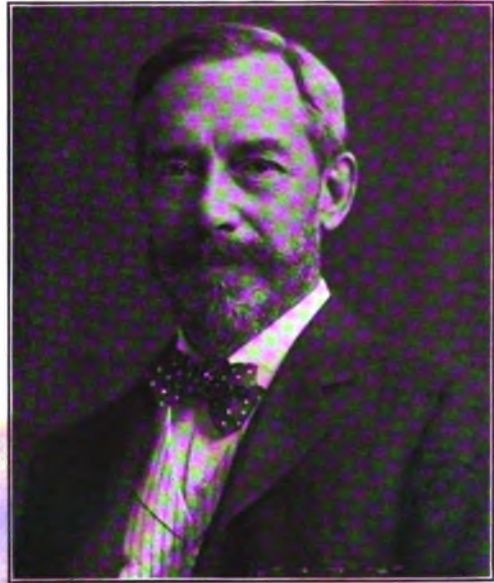
Mr. Atkins' career affords another instance of the value of application, study and conscientious effort on the part of the individual as requisites in determining and rendering possible success in life. Mr. Atkins, who is a native of Tennessee, where he was born in 1850, began life in the railroad telegraph 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 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 officials of the Western Union executive force.

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, and a vice-president and member of the board of directors of the Gold and Stock Telegraph Company.

Thomas F. Clark, Vice-President Western Union Telegraph Company.

Thomas F. Clark, vice-president of the Western Union Telegraph Company, was born at Norfolk, England, July 9, 1845. His early education was acquired at Bury St. Edmunds, Suffolk. It was his original intention to engage in commercial business, in which for a time he was employed, but he afterward entered the service of the Electric and International Telegraph Company, London, and on the assumption of the British telegraphs by the government, he entered the Postal telegraph service. In May, 1871, he came to America, and soon after his arrival met General Thomas T. Eckert, at that time general superintendent of the eastern division of the Western Union Telegraph Company, by whom he was employed as private secretary. When General Eckert became president of the American Union Telegraph Company, Mr. Clark was elected secretary of that organization. On the consolidation of the two telegraph companies named, in Janu-

ary, 1881, he returned with General Eckert to the service of the Western Union company. In 1882, he was elected secretary of the American Telegraph and Cable Company, and in 1887 of the International Ocean Telegraph Company. Subsequently he was appointed assistant to the president, his marked abilities later being more definitely recognized by his promotion to be a vice-president of the company. In this position his services have been of a superior order. Mr. Clark is a scholarly man, possesses literary ability, and



T. F. CLARK,
Vice-President Western Union Telegraph Company,
New York.

his writings are well known. He is a director of the New York Telephone Company, the American Union Telegraph Company, the United States Telegraph Company, the Franklin Telegraph Company, the International Ocean Telegraph Company, the American Telegraph and Cable Company, the Gold Stock Telegraph Company, the Stock Quotation Company and sundry other companies.

M. T. Wilbur, Treasurer, Western Union Telegraph Company.

Myron T. Wilbur, treasurer of the Western Union Telegraph Company, is a native of New York State, having been born in Walworth, Wayne County, October 16, 1840. He entered the service of the Western Union Telegraph Company, at the instance of his uncle, the late Judge Palmer, as a clerk, on May 12, 1869. He was later promoted to be cashier of the company, and in 1881 was appointed assistant treasurer, succeeding to the treasurership on the death of R. H. Rochester, which occurred November 27, 1897. Mr. Wilbur is the treasurer of the Gold and Stock Telegraph Company, the Southern and Atlantic, the Pacific and Atlantic, the Franklin telegraph, Delaware River Telegraph Company, and about forty other subsidiary companies to

the Western Union Telegraph Company; also treasurer of the American District Telegraph



M. T. WILBUR.
Treasurer Western Union Telegraph Company,
New York.

Company of New Jersey, and some forty subsidiary companies.

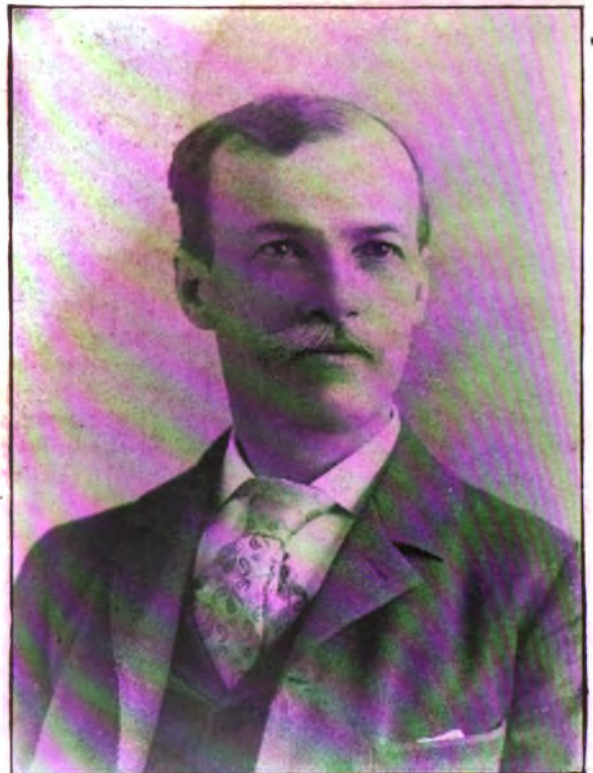
T. W. Goulding, European General Manager, Western Union Telegraph Company.

T. W. Goulding, European general manager, at London, England, of the Western Union Telegraph Company, is of English birth, having been born near London, April 2, 1863. He came to America at an early age and found employment in the telegraph service as a messenger for the Great North Western Telegraph Company, at Winni-



T. W. GOULDING.
Western Union Telegraph Company, London.

position at St. Paul, Minn. Later, he returned to Winnipeg, rejoining his former company as an operator, and where in quick succession he was advanced to the positions respectively of chief operator, manager and acting superintendent. Resigning, he transferred his services to the Canadian Pacific Telegraph Company, in whose employ he remained for several years, when impaired health induced him to temporarily give up business. He took advantage of the situation to make a visit to England. On his return to America, in 1895, he went to Vancouver, B. C., again in the interests of the Canadian Pacific Telegraph Company. In 1897, he was made manager for a few months of the office at Nelson, B. C., afterward returning to Vancouver. On the advent of the Western Union Telegraph Company to British Columbia, Mr. Goulding received the appointment of manager at Vancouver of the joint interests of the Western Union and of the Great North Western telegraph companies. This position he retained until July 1, 1902, when he was promoted to be superintendent of the Western Union Telegraph Company, with headquarters at Seattle, Wash., a position he continued to hold until the fall of 1904, when he was selected to go to England, there to represent the interests of the company as its general superintendent. About a year ago he received further promotion, to the position of European general manager, an office which materially adds to his responsibilities and widens the sphere of his actions.



ABIJAH R. BREWER.
Secretary, Western Union Telegraph Company,
New York.

peg, Man., in 1877. Learning to telegraph he became an operator and as such in 1880 obtained a



JOHN C. BARCLAY.

Assistant General Manager and Electrical Engineer of the Western Union Telegraph Company, New York.

**John C. Barclay, Assistant General Manager,
Western Union Telegraph Company.**

In John C. Barclay, assistant general manager and electrical engineer, the Western Union Telegraph Company possesses one of the most competent and practical telegraph men in this country. His technical knowledge is extensive, for since he was an operator at the key, in which he became expert, he has been a close student, a tireless and conscientious worker who has not been satisfied until he has thoroughly investigated, carefully thought out and mastered any problem demanding his solution. He is an efficient co-worker with Col. Clowry, president and general manager of the company, and like his chief, came to New York from Chicago when the present administration in 1902 undertook the direction of company affairs.

Mr. Barclay is a native of Pennsylvania, his place of birth being at Greensburg, that state. His first telegraphic experiences, beginning in 1869, were acquired in the railroad service. He eventually became associated with the Western Union Telegraph Company at Chicago. This was in 1882. Here the real worth of the man became apparent and his advancement was rapid. With his advent to this city he was first appointed to the position of electrical engineer. In this field, with its increased responsibilities, Mr. Barclay not only proved his capacity but developed such skill of managerial fitness that the further promotion to the position of assistant general manager of the company was tendered him, a place especially created in order to relieve the president and general manager from an enormous amount of detail work. This post Mr. Barclay has since held jointly with that of electrical engineer, and in successfully performing the dual duties thus imposed has proved himself to be one of the most versatile men in the telegraph service to-day, for his mind acts with much directness of purpose, quickly grasps an idea, while his natural impulsiveness, brushing aside all obstacles to a clear point of view, permits him to decide upon a question and take speedy action. This trait of character enables him to despatch business quickly and to perform an enormous amount of work each day.

Mr. Barclay possesses inventive genius of a high order, and his numerous patented devices have found a ready adoption in the telegraph. His crowning achievement, however, may be said to have been reached in the Barclay Printing Telegraph system, by which the operation of automatic telegraphy has been greatly simplified, and which affords a solution of the problem of a really practical typewriter page-printing device.

The messages are prepared for transmission on a paper tape by means of an automatic perforator which perforates all of the holes necessary for producing the desired combinations forming a character or letter by one stroke of a key lever selected on a universal keyboard. This tape is

passed through an automatic transmitter, a modification of the Wheatstone type, and the signals received at the distant end on a polar relay, the points of which control the local apparatus operating the receiver or printer. There are fifty-six characters grouped in two rows on the periphery of the printer type wheel, thus insuring perfect alignment and uniform imprint. The message is printed on the standard receiving blank ready for delivery, the only attention required at the printer is to feed it with blanks and remove the completed messages. The time consumed in changing blanks averages from one to two seconds. At the sending end two handlings are necessary, once by the perforating clerk and again by the transmitting clerk.

The opinions of telegraph engineers differ as to the advantages or disadvantages of prepared tape transmission. In practice it seems quite clear that tape transmission has many advantages and for this reason the Western Union has adopted it, although the Barclay system is also designed for direct keyboard transmission.

It is obvious that in direct transmission the carrying capacity of the circuit is only equivalent to the speed of the transmitting operator, while with tape transmission it is raised to the actual capacity of the wire, which is very much greater.

By preparing messages on tape for transmission, there is no time lost on the wire, due to slow keyboard manipulation, difficulty in deciphering illegible copy, and other interruptions of like character. The correctness of the tape can be verified as it is prepared in quantities sufficient to fully occupy the circuit, and then sent over the line at a speed and with a precision that cannot be approached by the most expert keyboard operator. The Barclay system is on the polar duplex principle and its operation is not dependent in any way upon an increment of current. It is a non-synchronous system and has a wide range in line current values.

As a matter of interest it may be stated that the Barclay system has been worked successfully over a circuit between New York and San Francisco through seven automatic repeaters, and is now regularly operated between the following points: New York and Chicago, New York and Boston, New York and Philadelphia, New York and Buffalo, New York and Pittsburg, New York and Atlanta, Chicago and Kansas City, Chicago and St. Louis, Chicago and Buffalo, Chicago and Pittsburg, Buffalo and Pittsburg, also Pittsburg and Philadelphia. Other circuits are being established as fast as the apparatus can be manufactured.

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

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BELVIDERE BROOKS.

General Superintendent, Eastern Division, of the Western Union Telegraph Company, New York.

Belvidere Brooks, General Superintendent, New York, Western Union Telegraph Company.

Belvidere Brooks, general superintendent of the eastern division of the Western Union Telegraph Company, is a prominent figure in the able staff of officials assembled at the New York headquarters. A man of commanding presence, being over six feet tall and large in proportion, he ranks among the best equipped personalities in the telegraph service. Brought up in telegraph employ, an atmosphere in which he has moved all his life, assimilating its very essence, so to speak, his practical knowledge of the telegraph in general, especially as it applies to this country in particular, with which he has a wide acquaintance gained by personal contact through travel, admirably fits him for the responsible position he fills.

Mr. Brooks is painstaking and methodical in all features of his administration. The condition and needs of his division he thoroughly understands; he is in close touch with his subordinate superintendents and others, and in his frequent tours of inspection, visiting all portions of the territory under his control, he is able to exercise a wise and careful supervision over all interests, and at the same time to cultivate pleasant personal relations among those with whom he is associated, so essential to the general welfare, influencing the promotion and maintenance of a high standard of service.

Mr. Brooks is a native of Texas, having been born at Wheelock, that state, July 6, 1859. When but twelve years of age he became a telegraph messenger at Navasota, that state. Young lad that he was, he was early filled with an ambition to get ahead and succeed in life. He worked hard, was attentive, and eventually learned how to telegraph. This was a start. Practice makes perfect, and whenever possible he worked at the key. Finally his early aspiration was gratified when he was appointed an operator. During the years 1877 and 1878 he served in this capacity and in other positions of trust at various places on the Houston and Texas Central Railroad. His preference, however, was for the commercial telegraph service, not that of the railroad, and this prompted him to seek employment with the Western Union Telegraph Company. This he obtained in 1879. At twenty years of age young Brooks was accounted a good operator, and had already begun to display traits of executive ability that afterward rapidly developed as opportunity was afforded for their growth. In the following year of 1880 he was given the management of the Navasota office. Here he did so well that after an incumbency of but a few months, he was tendered a clerkship in the office of the superintendent at Dallas. The influences he then came under and the training received was in line with just what he required. He was capable but needed direction and practice. From Dallas he was

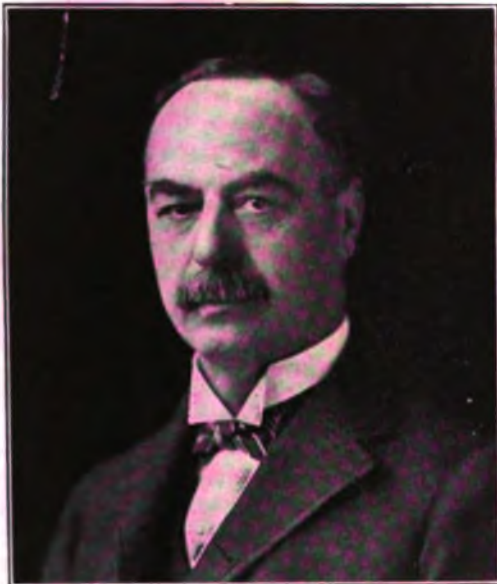
selected to become manager of the Western Union office at Waco, subsequently being transferred to like positions, first at El Paso and afterward at Galveston, both being in the nature of promotions. At the conclusion of his term at Galveston Mr. Brooks was in his thirty-second year and was considered one of the most promising of the younger men in the service holding managerial office. On November 1, 1890, came the appointment as manager of the larger and more important office at Denver, Colo. This was a flattering recognition of the abilities of the young man. But he was self-contained, cool and confident, for he had earned the progress he had made thus far, and what knowledge he had acquired was well grounded. His observation, study and reading had been judicious and well considered. His information was comprehensive and practical. He possessed tact and good judgment. At Denver he made an excellent manager. His office was well conducted, he was energetic and progressive, and all matters coming under his jurisdiction received prompt, careful and intelligent attention. When an assistant superintendent was required at this point it was natural that Mr. Brooks' name should be mentioned for the position. Who else could be the logical choice? He had grown up to the place and fitted into it naturally. He knew the conditions governing his surroundings. So it was that on January 1, 1893, he received the promotion that made him assistant superintendent. He was now thirty-four years old. Denver, always an important point telegraphically, as well as commercially, was growing rapidly in population, and the extensive district in the welfare of which he was now especially interested, was filling up, new towns were being settled, new telegraph offices opened and new lines of wire extended. It was a field of much activity and Mr. Brooks found abundant opportunity for the exercise of his abilities. He fulfilled the confidence that had been reposed in him and met the exactions of his office. In this position he continued for nine years, himself developing in capacity and power in common and in keeping with the country around about him.

It was a big jump from Denver to New York, from the position of assistant superintendent, passing by that of superintendent, to the general superintendency of the most important division in the entire telegraph system. Yet Mr. Brooks was equal to the demands placed upon him and when, early in the year 1902, he said good-bye to his Denver friends and started eastward, it was with a spirit marked by courage, self-confidence and determination to succeed, the same vital force that animated the messenger boy thirty-one years previous. The record of the general superintendent's work here in New York is an open book, to be read by all men.

Any technical book required may be obtained promptly through the Book Department of TELEGRAPH AGE. Send for new catalogue.

T. P. Cook, General Superintendent, Western Union Telegraph Company, Chicago.

Theodore P. Cook, general superintendent of the western division of the Western Union Telegraph Company at Chicago, Ill., is a native of Tennessee and has grown up and developed with the telegraph business, he having entered the Western Union Telegraph Company's service on the overland route to California when a mere boy. In 1863 he took charge of the office at Lawrence, Kan. He was called next to Atchison, then to Leavenworth, and later to Kansas City. In 1882 he was made night chief operator at St. Louis; afterward becoming manager of the gold and stock department of the local service. In 1885 he was appointed assistant superintendent with headquarters at Dallas, Tex., where he resided until called upon to fill the office of superintendent at St. Louis. From St. Louis he went to Chicago, in March, 1902, to accept the appointment to the office he now holds. Mr. Cook has a thoroughly practical knowledge of every branch of the business. He has always been untiring in his efforts,



THEODORE P. COOK.
General Superintendent Western Union Telegraph Company,
Chicago, Ill.

leaving no stone unturned that could in any way enhance the value of the service in whatever department he was engaged.

Rush Taggart, Solicitor, Western Union Telegraph Company.

Rush Taggart, one of the two law solicitors of the Western Union Telegraph Company, New York, holds an honored name in the estimate of the bar of New York. He was born at Smithville, Wayne County, Ohio, September 4, 1849.

Shortly after his graduation from the law department of the University of Michigan, in 1875, he was offered and accepted a position in the service of the Pennsylvania company at Salem, Ohio, as assistant in the office of Solicitor J. T. Brooks.

In the fall of 1877, upon the promotion of Solicitor Brooks to the position of general counsel, Mr. Taggart was made solicitor, and for the succeed-



RUSH TAGGART.
Solicitor Western Union Telegraph Company,
New York.

ing ten years had charge of all the legal business on the lines of the Pittsburg, Fort Wayne and Chicago Railway and branches in the state of Ohio.

Coming to New York in 1887, he entered the law office of Dillon and Swayne, the senior member of which, Judge John F. Dillon, is now general counsel of the Western Union Telegraph Company, the junior member being General Wager Swayne, himself an Ohioan and a friend of the young attorney. On May 11, 1887, Mr. Taggart became identified with the law department of the telegraph company, a position in which he has since been able to render conspicuous service. Mr. Taggart is well versed in the law, possesses a keen analytical mind, and is a speaker of more than ordinary ability.

Mr. Estabrook, Western Union Solicitor at New York.

Henry Dodge Estabrook, namesake of Henry Dodge, ex-Senator and ex-Governor of Wisconsin, solicitor of the Western Union Telegraph Company, who came to New York shortly after the advent of the present administration, is an Eastern man by birth, yet endowed with a Western growth and training. Puritanical blood flows in his veins, for he is a direct descendant of John Alden, for whom was named, coincidentally, the little hamlet of Alden, in Western New York, where Mr. Estabrook was born, October 23, 1854. When but an infant of six months, he was taken West to Nebraska, then marking the extreme frontier, where the family made their home, the father having become the attorney-general of the then territory of Nebraska. Mr. Estabrook graduated from a law course at the Washington University, St. Louis, in 1876, and entered upon the practice of his profession in Omaha. The only official position he ever held was that of Regent of the Nebraska

University, to which he was elected by a large majority, running ahead of his ticket. He was the local attorney for the Postal Telegraph-Cable Company, at Omaha, for three years, when he entered the service of the Western Union Telegraph Company in like capacity at the same point. In 1896, on the death of his father, Mr. Estabrook removed to Chicago, where, at the instance of Gen. Eckert, then president, Mr. Clark and Mr. Fearons, vice-president and general attorney, respectively, he was given the local attorneyship of the Western Union. Later he formed the law firm of Lowden, Estabrook and Davis, a partnership that continued successfully until Mr. Estabrook came to New York as solicitor for the Western Union Telegraph Company, September 1, 1902. Mr. Estabrook is an astute lawyer, a man of engaging personality, careful and painstaking in his methods, and is a valuable acquisition to the legal staff of that cor-



HENRY D. ESTABROOK,
Solicitor Western Union Telegraph Company,
New York.

poration. His sister, now deceased, was the wife of President R. C. Clowry.

**A. G. Saylor, Assistant General Superintendent,
Western Union Telegraph Company, at
New York.**

A. G. Saylor, the assistant general superintendent of the Western Union Telegraph Company, at New York, is a Canadian, a native of Bloomfield, Ont., where he and his twin brother, Superintendent E. B. Saylor, of Pittsburg, were born June 11, 1859. From his earliest years, young Saylor evinced an interest in telegraphic matters, and when but twelve years of age, in 1871, was installed as an operator in the employ of the Dominion Telegraph Company at Ingersoll, Ont. In 1873-74 he served the Montreal Telegraph Company at Ottawa and Montreal, and in 1874 became a night operator for the Grand Trunk Railway at Portland, Me., later entering the employ, first of the Atlantic and Pacific Telegraph Company, and afterward of the Western Union company. Mr. Saylor not only grew expert at

the key, but acquired ability as an electrician; for he was always a diligent worker, of an observ-



A. G. SAYLOR,
Assistant General Superintendent, Western Union Telegraph
Company, New York.

ing turn of mind and a close student. In 1881 he removed to Philadelphia, finding employment still with the Western Union company. In 1884 he was called from the key to fill the position of wire chief, subsequently becoming in close succession traffic chief and chief operator. As a tribute to the personal worth and executive ability of the man came his appointment, in 1887, as manager of the office. Later he became assistant to Superintendent Gill, a position he continued to hold until 1902, when he was transferred to New York as chief clerk to General Superintendent Brooks. His promotion to be assistant general superintendent dated from January 1, 1907.

Mr. Saylor comes from Quaker stock, and he possesses many of the attributes of character derived from that source. On his paternal side his ancestry is German, while on his mother's it is English, the sturdiness of each of which is well exemplified in the well-poised temperament observed in the object of this sketch.

**F. J. Scherrer, Private Secretary to Colonel
Clowry.**

Franklin J. Scherrer, secretary to Colonel Robert C. Clowry, president of the Western Union Telegraph Company, New York, is a native of Chicago. He entered the telegraph service as a check clerk in the operating department of the Western Union in Chicago, on August 1, 1882. From this position he was promoted to be office boy, first in Superintendent Tubbs' office and afterward in that of Colonel Clowry, who was then vice-president and general superintendent of the western division of the company. Young Scherrer was attentive to his duties, showed an intelligent appreciation of his place, and attracted the attention and interest of the colonel. Later he was given a clerkship in the office, subsequently being appointed secretary to the colonel. When Colonel Clowry left Chicago and came to New York in

1902, here to assume the presidency and general managership of the company, Mr. Scherrer, who by this time had become firmly established in the colonel's confidence, accompanied him east.



FRANK J. SCHERRER.

Private Secretary to Colonel Clowry, Western Union Telegraph Company, New York.

Mr. Scherrer is a good judge of human nature, is quiet and unobtrusive in manner, possesses tact, common sense and excellent judgment, attributes of character which, coupled with the fact that he has gained a wide acquaintance among men, enables him to discharge the duties of his position, frequently calling for the exercise of a nicety of discrimination, with an address that has won for him very general commendation.

H. E. Roberts, Superintendent of Supplies, Western Union Telegraph Company.

Horace E. Roberts, superintendent of supplies and general purchasing agent of the Western Union Telegraph Company, New York, was born



HORACE E. ROBERTS.

Superintendent of Supplies and General Purchasing Agent, Western Union Telegraph Company, New York.

at Battle Creek, Mich., November 15, 1863, and began his telegraphic career November 11, 1879,

at Chicago as a messenger boy. February 7 of the following year young Roberts entered the office of the general superintendent of the Western Union Telegraph Company, Chicago, since which time, in varying capacities, he has been in the service of the present president of the company.

J. Levin, Western Union General Superintendent at Atlanta, Ga.

J. Levin, general superintendent of the Southern division of the Western Union Telegraph Company, at Atlanta, Ga., is one of the ablest executives of the Western Union Telegraph Company. He is a Southerner by birth, hailing from South Carolina, although his training was gained in the West, for he went to Atchison, Kan., in 1872, when but twenty-one years of age, and three years after he had entered the telegraph service. Atchison remained his home for sixteen years, the first seven of which he was occupied



JACOB LEVIN.

General Superintendent Western Union Telegraph Company, Atlanta, Ga.

as a press operator in the Western Union office, and the succeeding nine years he filled the position of manager. His acceptable work at this point caused his transfer in like capacity to a number of other points South and West, including the important offices of St. Joseph, Mo., and Omaha, Neb. His promotion to be assistant superintendent took him to Minneapolis in July, 1890. At this point he rapidly developed under the training received and showed his capacity for work and ability as an executive. Early in 1903 he was called to New York to accept the appointment of inspector, an office he held barely six months, when his promotion to the position he now holds followed. During the four and a half years Mr. Levin has been at Atlanta there are many evidences that testify to his painstaking and practical methods.

I. N. Miller, Jr., at San Francisco.

Isaac Newton Miller, Jr., the assistant general superintendent of the Western Union Telegraph Company at San Francisco, Cal., an office of but comparative late creation, and of which Mr. Miller is the first occupant, is a man not yet forty years of age, who is making a distinct impression in the telegraph service for all-around ability. He has a naturally bright mind, which has been fed and stimulated by reading and study and practice and by the application of excellent judgment.

Mr. Miller is an Ohioan, New Vienna being his native place, where he was born November 29, 1868. His entry into telegraph employ dates from 1885, when he became an operator in the railroad service in his home town. After nearly two years thus spent he transferred his services as an operator temporarily to the Western Union Telegraph Company at Cincinnati, shortly after accepting the position as secretary to the superintendent of transportation of the Southern Railway at Knoxville, Tenn., remaining there from December, 1887, to February, 1889, when, going to Denver, Colo., he became an operator for the Denver and Fort Worth Railway. This position he held less than six months, when, attracting the favorable notice of Frank Jaynes, Western Union superintendent at San Francisco, he was appointed secretary to the latter, and for five years, from July, 1889, to January, 1893, he continued in this capacity, when he was made chief clerk, an office he held for almost ten years, to December, 1902. This long period of training



I. N. MILLER, JR.
Assistant General Superintendent, Western Union Telegraph Company, San Francisco, Cal.

bore fruit when he was appointed superintendent of the Pacific division of the American District Telegraph Company, at San Francisco. From this place he received promotion October 1, 1906, to that of superintendent of the Western Union Telegraph Company, his further advancement to be assistant general superintendent of the company as well as that of the American District Telegraph Company, coming to him April 15, 1907.

John C. Nelson, Superintendent.

John C. Nelson, superintendent of the Western Union Telegraph Company at Omaha, Neb., is a native of Denmark, where he was born December 14, 1875. His entry into telegraph employ was at Omaha on May 3, 1888, when he began his career at the bottom of the ladder, rising through the successive grades of check clerk, office boy, clerk, stenographer, private secretary



J. C. NELSON.
Superintendent Western Union Telegraph Company,
Omaha, Neb.

to the superintendent, reaching the position of assistant superintendent May 1, 1902, and that of superintendent January 1, 1907, in both of the two latter instances succeeding the late Charles B. Horton. Mr. Nelson was a protege of the late superintendent, Colonel J. J. Dickey, and the excellent training he received under that gentleman's thorough direction is reflected in the present management of the district—the third of the Western division.

Mr. McCammon, Chief Operator of the Western Union Operating Department, New York.

T. A. McCammon, chief operator of the Western Union Telegraph Company, New York, is at the head of the operating department in the main office, 195 Broadway. Mr. McCammon is one of the brightest men in the telegraph service, and ever since he succeeded A. E. Sink, in February, 1905, he has steadily gained in the esteem of his superior officers and in the respect of those constituting the large body over which he presides.

Mr. McCammon is a Canadian, having been born at Kingston, Ont., December 27, 1859. He began his telegraphic career at his native place in 1875, in the employ of the Dominion Telegraph Company, subsequently going to Toronto and London, Ont. Coming to the United States, and pushing West, he found employment in Colorado as a train despatcher on the old Denver and South Park Railroad. Thence he went to San Francisco, and with varied fortune afterward found his way eastward again to Salt Lake City and to Omaha, at which latter place he became

night chief operator for the Western Union Telegraph Company. Here he made a fine record, which found recognition by his being transferred in 1892 to Denver, Colo., to fill the position of chief operator. At that busy point he remained ten years, gaining much valuable experience and broadening into a man of many all-around qualities. When E. B. Saylor, chief operator of the Philadelphia office, now superintendent at Pittsburg, resigned, Mr. McCammon was brought East to fill his place. This was in June, 1902. This post he held for nearly a year, until May, 1903, when he was promoted to be chief operator, a position then newly created, in the New York office. His subsequent advancement to the position of managing head of the largest operating room in America, placed in that responsible place a man with excellent administrative abilities



T. A. McCAMMON.
Chief Operator Western Union Telegraph Company,
New York.

based on a thorough all-around knowledge of the business of telegraphing.

L. E. Rudd, Western Union Manager at Lexington, Kentucky.

Leon E. Rudd, manager of the Western Union Telegraph Company at Lexington, Ky., was born at Menominee, Wis., December 30, 1879, and was the son of the late W. A. Rudd, one of the most capable of telegraph men. Young Rudd became a Western Union messenger at St. Paul, Minn., when thirteen years of age. From messenger to check boy, and afterward to clerical positions, were perhaps natural transitions. But his ambition was not satisfied until he learned telegraphy. This secured to him an opportunity, and from the position of operator he became assistant wire chief, afterward taking charge of a branch office. In 1901 he was made chief operator of the office in Yellowstone Park, and returning to Wisconsin filled successively the offices of manager at Portage, Oconomowoc and Superior, that state. In April, 1904, when his

father was manager of the Western Union office in Boston, the son was called to that city and given charge of the branch office in the financial district, the largest in town. In July, 1906, Mr. Rudd resigned his Boston position to accept the



LEON E. RUDD.
Manager Western Union Telegraph Company,
Lexington, Ky.

managership of the office at Vicksburg, Miss., from which he was transferred October 23, of the same year, to the Jackson, Miss., office, his promotion to Lexington, Ky., occurring in December, 1907.

U. W. Boggess, Manager at Clarksburg.

Ulysses Willey Boggess is the manager of the Western Union Telegraph Company at Clarksburg, W. Va., in which state he was also born at Fairmont, October 19, 1855. At eighteen years of age he became identified with the telegraph at Altamont, Md. His subsequent services as an



U. W. BOGCESS.
Manager Western Union Telegraph Company,
Clarksburg, W. Va.

operator were divided between the Western Union, Atlantic and Pacific and the Baltimore

and Ohio telegraph companies, The United Press and The Associated Press, in various of the principal cities, besides numerous railroads. For sixteen years Mr. Boggess was connected at Milwaukee with the Chicago and Milwaukee Telegraph Company, a local company connecting those two cities. He has been manager at Clarksburg, near his birthplace, for the past year. Mr. Boggess is an accomplished operator.

Wm. R. Chapman, Manager at St. Paul.

William R. Chapman, manager of the Western Union Telegraph Company at St. Paul, Minn., is a type of the Canadian telegrapher always a welcome importation into this country. He was born at Brighton, Ont., June 14, 1864, and began his telegraphic career in his native place in the employ of the Dominion Telegraph Company in 1878. From 1880 to 1882 he was in the service of the Canada Mutual Telegraph Company at Toronto, subsequently serving the Mutual Union and American Rapid telegraph companies at Buf-



W. R. CHAPMAN.
Manager Western Union Telegraph Company,
St. Paul, Minn.

falo, N. Y., and later the Western Union at Chicago and afterward at Jacksonville, Fla. He early developed ability as an operator and showed evidences of executive capacity. This led to his appointment as manager of the Western Union at La Crosse, Wis., a position he held from 1885 to 1904, when he was promoted to the St. Paul office, where he now is.

Mr. Kehrer, Western Union Chief Operator at Minneapolis.

Joseph Kehrer is chief operator of the Western Union Telegraph Company at Minneapolis, Minn., whose brief yet excellent record has thus far stamped him as a young man of commendable parts. He was born at Lakeville, Minn., October 11, 1879, and entered telegraph employ in his native place May 1, 1896. Learning telegraphy, he became an operator, working acceptably and with a studious and observing mind. In the fall of 1901 he entered the Western Union

service at Minneapolis. From the position of operator he was promoted to that of wire chief in July, 1903, at the same time becoming acting chief operator. So well did he fulfill his dual



JOSEPH KEHRER.
Chief Operator, Western Union Telegraph Company,
Minneapolis, Minn.

duties that on September 1, 1904, he was advanced to the full position of chief operator, where he has since remained.

H. O. Bannister, Western Union Manager at Raleigh, N. C.

Harry Oscar Bannister, manager of the Western Union Telegraph Company at Raleigh, N. C., is one of the youngest men in the service to reach so responsible a position as the one he occupies. For the city of Raleigh, the capital of the state, is an active business center, with a population now approaching 25,000, and to meet the requirements demanded by the situation the telegraph office gives employment to a force, beside the manager, of four operators, two clerks, one book-



HARRY O. BANNISTER.
Manager Western Union Telegraph Company,
Raleigh, N. C.

keeper, two linemen and about twelve messengers. Mr. Bannister was born in Virginia, at Richmond, August 11, 1884. His first employ-

ment in the telegraph service was as a messenger for the Postal Telegraph-Cable Company, in his native city, at the age of fifteen years. Two years later he was advanced to a clerkship, which he held for another two years. Having learned telegraphy, and early exhibiting evidences of executive capacity, manifest in good judgment, ability to organize, etc., he was promoted in July, 1903, to the managership of the office at High Point. Subsequently he was transferred to Suffolk. From July, 1905, to November of that year, he was the relief agent of the Southern Railway, when he became the despatcher of the Georgetown and Western Railroad at Georgetown, S. C. From May, 1906, to January, 1907, he served as an operator in the main office of the Western Union Telegraph Company at Richmond, Va., his appointment to his present position coming to him at the latter date.

Max Handler, Gold and Stock Agent at Cleveland.

Max Handler, agent of the Gold and Stock department of the Western Union Telegraph Com-



MAX HANDLER.
Agent Gold and Stock Telegraph Company,
Cleveland, Ohio.

pany at Cleveland, Ohio, although a native of Philadelphia, Pa., where he was born June 26, 1865, has gained his entire telegraph experience in Cleveland. For it was in this city that he entered the service of the telegraph, September 1, 1881. From the position of messenger he became a check boy, thence entering the bookkeeping department. Acquiring the art of telegraphy he became an operator, first in the Dock office, afterward in the main office, subsequently being transferred to the commercial news department. In his present position he succeeds the late Louis A. Somers, of pleasant memory, and like the latter, proving himself to be an efficient head of the department he is serving.

J. E. Palmer, Chief Operator at Reno.

J. Edwin Palmer, chief operator of the Western Union Telegraph Company at Reno, Nev., an important relaying point, one of the older members of the great army of telegraph workers

in this country, has long enjoyed a reputation as a first-class telegrapher, and as a man of ster-



J. E. PALMER.
Chief Operator, Western Union Telegraph Company,
Reno, Nev.

ling integrity of character. Vermont has been generous in furnishing telegraphic personality. From this state Mr. Palmer hails, his birth having occurred at Kirby, January 22, 1842. He learned telegraphy at Pittsburg, Pa., his career in the service dating from September, 1865. He has held subsequently various responsible positions, including that of wire chief, repeater chief, night manager, and manager of the office at Flagstaff, Ariz. In whatever position employed he has contributed the best of service, governed always by conscientious motives.

A. M. Lewis, Traffic Chief at "195."

Arthur M. Lewis is the Eastern traffic chief in the main office of the Western Union Tele-



ARTHUR M. LEWIS.
Eastern Traffic Chief, Western Union Telegraph Company,
New York.

graph Company, New York, where he also acts as agent for Telegraph Age. Mr. Lewis is a

Welshman, having been born near Swansea, Glamorgan County, South Wales, in 1862. His early education was obtained mainly in the grammar school, Bristol, England, and he came to this country in 1878. He has since resided in New York. His first occupation was that of a clerk for the American District Telegraph Company, subsequently becoming manager, respectively, of several uptown offices. Having learned telegraphy he entered the service of the Western Union Telegraph Company in 1883. Industrious and painstaking and having that quality of dependableness, he was placed successively in charge of several of the larger branch offices. In 1890 he was transferred to the general operating department at "195." The same qualities that brought him previous preferment, operated in his favor in this new field of endeavor. Always a student and close observer, attentive to his duties and not afraid of work, Mr. Lewis acquired an excellent practical knowledge of telegraphy, and the reward of promotion came when he was created a traffic chief in 1895.

M. H. Kerner, Telegraph Inventor and Musical Writer.

Marion H. Kerner, an operator of the Western Union Telegraph Company at 195 Broadway, New York, is a well-known old time and military telegrapher. He was born at Baltimore, November 25, 1839, and in 1852 entered the telegraph service of the Baltimore and Ohio Railroad at Oakland, Md. His has been an eventful career. While on duty as an operator at Harper's Ferry he witnessed the execution of John Brown. When the Civil War broke out Mr. Kerner promptly



MARION H. KERNER.
New York.

tendered his services as an operator to the government. He served in this capacity during a portion of the great conflict and met with many exciting experiences. For a while he was confined as a prisoner in Libby Prison. He was compelled to retire from the army telegraph be-

cause of sickness. Thereafter for a number of years he was connected with the Adams Express Company in his native city, subsequently becoming interested in electrical ventures in Chicago. He invented a burglar alarm system in 1882 which he sold in Europe. In 1890 he witnessed the Passion Play in Europe, and was the first person to bring authentic views of the play to this country. Mr. Kerner has traveled extensively abroad, his observations and experiences derived on such trips forming topics for lectures. He is a frequent lecturer in the public schools on telegraphy and other electrical subjects. Mr. Kerner possesses excellent musical abilities, and is the author of a number of songs, both words and music, in which the telegraph has governed the inspiration.

Allen Woodle, Western Union Manager at Boston.

Allen Woodle, manager of the Western Union Telegraph Company at Boston, Mass., comes



ALLEN WOODLE.
Manager Western Union Telegraph Company,
Boston, Mass.

from the West, his native place being Monroe, Wis., where he was born February 12, 1868. When twenty years old, having acquired the ability to telegraph, he entered the employ of the Chicago, Milwaukee and St. Paul Railway at Brodhead, Wis. Subsequently, in Western Union employ at Kansas City, where he came under the immediate tutelage of G. W. Brownson, then chief operator, and now manager of that office, Mr. Woodle developed into an expert operator. After an itinerary that took him South and to Mexico, he finally came East and served the Western Union as an operator in Boston. This was in 1893. In 1899 he was promoted to be manager of the office at Newport, R. I., three years later being transferred to Portland, Me., in the same capacity. In 1905 he returned to Boston to accept the assistant superintendency of the American District Telegraph Company in that city, from which he was appointed to the

charge of the Boston office, following the death of William A. Rudd, his appointment as manager dating from September 26, 1906.

F. A. Coleman at the Hotel Manhattan.

Frederick Augustus Coleman, agent and manager for the Western Union Telegraph Company at the Hotel Manhattan, New York, has held representative positions of this character ever



FREDERICK A. COLEMAN.
Manager, Western Union Telegraph Company,
Hotel Manhattan, New York.

since he first became connected with the telegraph in 1873. His long experience in this branch of the service, in which he has made extensive acquaintance among prominent people, whose confidence and esteem he enjoys, during which time he has gathered a vast amount of information of peculiar value which is always at the disposal of the traveling public, especially fits him for the work in which he is engaged. He was born at Goshen, N. Y., March 7, 1855. Acquiring a knowledge of telegraphy, he became an operator, and on September 20, thirty-four years ago, was appointed general railroad ticket agent and manager for the Western Union Telegraph Company at the Westchester House on the Bowery. From thence in 1874 he was transferred to a similar position at the Cosmopolitan Hotel, at that time one of the most important offices of the kind in the city. Here he remained for six years, when, on September 18, 1880, he was again transferred, this time to the larger uptown Windsor Hotel, since burned. For sixteen years he filled this important post, going to the Hotel Manhattan on September 15, 1896.

George Crighton, Western Union Superintendent at London.

George Crighton, superintendent at London, England, of the Western Union Telegraph Company, is a type of the best class of English telegrapher, an expert operator, well informed, a student and endowed with executive capacity that is manifest in methods pursued and in re-

sults achieved. He is a native of Greenock, Scotland, where he was born March 25, 1858. He entered upon his telegraph career at Liverpool, about the middle of 1875, in connection with the Government owned and Post Office controlled service. In July, 1882, he entered the Western Union service at Liverpool as an operator. Four years later, in September, 1886, he was transferred in the same capacity to London. For twelve years he continued as an operator, but with an observant mind and fidelity to duty, he was acquiring knowledge and experience that was eventually to find recognition in merited advancement, for in April, 1898, he received his appointment as clerk in charge. So satisfactory was the character of the work here performed, that in June, 1902, he was elevated to the position of superintendent as first stated.

J. C. Robinson, Night Chief Operator at "195."

James C. Robinson is one of the oldest and best known of the operating staff of the Western Union Telegraph Company at its main office, 195 Broadway, New York, where he holds the position of night chief operator. He was born at Portsmouth, N. H., January 14, 1849, and entered the telegraph service at the near-by point of Saco, Me., October 7, 1864, as a messenger in the employ of the American Telegraph Company. He quickly learned how to telegraph, and after numerous changes became an operator in the Western Union office at Boston. This was in the spring of 1871. Subsequently he had assignments to Newport, R. I., and to Springfield, Mass. Returning to Boston he was assigned to the main press wire, nights. In September, 1879, he was appointed manager of the cable office at



JAMES C. ROBINSON.
Night Chief Operator, Western Union Telegraph Company,
New York.

Duxbury, Mass. Coming to New York in 1882 he was given a position as operator on the night force of the Western Union company. His abilities soon won him promotion and he has since acted in the capacity of chief in the various divisions at "195," discharging his duties in a manner befitting the requirements demanded of a first-class telegrapher.

Mr. Reid, Western Union Superintendent, Seattle.

Robert T. Reid, superintendent of the Western Union Telegraph Company at Seattle, Wash., is a native of Pennsylvania, his birthplace being at Brookville, the date July 21, 1861. It was in 1875 that he entered the telegraph service at Etna Green, Indiana, as an operator in the railroad service. This character of employment engaged his attention until 1880, when he became an operator, filling also the position of night chief operator of the Western Union Telegraph Company at Minneapolis. This he held until the following year, when he returned to the railroad employ, becoming chief train despatcher of the western division of the Canadian Pacific Railway, resigning after two years to become wire chief for the Northern Pacific Railway. For a while he served as a Western Union operator at Ogden, Utah, during 1883-1884, when he returned to Minneapolis to accept a position with The Associated Press. This he retained until 1886, when he became chief operator of the Western Union office in the Minnesota metropolis. His expertness as a telegrapher and his general all-around abilities came into prominence at this time,



ROBERT T. REID,
Superintendent Western Union Telegraph Company,
Seattle, Wash.

which led to his appointment in 1888 as manager of the Western Union Company at Tacoma, Wash. For five years he retained this post, from 1888 to 1903, following which he became assistant superintendent of the American District Telegraph Company and Western Union inspector of the Pacific division. From January 1, 1904, to September 1 of the same year he filled the position of Western Union manager at Seattle, Wash., on which latter date he received promotion to the superintendency of the company.

F. O. Nourse, Assistant Western Union Superintendent at Nashville.

Frederick Oliver Nourse, assistant superintendent of the Western Union Telegraph Company at Nashville, Tenn., where J. R. Terhune

is superintendent, is a man whose abilities gained him recognition when he was connected with the main office of the company in New York. He has made steady advancement in the service, the rewards which have come to him clearly being those conferred because of merit. Mr. Nourse is a New Englander, a native of New Hampshire in which state he was born at Littleton, October 3, 1859. It was at Wing Road, in the Granite State, in 1876, that the boy Nourse was first instructed in the mystery of the dots and dashes. In New York he rose to the position of general traffic chief. After a temporary retirement from the telegraph service, he returned to its employ in 1903, and was soon placed in



F. O. NOURSE,
Assistant Superintendent Western Union Telegraph Company,
Nashville, Tenn.

charge of the Western Union office at Macon, Ga., from which, about three years later, he was promoted to be general inspector of the southern division, making his headquarters at Atlanta. From this position in July, 1906, he was promoted to the post he now holds. Mr. Nourse has strength of character, possesses a pleasant personality, and has a broad, earnest and enduring grasp of the business in which he is successfully engaged.

"Old Farmer Lawton."

George E. Lawton, assistant manager of the Western Union Telegraph Company, at Denver, Colo., is popularly known as "Old Farmer Lawton," and as his humorous writings are so familiar to our readers, we reproduce his picture herewith together with what a Denver paper printed in relation to him:

"Thirty years with the Western Union in Colorado, the greater part of that time right here in Denver, does not leave much margin to tell about any wonderful achievements. I have a slight recollection during the Civil War, while waiting at the depot for trains that brought the daily papers to the little town of Plymouth, Ill., where I sold them, of picking up a few dots and dashes that

passed through an old-fashioned paper register. The night President Lincoln was assassinated I lost my head for the first, and I hope the last, time in my life. No sooner had Chicago informed Quincy of the greatest calamity that ever befell our Nation than I rushed for the public square, telling everyone I met, but nary a paper did I have to back it up. My opponent in the paper business (now a prominent clergyman), who didn't pry into the secrets of the telegraph, quietly waited for the paper train and, naturally, got all the cream from that night's sale, and practically ran me out of the business.

"After a few years' schooling came my first love affair. A small wire stretched across the street between our houses, carried many dear words from a very sweet girl, and I have always believed that my poor Morse in return had much to do in preventing me from being a married man at fifteen, as the girl's own papa cut the wire when he caught on to what was passing over that circuit.



GEORGE E. LAWTON,
Night Manager Western Union Telegraph Company,
Denver, Colo.

"Almost disgusted at ever being able to make anything out of Professor Morse's great invention, my next adventure was at railroading, and my first position was braking on the Burlington out of Galesburg, Ill. But my love for the telegraph cost me this job after a very few trips, as the following note to Superintendent Hitchcock, and which I still retain in my possession, plainly shows:

"H. H. H.: Please give me another brakeman. This fellow Lawton is physically and morally all right, but he has a bug about hanging around telegraph offices when he should be out on a boxcar. He also has an old telegraph key attached to the top of my caboose that seems to prevent him from gauging the speed of our train. He let us down the Quincy hill on our last trip with fifteen loads of cattle at a speed that caused some of the Texas steers to faint and Engineer Sadler's hair to turn gray.

(Signed) "SAMUEL RATHBURN,
"Conductor."

"The good, but stern, old superintendent bluntly informed me that I was fired. I acknowledged

my guilt, but asked him if he could not substitute some other word for 'fired.' This evidently amused him, as he immediately gave me a position as helper for one of the outside agents. With many thanks I accepted his kind offer of a jump from \$65 to \$30 a month, and in a few weeks the kind agent left me in charge, drawing his \$90 per month, while he took a long vacation. The very first train order I received was for the conductor who had been the means of having me fired. After patting me on the shoulder, he said:

"George, you are the coolest fellow I ever accepted a train order from. I do not feel nervous as I frequently do after watching some of the older agents copying them from the tape."

"Conductor Rathburn proved a good friend, and never missed an opportunity to recommend me for a higher position. But the sad sequel of our first meeting thirty-five years ago ended here in Denver a few years since, when poor Rathburn dropped dead on the street almost in front of our office, at which time he was the oldest passenger conductor on the Denver and Rio Grande, having drifted West a few years after I did.

"My experiences on the Atchison, Topeka and Santa Fe, when that company was struggling with the Indians for a right-of-way through the wilds of Kansas, I shall have to omit, as my duties in the superintendent's office at Topeka were so light in comparison to my salary my conscience bothers me even to this late day when I allow myself to think of it, but if old "Si" Prime was only alive, or if Charlie Dyer, late general superintendent of the Colorado and Southern, was not at present in Chicago, either might tell you all about it. Mr. Dyer was the operator on the front and came pretty nearly earning his salary in the mix-ups he and the graders had with the original owners of the soil.

"While, perhaps, not a practical farmer, it's a heap lot of comfort for a man my age to know that he owns a fairly good slice of Uncle Sam's domain, and I feel very grateful to the company that has given me an opportunity to obtain the same, and in my religious moments it is not always quite clear to me that I do not owe the Western Union something more than thanks and gratitude for these many years of employment."

W. W. Umsted, Western Union Manager at Omaha.

William W. Umsted is the manager of the Western Union Telegraph Company at Omaha, Neb., at which important point he has been in charge for nearly eighteen years. During this long period he has rendered efficient service, maintaining his office at a high standard and proving the excellence of his executive abilities. Mr. Umsted comes from Ohio, and was born at Tiffin, that state, February 12, 1857. When sixteen years of age he became a messenger in the service of the Western Union in his native place. A lad of quick perceptions he soon picked up an acquaintance with telegraphy and a year later,

in 1874, was placed temporarily in charge of the office at Green Springs, Ohio. In January, 1874, he entered the telegraph department of the Canada Southern Railroad in Michigan, soon after going with the Baltimore and Ohio at Chicago. In the fall of that year the Atlantic and Pacific Telegraph Company opened an office at Tiffin and young Umsted was called back to his home town and placed in charge. At this time W. C. Humstone, now retired and living in Brooklyn, N. Y., was the superintendent of this district and was located at Cleveland. Mr. Umsted having demonstrated his abilities as manager of a small office, was called to Cleveland on April 1, 1875, where just one year later he was appointed night manager of the office. Here he remained for some time, when he accepted the position of chief operator of the American Union Telegraph Company, one of the most important wire points in that company's system. Charles Selden, now superintendent of telegraph of the Baltimore and Ohio Railroad Company, at Baltimore, was manager of the office and superintendent of the dis-



W. W. UMSTED.
Manager Western Union Telegraph Company,
Omaha, Neb.

trict. This company passing under the control of the Western Union, Mr. Umsted received the appointment as manager of the Board of Trade telegraph offices in Toledo, afterward, in 1883, being transferred to Detroit in a similar capacity, having charge, also, of the commercial news department service at that point. This position he continued to occupy until July 1, 1890, when he received his appointment as manager at Omaha, and where he has since resided.

J. R. Terhune, Western Union Superintendent at Nashville.

John R. Terhune, superintendent of the Western Union Telegraph Company at Nashville, Tenn., has made an excellent record during his career in the telegraph service. He was born at Rome, Ga., in 1859, at which point he entered the Western Union employ, beginning as a messenger in August, 1874. He made rapid advancement

through the various grades, reaching that of chief operator at Chattanooga, Tenn., from which he



J. R. TERHUNE.
Superintendent Western Union Telegraph Company,
Nashville, Tenn.

was promoted to the managership of the Lexington, Ky., office, a post he held for eighteen years, when he was transferred to New Orleans. This was in 1900, and in this larger office with its greater responsibilities, he proved his entire fitness for the trust reposed in him. Late in 1902, Mr. Terhune was appointed assistant superintendent at Nashville, his elevation to the superintendency following on July 1, 1903. In going up the steps to higher positions of increased importance he has carried with him the confidence and best wishes of his official superiors.

D. V. Ferris, Western Union Chief Operator at Syracuse, N. Y.

Daniel V. Ferris, chief operator of the Western



DANIEL V. FERRIS.
Chief Operator, Western Union Telegraph Company,
Syracuse, N. Y.

Union Telegraph Company at Syracuse, N. Y., was born at Scott, N. Y., February 4, 1838. He

learned telegraphy at Friendship, N. Y., in 1857, in the employ of the Erie Railroad Company, subsequently entering the service of the New York Central Railroad Company at Syracuse. The Civil War breaking out he went to the front, and from December 25, 1861, to July 1, 1862, was a member of the United States Military Telegraph Corps, in which service he was actively employed in Northern Virginia. Injuries received near Manassas Junction, Va., compelled him to resign, following which he returned to Syracuse. After a brief connection with the Erie Railroad at Hornellsville, N. Y., on May 16, 1863, he entered the employ of the New York, Albany and Buffalo Telegraph Company at Syracuse. He was retained by the Western Union when that company absorbed the former in 1864, and in 1869 was promoted to be chief operator of the Syracuse office. This position he has since held. Mr. Ferris is an expert telegrapher, and his long experience and extensive acquaintance with the demands of the business in which he is engaged have made his services valuable.

F. H. Tubbs, Western Union Superintendent at Chicago.

Frederick Henry Tubbs, superintendent of the Western Union Telegraph Company, at Chi-



FREDERICK H. TUBBS.

Superintendent Western Union Telegraph Company,
Chicago.

ago, is a native of New York State, his place of birth being Glens Falls, January 3, 1834. He went to Milan, Ohio, ten years later, and there later, under the teaching of J. H. Wade, who afterward amassed great wealth and became president of the Western Union Telegraph Company, young Tubbs found employment as an operator for the Erie and Michigan Telegraph Company, on speed lines. Mr. Tubbs was engaged in opening offices and teaching operators on the Wade highway line from Cincinnati to

St. Louis, for two years, then as an operator in the speed office at Cleveland, until he went to Chicago as chief operator on the Caton line. He left that position to accept the superintendency of telegraph of the Chicago, Burlington and Quincy Railroad, a position he held for many years, when he was made assistant superintendent of the road. Later he accepted the superintendency of the American Union Telegraph Company, at Chicago, following which he became superintendent of the Western Union Telegraph Company, at that point, where he now is.

W. J. Lloyd, Assistant Superintendent, Western Union Telegraph Company, Chicago.

William J. Lloyd, the assistant superintendent, first district of western division, Western Union



WILLIAM J. LLOYD.

Assistant Superintendent Western Union Telegraph Company,
Chicago.

Telegraph Company, Chicago, Ill., was born June 21, 1853, at Buffalo, N. Y. He entered the telegraph business as messenger for the Illinois and Mississippi Telegraph Company, at Dubuque, Iowa, at the age of twelve.

Two or three years later he worked as an operator in the trainmaster's office of the Illinois Central Railroad, at Dubuque, and in July, 1869, he became relief operator of this road west of that point. Subsequently he was employed as operator by the Pacific and Atlantic Telegraph Company at Dubuque, and the North Western Telegraph Company under Superintendent Haskins, at Milwaukee. From the latter office he was transferred to McGregor, Iowa, as manager of the joint office of the Western Union and North Western telegraph companies.

His service with the Western Union Telegraph Company at Chicago dates from 1877, when he began as a night operator in the main office. He worked about one year at the key and has since filled the following positions: Night division chief,

two years; night wire chief, three years; night chief operator, two years; manager of Board of Trade office, three years; chief operator of Chicago main office, three years; when, in 1889, he was promoted to his present position.

Mr. Lloyd is one of the most widely known and popular telegraphers of to-day, having always been in positions which have brought him in close contact with the fraternity, and he is universally esteemed alike both by his superiors and subordinates.

His experience and ability have not been confined to Chicago alone, but the arranging for and handling of the immense business at national political conventions, or, in fact, any other special emergency west of the Alleghany Mountains, is generally placed in his hands, always to the satisfaction of the patrons and officers of the company.

Mr. Saylor, Western Union Superintendent, Pittsburg.

Elgin B. Saylor, Western Union superintendent at Pittsburg, Pa., is a representative type of the best element in the telegraph service. His loyalty to duty, his tact, his zeal, his abilities as a telegrapher are recognized. He is a Canadian, coming from Bloomfield, Ont., where he was born June 11, 1859. His entry into the telegraph service was at Ingersoll, Ont., in 1874, in the employ of the Dominion Telegraph Company. He subsequently had service with the Grand Trunk Railway Company, and the Atlantic and Pacific Telegraph Company, with the latter at Portland, Me. When that company was merged, a year later,



ELGIN B. SAYLOR.
Superintendent Western Union Telegraph Company,
Pittsburg, Pa.

with the Western Union his services were retained, in which employ he has since continued. In 1881 he was transferred to the operating department of the Philadelphia office, where, dating from 1884, he was promoted successively to be night chief, wire chief and traffic chief, succeeding in 1887 to the position of chief operator. This place he continued to hold through a series of years, until the spring of 1901, when he was

transferred to the office of the general superintendent in the main office at New York, from whence he went to Pittsburg to accept the appointment of superintendent. Mr. Saylor, who is conceded to be one of the finest operators in the United States, and an accomplished electrician, has made a favorable individual impression in his present position. He is a brother of A. G. Saylor, assistant general superintendent at New York.

J. F. Wallick, Superintendent, Western Union Telegraph Company, Indianapolis.

John Fahnstock Wallick, superintendent of the Western Union Telegraph Company, at Indianapo-



JOHN F. WALLICK.
Superintendent Western Union Telegraph Company,
Indianapolis, Ind.

lis, Ind., is the dean of that body of men in the company's employ, for his appointment to the office he still holds dates back to January 1, 1864. He was born in Tuscarora Valley, Juniata County, Pa., March 20, 1830.

He entered the telegraph service at Wooster, Ohio, in 1850, with Gen. Thomas T. Eckert. Mr. Wallick was appointed manager of the Cincinnati and St. Louis Telegraph Company at Indianapolis, Ind., in July, 1852.

After the consolidation of offices of the Cincinnati and St. Louis with the Ohio, Indiana and Illinois telegraph companies at Indianapolis, in May, 1853, he was employed as operator in the consolidated office, under the management of J. W. Chapin. He succeeded Mr. Chapin as manager in September, 1853, and continued as manager until its absorption by the Western Union Telegraph Company in October, 1856, when he was appointed manager of the latter company. Mr. Wallick was appointed superintendent of sixth district, central division (now western), of the Western Union Telegraph Company, January 1, 1864. He has been in continuous service with the companies named from July 26, 1852, to the present time.

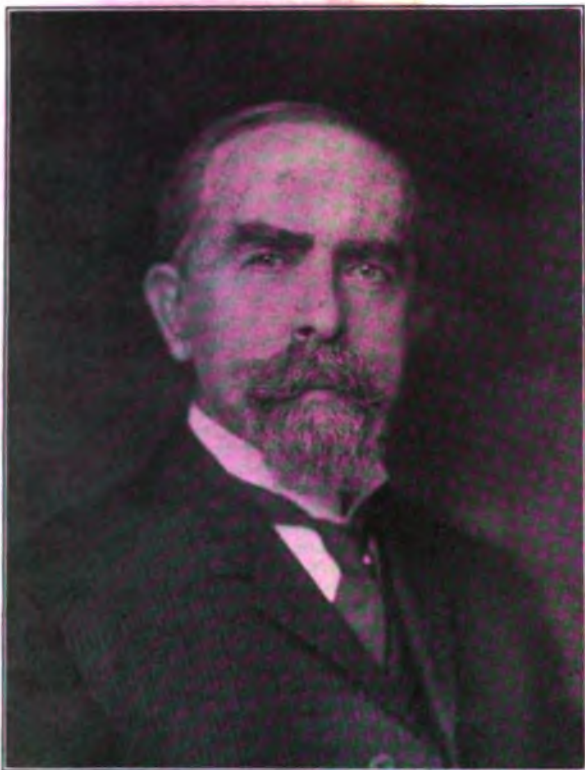
The Edison telephone exchanges at Indianapolis, Evansville, La Fayette and Richmond were constructed for the Western Union Telegraph Company under the supervision of Mr. Wallick, and

he is now, and has been since its organization, a director in the Central Union Telephone Company.

Mr. Wallick is a veritable storage house of Western telegraph history, his long and intimate connection with the service putting him in possession of much valuable and interesting information.

**Richard O'Brien, Assistant Superintendent,
Western Union Telegraph Company,
Scranton, Pa.**

Richard O'Brien, assistant superintendent of the Western Union Telegraph Company, at Scranton, Pa., was born in Ireland, December 30, 1841. He began his telegraph career on the Pennsylvania Railroad in 1856, at Downingtown, Pa., subsequently serving in many of the important offices of the Pennsylvania Railroad, including Altoona, under Thomas A. Scott, Andrew Carnegie and Robert Pitcairn. At that time Tom Carnegie,



RICHARD O'BRIEN.

Assistant Superintendent, Western Union Telegraph Company,
Scranton, Pa.

John Pitcairn and Richard O'Brien composed the entire operating force at Altoona. Mr. O'Brien afterward served as operator and assistant agent at Greensburg, Pa.

The outbreak of the Civil War found him division operator of the middle division of the Pennsylvania road, at Harrisburg, Pa.

On April 22, 1861, Mr. O'Brien, with David Homer Bates, David Strouse and Samuel Brown, were called to Washington in compliance with a telegram of that date signed Andrew Carnegie, who had just been appointed assistant general manager, United States military telegraphs.

Arriving in Washington on April 25, 1861, Mr.

O'Brien was first assigned to duty at the Baltimore and Ohio Railroad depot, assisting Andrew Carnegie in rushing troop trains into Washington until there were soldiers enough there to safeguard the capital. On August 4, 1861, he was appointed chief operator, headquarters Department of Virginia, at Fortress Monroe; on May 1, 1864, chief operator Army of the James, and on February 2, 1865, he was sent as chief operator to the Department of North Carolina to prepare and manage the military lines in the final campaign when Sherman swept up from the South.

For his efficient and patriotic services, Mr. O'Brien received the thanks of General Eckert, the head of the military telegraphs, and of the generals in the field.

At the close of the war, General Eckert appointed Mr. O'Brien superintendent of lines on Long Island. He was later made superintendent of telegraph of the Morris and Essex Railroad, and for many years has been assistant superintendent for the Western Union Telegraph Company at Scranton, Pa.

He was the pioneer of the Bell telephone in Northeastern Pennsylvania, and one of the founders of the Peoples National Bank of Scranton.

Mr. O'Brien has always won the respect and confidence of all who have been associated with him by his untiring devotion to duty, by his polish of manner and unswerving devotion to truth and honor. In all of these qualities and in his extraordinary capacity for work, he has been a worthy member of the remarkable coterie of brainy men who made the United States military telegraph and have since so largely contributed to the wonderful advance of the telegraph, the telephone, and other enterprises of this country.

**L. J. Maxwell, Western Union Superintendent
at Richmond.**

Lewis J. Maxwell, superintendent of the first district, southern division, of the Western Union



L. J. MAXWELL.

Superintendent Western Union Telegraph Company,
Richmond, Va.

Telegraph Company, Richmond, Va., was born at Griffin, Ga., May 27, 1865. Like many another

who has attained high position in the telegraph service, he has climbed the ladder of promotion from the lowest round. His entry into telegraph employ was in his native town in August, 1878, in the capacity of messenger. He soon became able to telegraph and was appointed an operator. He made his business a study and the work performed by him was well done. Promotion followed and he was appointed a chief operator. In this position his executive abilities became manifest, and it was natural that he should be made a manager. From this office he was still further advanced to the post of assistant superintendent, succeeding to that of superintendent about three years ago. Mr. Maxwell is giving an efficient administration.

Charles R. Tilghman, General Inspector.

Charles R. Tilghman, a general inspector attached to the office of Assistant General Manager J. C. Barclay, of the Western Union Telegraph Company, New York, is a native of Cincinnati, O., his



C. R. TILGHMAN.
General Inspector, Western Union Telegraph Company,
New York.

present home, where he was born September 9, 1855. His advent into the telegraph service was in his home city in August, 1869, where he began as a messenger. Graduating into the operating ranks, he afterward became an inspector of the Gold and Stock Telegraph Company, later managing the Edison telephone exchange for the Western Union Telegraph Company. Subsequently he became manager of the time service, electrician for the seventh district, finally serving as acting assistant superintendent. He has filled his present position for several years.

M. W. Hamblin, City Superintendent, Western Union Telegraph Company, New York

M. W. Hamblin, city superintendent of the main office of the Western Union Telegraph Company, New York, came to the metropolis from the West. He was born at Galesburg, Ill., February 23, 1860, was educated in the public schools of his native place and there studied telegraphy in a commercial school. In 1876, at Abingdon, Ill.,

he further pursued the study of telegraphy combined with railroading, under F. O. Davis, the agent at that point, acting as helper, delivering messages, riding eighteen miles a day, for which, he says, he paid railroad fare for the privilege. In November, 1877, he was appointed night operator and ticket clerk for the Chicago, Burlington and Quincy Railroad at Monmouth, Ill., and in 1880 was transferred and given the position as manager of the Western Union main office in that city. Here his fine executive abilities were established and his reputation as a successful manager secured for him numerous other places of like character in the Western Union service. These in sequential order were: Janesville, Wis., from June, 1883, to March, 1886; Bloomington, Ill., to October, 1889; Davenport, Iowa, to February, 1899. At the latter date he was transferred to the larger office at Milwaukee, Wis., where his record made such a favorable impression as to lead to

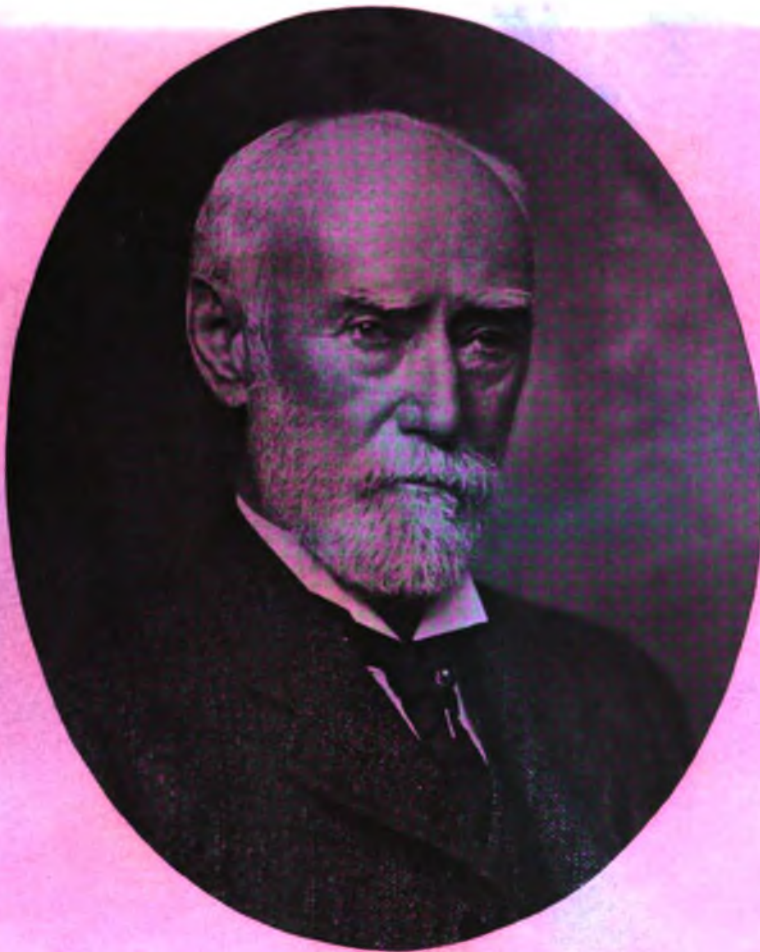


M. W. HAMBLIN.
City Superintendent, Western Union Telegraph Company,
New York.

his appointment as manager at New York in 1902, the title to which office was changed in October, 1906, to that of city superintendent.

Combination of Telegraph and Mail Service in Cuba.

A. Campbell Turner, charge d'affaires of the American legation at Havana, forwards copies of three decrees of the provisional governor of Cuba, establishing state telegraph offices, to be connected with the post offices in the following places in Pinar del Rio province: Orozco, Quiebra Hacha and Cabanas. In these offices the postmaster is to be required to pass an examination as telegrapher and is to fill both posts. It is proposed in the future, in all the smaller towns in the interior of the island where the work of the post office will so permit, to combine the offices of postmaster and telegrapher and to make applicants for these positions pass an examination in telegraphy before receiving their appointment.



HARVEY P. DWIGHT.

President of the Great North Western Telegraph Company, Toronto, Ont.



ISAAC McMICHAEL.

**Vice-President and General Manager of the Great North Western Telegraph Company,
Toronto, Ont.**

The Great North Western Telegraph Company.

The story of telegraphic extension is always an interesting one, for it marks the advance of civilization, presaging development and growth, promoting enterprise and territorial expansion in its actualities, holding people and nations in closer union, stimulating patriotic desire and impulse. This has been its history in all countries, but more especially on the North American continent, where in the exercise of its greatest prerogatives the telegraph has reached its highest

Company, it would manifestly be incomplete in its telling if something of the early account of the telegraph in Canada, with which the evolution of the latter company is closely involved, was not reverted to, at least in brief outline. For this great system is a direct outgrowth of what had gone before and was formed by the merging of important rival interests into a more compact, extended and effective whole, thereby smoothing out rivalries and carrying forward in a single united organization, since recognized as of the



GENERAL OFFICES.
Great North Western Telegraph Company.
Toronto, Ont.

fruition. The narrative of the introduction of the telegraph and of its subsequent extension in the vast territory of the Canadian Dominion at the North, is one of commanding importance. Its recital appeals with peculiar force to individuals in the telegraph service on each side of the border because of the community of interests, of the frequent interchange witnessed in personnel between the respective systems, each country apparently viewing its importations from the other as embodying as a rule the "better element."

While this article is designed more especially as a chapter in telegraph history having reference to the Great North Western Telegraph

first class, giving to Canada and to this continent a system of telegraph wide in extent, reaching from the Atlantic ocean at the East to points in the Far West, with affiliations enabling it to communicate with all points in America and the world, and conducted under a management at once strong, alert and progressive.

Looking backward to the first advent of the telegraph in Canada involves a retrospect of more than sixty years. Closely following the construction of the first line of telegraph in the United States, which was accomplished in the spring of 1844, and which the delayed action of a reluctant Congress had then made possible, the utility of

this new form of transmitting intelligence by means of the electric current over a wire, gained commercial recognition in Canada.

The first line to be built was that of the Toronto, Hamilton, Niagara and St. Catherines Electro Magnetic Telegraph Company, a long name for a comparatively short line. This was in 1846. The company was capitalized at \$16,000. Samuel Porter was the constructor and superintendent of the line, and it was said to have been well built, its single wire being amply sufficient to accommodate the limited number of messages handled. Connection was made between Canada and the United States by a wire suspended across the Niagara River between Queenston and Lewiston on the New York side, from which latter point Buffalo was reached and communication established with the then inconsiderable American systems, consisting mainly at that point of connection with the new line of the New York, Albany and Buffalo Telegraph Company. While commercialism dictated the building of the first line of Canadian telegraph to afford closer connection between the two countries, it was also a fitting tribute to the sentiment involved that the route should find an outlet in the country that gave to the world the great invention of the magnetic telegraph.

The following year of 1847, however, witnessed a further purpose to extend telegraph building in Canada, and the Montreal Telegraph Company, from its very inception destined to play so important a part in the Canadian telegraph field, was organized with a capital of \$60,000 and Andrew Shaw as its first president. The line was projected to traverse the most populous portion of Canada and extraordinary vigor was manifest in pushing its construction, for beginning about the middle of the year, before its close a single line of No. 9 galvanized iron wire had been erected between Toronto, Montreal and Quebec, following close to the north shore of Lake Ontario and the River St. Lawrence. This labor of construction, while performed by American contractors, who had previously executed similar work in the United States, was done under the supervision of Orrin S. Wood, a young American of energy and capacity, a native of the State of New York, who in the previous spring had been made superintendent of the company and in whom the general management speedily became invested. He was one of the few men who at that time had any practical knowledge respecting the art of telegraphy itself and of telegraph line building. He had been associated with Professor Morse, the inventor of the telegraph, as an operator at Washington, on the first line ever built, and had afterward been extensively engaged in the erection of telegraph lines, among the first in the United States. It is interesting to note in this connection that Mr. Wood is still living in New York at the advanced age of ninety years, the oldest living telegrapher in the world. He remained with the Montreal Telegraph Company, an important and influential factor in di-

recting its affairs for eighteen years. Shortly after Mr. Wood became identified with the company, H. P. Dwight entered the service, and later James Dakers.

At the close of 1847 it is recorded that the Montreal Telegraph Company worked five hundred and forty miles of wire, had nine offices, employed thirty-five persons and had sent 33,000 messages during the half-year of its existence. It is said that the first message sent from Montreal over the wires of the new company was one addressed to J. H. Daly, at that time a keeper of an hotel at Kingston, Ont. The scant earnings of the telegraph at that early period of its history are shown by the total amount received daily in tolls over the entire line. Thus for August, 1847, the average was \$35; September, \$45; October, \$80; November, \$90, while for December the amount dropped to but \$65, a contraction due possibly to the advent of winter and of cold weather.

Toronto has always divided the honors with Montreal as to being a center of telegraphic importance. How narrow the measure of its activity in 1849 as compared with its present day energies, may be judged when it is stated that the services of but a single operator at that time were all that was required to handle the entire telegraph traffic at that point, both of the Montreal Telegraph Company leading eastward, and of the line to Buffalo which prior to that date had been acquired by the larger corporation, an illustration of the survival of the fittest thus early inaugurated, and which has since been so abundantly witnessed in telegraph development. This solitary operator was Harvey P. Dwight, then a young man of twenty-one years of age, now the venerable president of the Great North Western Telegraph Company, whose picture adorns one of the pages of this sketch. Mr. Dwight says that during the entire year, 1849, he personally handled every message sent and received at the Toronto office, copying with his own hand every message which came to that city, reading carefully every message twice to make sure that the copying had been done correctly. It may be assumed that but few press specials came over the wires at that period, and that financial interests, as shown in broker messages, placed no tax upon the resources of the telegraph companies.

By 1851, fourteen offices had been established on the route of the Montreal Telegraph Company between Toronto and Quebec, and among the operators stationed at some of these places, names that will be readily recognized in subsequent connection with the telegraph service, were the following: George W. Purkis, at Quebec; William Smith and George Smith, at Montreal; Charles K. Ogden, at Three Rivers; G. H. Hickey, at Cornwall; Isaac D. Purkis, at Prescott; H. P. Morehouse, at Kingston, and H. P. Dwight, as already stated, at Toronto. The other offices were Brockville, Belleville, Cobourg, Port Hope, Bowmanville, Whitby and Oshawa, where Dr. Irvin was in charge.



EDWIN POPE.
Superintendent Great North Western Telegraph Company, Quebec, Que.



R. F. EASSON.
Superintendent Commercial News and Press Department, Great North Western Telegraph Company, Toronto, Ont.



SIDNEY B. McMICHAEL.
General Assistant Great North Western Telegraph Company, Toronto, Ont.



J. G. DAVIES.
Manager Great North Western Telegraph Company, Ottawa, Ont.



THOMAS E. DUDLEY.
Manager Great North Western Telegraph Company, St. Catharines, Ont.



W. C. FURNESS.
Manager Great North Western Telegraph Company, London, Ont.



P. F. CANNIFF.
Manager Great North Western Telegraph Company, Belleville, Ont.



J. BEAUCHAMP.
Inspector Great North Western Telegraph Company, Quebec, Que.



JOHN JAMIESON.
Manager Great North Western Telegraph Company, Hamilton, Ont.

The provincial character of the business and of the methods pursued in telegraph practice at that time is shown in the fact that sometimes when important reports were received by wire at the Toronto office, editors of papers would attend at the telegraph office in person and copy all such messages as Mr. Dwight would read them off.

In this same year of 1851, Sir Hugh Allan, from the first identified with the Montreal Telegraph Company, became its president, a position he retained for many years. He displayed great activity in this position and was prominent not only in the telegraph but in railroad building and in ocean steamship enterprises, eventually amassing a vast fortune from his undertakings. The Allan line of ocean steamers derived its name from Sir Hugh. He became interested in the first Atlantic cable, and for many years was a director in the Western Union Telegraph Company. In Sir Hugh Allan Mr. Wood found a worthy coadjutor, and together they projected and carried out many important extensions to the telegraph line.

Naturally the extension of the telegraph in those early days was comparatively slow, beset by many difficulties, hampered by the reluctance of capital to embark in an enterprise that even then failed to arouse enthusiasm and confidence to the point necessary to freely enlist money backing. Then, again, there were but few who were really competent to lead in enterprises of this character, to convincingly demonstrate the vast potentialities for success and gain that lay within the power and scope of the telegraph. It should be remembered, too, that the country was young and sparse of population; that there were but two or three large towns; that industries were not so many or varied as in later years inviting and making imperative the use of the telegraph; that business was conducted along narrower and more conservative lines and did not readily adjust itself to the novel methods afforded and held out for adoption by the telegraph for quick transmission of information, now regarded as a *sine qua non* by the commercial world; and, also, that capital, at best but modest in amount, was lodged in the hands of but a few. Nevertheless steady progress was made in telegraph construction, its area was constantly enlarged, slowly at first, then by leaps and bounds as stronger companies succeeded weaker ones and merging interests contributed to establish power and guarantee security.

Contemporary with the initial building of the Montreal Telegraph Company, a company known as The British North American Electric Association, in which Frederick Gisborne was interested, began the erection of a telegraph line designed to connect Quebec with the Atlantic Coast at New Brunswick and Nova Scotian points. It had a checkered, unproductive career, with original plans only partially carried out, and after a few years of feeble effort passed into the control of the Montreal company.

In 1849 the Montreal and Troy Telegraph Company was organized under the presidency of H. H. Whitney, of Montreal, and a line was built from that city to the Canadian frontier, thence reaching Troy, N. Y., by what was known as the Troy and Canada Junction Telegraph Company. These lines were constructed by Ezra Cornell, the founder of Cornell University, and Alonzo B. Cornell, father and son, the latter afterward becoming Governor of the State of New York. Norman W. Bethune was placed in charge of the office at Montreal, subsequently becoming manager at Troy. He is still, at the age of seventy-nine years, in telegraph employ at Ottawa, Ont. This line was absorbed by the Montreal company which likewise took over the lines of the Vermont and Boston Telegraph Company, from Rouse's Point to Montreal and Ogdensburg, N. Y., thus acquiring valuable southern connections into the United States and stations within its territory, ever since retained.

At this time there were no bridges over the St. Lawrence River, nor were there any submarine telegraph cables. The telegraph wires were carried across the water, being strung from high masts. To maintain these crossings was an expensive and hazardous operation, for frequently gales of wind and storms of sleet brought down the wires.

Up to 1853 there were but three sets of instruments in the Montreal office—one for Toronto, one for Quebec and one for Troy. William Smith worked the Toronto circuit, and George Smith that to Quebec.

Another short line of telegraph, poorly constructed and that never paid, extending from Montreal to "Bytown," now Ottawa, the Dominion capital city, soon also came under control of the Montreal company. In 1852 the Grand Trunk Telegraph Company was built from Buffalo to Montreal, under the guise of being a great public benefaction, and gave promise of a lively competition with the Montreal company, but after a few years this, too, passed under the control of the latter. Practically over the same ground the Provincial Telegraph Company was constructed, designed to be operated as a branch of the United States Telegraph Company. This was a longer-lived experiment than its predecessor, for it was as late as 1866, when because the United States company was taken over by the Western Union Telegraph Company, the Provincial company sold out to the Montreal. Thus it will be seen that the Montreal Telegraph Company had demonstrated a power and strength in overcoming opposition and gathering in to itself other and rival lines. Yet it must be admitted that in all cases opposition had been weak, life and vitality at low ebb and all interests were better served by means of a single operating corporation. The Montreal company was financially strong, its lines covered the best portion of Canada, and it rendered good service.

In 1865, when Mr. Wood resigned from his

long connection with the Montreal company, Mr. Dwight was advanced to the position of general western superintendent, with headquarters at Toronto, and James Dakers became general eastern superintendent, stationed at Montreal.

The growth of the Montreal Telegraph Company developed rapidly and by 1870 this system operated about 20,000 miles of wire, which by 1880, such was its extension during the decade, that it had probably advanced to 30,000. Lines were built to connect interior towns; to reach the harbors on the lakes; were pushed into the Northwestern peninsula of Ontario; into the lumbering districts of Ottawa, and down through the eastern townships of Quebec. New York State had been invaded, and a network of lines established which serves that territory at the present day. Mr. Dwight, in his capacity of western superintendent of the company, was indefatigable in his efforts to extend and promote the interests of his company. His practical and energetic methods, coupled with excellent business acumen, enabled him to accomplish much. The company expanded into one of very large proportions; its lines united the Atlantic coast with points in the Far West. It was the dominant company of the Dominion. For thirty-four years it maintained its supremacy.

The affairs of the company had been exceptionally well managed, and in June, 1871, when free from all indebtedness and with large, substantial and well-appointed central offices erected, the adoption of a uniform tariff of twenty-five cents for ten words and one cent for each added word, throughout its entire territory, went into effect. The only exception to this charge was its limitation to fifteen cents on all messages to places within fifteen miles of any given office. By 1881 the capital of the company had increased to \$2,000,000, the number of offices to 1,680, and the staff of employees to nearly 2,500. At this time Sir Hugh Allan continued still to hold the office of president; James Dakers occupied the dual position of secretary and general eastern superintendent; H. P. Dwight, as already stated, was the general western superintendent, the district superintendents being N. W. Bethune at Ottawa; Edwin Pope at Quebec, and D. Van Nostrand at Watertown, N. Y.

Railroad building had given an immense impetus to telegraph extension, for wherever the rails were laid telegraph construction naturally followed. The field for the exploitation of telegraph enterprise was looked upon as a tempting one, and, in view of this fact, it was not surprising that determined opposition should arise to Montreal Telegraph Company interests. In 1868 the Dominion Telegraph Company was organized, but on a basis that only invited disaster. In January, 1870, however, a permanent organization, or perhaps more properly speaking, a reorganization, was effected at a meeting held at Toronto, and public favor in behalf of the enterprise was sought by electing such men to its management as Hon. J. McMurrick, of Toronto,

president; J. I. McKenzie, of Hamilton, vice-president; James Michie, of Toronto, treasurer, and H. John Colles, secretary. Because of irregularities prior to the 1870 organization, a special act of incorporation was passed by the Dominion Parliament in order to legalize the standing of the corporation. The company was controlled by energetic men and from the first proved to be the most formidable competitor the Montreal company ever had encountered. The new concern proceeded to establish a system of wires to principal places in Ontario and Quebec. By 1878, with a capital of \$700,000, it had extended its lines to the Maritime Provinces, and at the close of that year claimed to have 492 offices and over 8,000 miles of wire. By its means Detroit, Buffalo and Oswego were brought in close connection with Quebec. This was creditable to the enterprise and push of those directing its affairs. At this time Hon. T. N. Gibbs, of Oshawa, had succeeded to the presidency of the company, Thomas Swinyard was general manager, and Fred Roper, secretary, the main office being at Toronto. The divisional superintendents were H. Neilson and T. C. Elwood, Toronto; C. R. Hosmer, at Montreal, and D. B. McQuarrie, Halifax.

In an evil hour the management of the Dominion company decided, as a bid for popularity and business, to reduce its rates from twenty-five to twenty cents per average message. Its downfall dated from that time. Of course the Montreal Telegraph Company, in order to hold its business, was obliged to follow suit, the result being that in the war of rate competition that followed, business being accepted below a proper, safe and profitable working margin, both companies became seriously crippled. The weaker company was the first to succumb, for this condition of affairs so wrecked its finances as to cause in 1880 a lease of the wires of the Dominion company to be executed to the Western Union Telegraph Company, under a guarantee of five per cent. to be paid to shareholders. This transfer of interests did not, however, stop a competition which the Montreal Telegraph Company was still forced to meet, and which now was pressed harder than ever in a manifestly unequal fight so far as power and money resources was concerned.

At this critical juncture, in 1881, Erastus Wiman, who afterward lived in New York, where he gained business and social prominence, and where he died, appeared upon the scene, and through his instrumentality exerted as a pacificator of warring interests, and by the exercise of that executive ability that afterward brought him power and recognition, succeeded in forming a new company, organized to take over the two rival corporations. This was the Great North Western Telegraph Company which became through lease, covering a period of ninety-nine years, the operating company, under the guarantee of the Western Union Telegraph Company.

of both the Montreal Telegraph Company and of the Dominion Telegraph Company. The provisions of this lease included the payment of eight per cent. on the stock of the Montreal Telegraph Company and of six per cent. on that of the Dominion Telegraph Company. Virtually by this adroit maneuvering the new organization became a part of the system of the Western Union Telegraph Company, with which it has since been operated with a harmony of interest.

Thus, with the closing of the old regime, came into existence the powerful telegraph company which has in the eventful twenty-six years following this consolidation, impressed itself so forcibly in telegraphic annals in British North America.

The new Great North Western Telegraph Company started out upon its career under the general management of Harvey P. Dwight, whose intimate association with this telegraphic enterprise from its very start eminently fitted him for this position. Mr. Dwight was alert to the every need of the undertaking, and the company, freed from needless and ruinous competition, entered upon an era of prosperity. This was further and especially manifest after Mr. Dwight was elevated to the presidency in 1893. Firm in financial standing, established in public good will, secure in its environment and ability to furnish a first-class telegraph service, the company greatly extended its lines, maintaining its equipment fully abreast of all ideas of modern requirements.

Mr. Dwight had given a long life to the service of which he was now the head. Advancing years at length admonished him that the time had arrived when he should relinquish some of the burdens of office and transfer a share of the responsibilities of management to other hands. Hence it was that on November 1, 1903, Mr. Isaac McMichael was appointed to the office of vice-president and general manager of the system, resigning as superintendent of the Western Union Telegraph Company at Minneapolis, Minn., to accept the position, Mr. Dwight retaining the presidency of the company. Under the able administration of Mr. McMichael, who has abundantly demonstrated his managerial abilities, thus testifying to the excellence of the school in which he received his telegraph training, it is to be particularly noted that during the four years since he took hold considerable improvement has been made in the plant of the company by the erection of a number of first-class wires to meet the requirements of the service, especially for cable business to Halifax, St. John and North Sydney. Other new wires have been erected between Toronto and Montreal, Toronto and Detroit, etc. These improvements have fully kept pace with the generally improved business conditions throughout Canada, which, during the last two years, has experienced a condition of prosperity heretofore unknown in its history.

The lines operated by the Great North Western Telegraph Company practically cover all of the Province of Ontario east of Lake Huron and

the St. Clair and Detroit rivers, all of the Province of Quebec, and a very considerable portion of the Province of New Brunswick. They also extend eastward to Portland, Maine, over the Grand Trunk Railway; also over all that portion of the State of New York north of Whitehall and Oswego, including all of the Adirondack Mountain section, besides extending from the international boundary to Winnipeg, Portage la Prairie and Brandon, in the Province of Manitoba. The company operates about 14,000 miles of poles and about 50,000 miles of wire. A considerable portion of these lines are on highways extending to interior points which have not yet been reached by railroads. The company maintains about 1,650 offices, of which about 200 are in the United States. Of these those located at Toronto, Montreal, Quebec, Ottawa, Winnipeg, Hamilton and London, in Canada, and Ogdensburg, Watertown and Plattsburg, in New York, are the principal ones. At the four first named points the company owns its office buildings, the Toronto headquarters and the structure at Montreal affording examples of architectural merit and of adaption to the needs of the telegraph, embracing in both instances fine, large, well-lighted operating rooms furnished with an extensive equipment strictly modern in respect to every detail. In fact, the excellence of apparatus, of appointments and of maintenance is observable everywhere throughout the entire system, one of the best evidences of capable, careful and intelligent management.

Quadruplex and duplex circuits are operated as follows: Toronto to Montreal, Ottawa, Buffalo, New York, Detroit and Chicago. Montreal to Ottawa, Quebec, Halifax, St. John, North Sydney, New York and Boston. Winnipeg to St. Paul, Minneapolis and Chicago.

The general offices of the company are located at Toronto, Ont. The principal officials are as follows:

H. P. Dwight, president; I. McMichael, vice-president and general manager; Geo. D. Perry, secretary-treasurer and superintendent of supplies; A. C. McConnell, auditor; S. B. McMichael, general assistant; W. J. Duckworth, superintendent of construction; James Ianson, general foreman, and D. E. Henry, chief clerk, general manager's office.

Edwin Pope is the district superintendent, stationed at Quebec, and A. R. Porte holds a like position at Ogdensburg, N. Y.

The inspectors are: C. W. Dawzy and C. E. Lillie, at Toronto, Ont., and J. Beauchamp, at Quebec. The principal offices of the company are efficiently managed by the following staff of local officials: Toronto, G. Hogarth, manager, and C. E. McManus, chief operator; Montreal, L. S. Humes, manager, and G. Salloway, chief operator; Quebec, E. Pope, manager, and J. Barclay, chief operator; Ottawa, J. G. Davies, manager, and C. E. Davies, chief operator; Winnipeg, S. Hutchinson, manager; Hamilton, J. Jamieson, manager; London, W. C. Furness, manager;

Ogdensburg, A. R. Porte, who is the superintendent at that point, is also the manager; Watertown, C. E. Comstock, manager, and Plattsburg, W. A. Crooks, manager.

Harvey P. Dwight, President Great North Western Telegraph Company.

Harvey Prentice Dwight, president of the Great North Western Telegraph Company, Toronto, Ont., has often been referred to in these columns, for he holds an honored place in the annals of Canadian telegraphy, and in the affection and esteem of a wide circle of friends, both in and out of the telegraph. He was born at Belleville, Jefferson County, N. Y., December 23, 1827, so that it will be observed that he has just passed his eightieth birthday. Mr. Dwight has been in telegraph harness all his life, starting in it when the business was young, on August 27, 1847, over sixty years ago, as an operator for the Montreal Telegraph Company at Montreal, Que. His advance has been from the lowest to the highest position in the gift of the telegraph. During all these years he has devoted his fine intellectual and business abilities to the promotion of the vast interests in which he has been associated. In the sketch of the Great North Western Telegraph Company preceding, frequent reference will be found to Mr. Dwight and the conspicuous part he played in the telegraphic upbuilding in his adopted country. From operator to manager of the Toronto office, and to the position of western superintendent, in which under his supervision the company made rapid extension of its lines, is in brief the record of his connection with the old Montreal Telegraph Company's system; his association with the present company, down to this time, including its general management from 1881, the date of the merger, and his subsequent elevation to the presidency, retiring from the former position only, in 1903, in favor of Mr. McMichael, constitutes the unbroken yet second epoch of his telegraphic career. Mr. Dwight's life work has been ably performed. In his old age he has earned a season of repose. Everywhere the kindly interest shown, the love and respect expressed, voice the judgment, "Well done, thou good and faithful servant." Few there are when nearing the close of a long and active career in which great results have been accomplished by the exercise of those forceful qualities that alone can insure success, who may look out with serenity upon the world and receive loving homage.

Isaac McMichael, Vice-President and General Manager, Great North Western Telegraph Company.

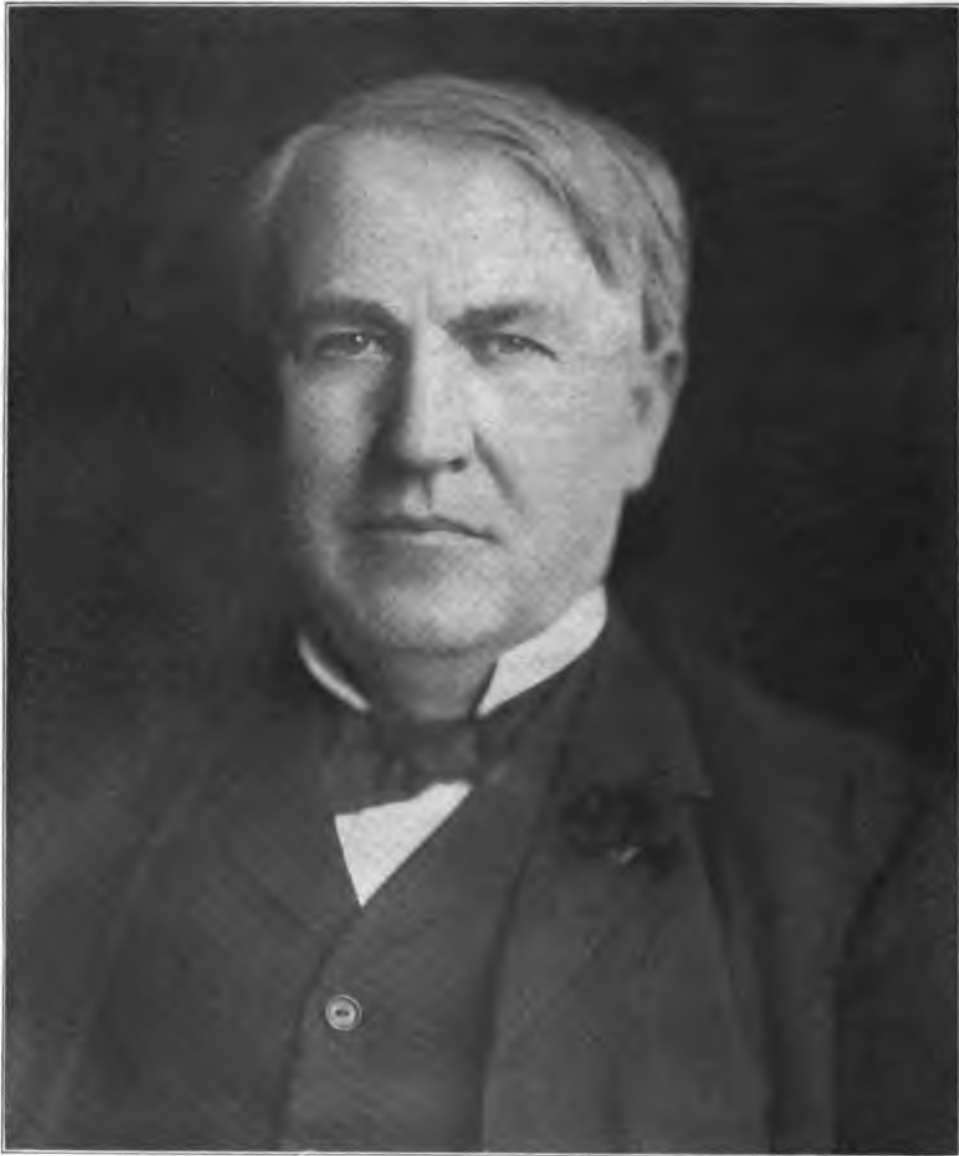
Isaac McMichael, vice-president and general manager of the Great North Western Telegraph Company, Toronto, Ont., returned to his own when he assumed the duties of this position. He is a cosmopolitan in the best sense: a Canadian by birth, but an American by training, thus representing in his personality a happy blending

of sentiment and fact that should profit with equal good fortune by the example set by Mr. Dwight, who is an American by birth yet a Canadian by adoption.

Mr. McMichael was born at Brantford, Ont., January 7, 1840. His telegraphic career began in 1856, when he entered the service of the Brantford and Goderich Telegraph Company. This initial work was soon over and coming to the United States, where greater opportunities were offered him, we find him at twenty years of age, in 1860, located at Piqua, in Ohio, the nearest state across Lake Erie, from his old home. Going thence to St. Louis, at the first outbreak of the Civil War, he entered the United States military telegraph service. His early duties were in the field as operator for Generals Fremont and Pope in central Missouri, and afterward in St. Louis, Little Rock and at Fort Smith, Ark.

At the close of the war Mr. McMichael entered the service of the Western Union Telegraph Company, at Kansas City, afterward going to St. Louis, at which latter post he was, in 1869, appointed chief operator, and in 1870 chief clerk to Col. Robert C. Clowry, now president and general manager of the Western Union Telegraph Company, but who at that time was superintendent of the Western Union, a position he had been appointed to in 1866 when he retired from the United States military telegraph service. The acquaintance and friendship between the two men who have risen so rapidly in the telegraph service, dates from this period. Mr. McMichael had a "natural aptitude" for the telegraph, and for the management of its interests. He had a quick grasp for details; he was familiar with facts and figures, and back of it all he was an accomplished telegrapher. He was a valuable man; his services were in demand. In 1874 he was appointed assistant superintendent. This promotion placed him in a field where his genuine abilities had a larger scope and a freer play. For seven years he remained at this post, quietly at work and gaining that fund of experience that later was to stand him in such good stead. In 1881 a new district of the Western Union company was organized with headquarters established at Minneapolis, Minn. Of this Mr. McMichael, on July 1, 1881, was appointed superintendent, there remaining for twenty-two years.

At this time the retirement of H. P. Dwight from the general management, although retaining the presidency of the Great North Western Telegraph Company, made it necessary to find some one to take his place. The choice of a successor fell on Mr. McMichael, who was elected vice-president and general manager of the company. This was in October, 1903, since which time Mr. McMichael has had the direction of the affairs of this great telegraph system. He has introduced many improvements in the system, bringing it up to a high state of efficiency, and is pursuing a policy in its management that stamps him as an intelligent, progressive and able manager.



Thomas A. Edison

Thomas Alva Edison.

This distinguished telegrapher and inventor, was born at Milan, Ohio, February 11, 1847. The family is noted for its longevity. He derived his education from the lessons given him by his mother. At twelve years of age he began his business career as a newsboy on the Grand Trunk Railway. Besides supplying the towns between Detroit and Port Huron with the news of the day, he was conducting a book store, a vegetable store and a news-stand in the town of Port Huron. Early in the year 1862 Edison purchased a lot of type and transferred it to his "den" in the baggage car, and proceeded to issue the Grand Trunk Herald. The paper ran through about forty numbers. Paragraphs from this journal were quoted in the London Times, and the celebrated engineer George Stephenson, as he was traveling on the train, once bought a copy, and took occasion to compliment young Edison for his enterprise. Edison's "sanctum" in the baggage car, was also used by him as a chemical laboratory. On one unfortunate day, when engaged in some experiments, he upset a phosphorus bottle and set the car on fire, in consequence of which he was summarily ejected.

He now turned his attention to telegraphy. One day standing on a platform of the station at Mount Clemens, Mich., he saw the son of the station master in danger of being run over by an approaching train. Springing to his assistance, Edison succeeded in getting the boy off the track, and the child's father out of gratitude taught Edison telegraphy, and here his career as an operator commenced. He rapidly acquired the art. From Mount Clemens Edison went to Port Huron. The operator in the Western Union Telegraph office had gone to the war, and Edison took his place. His next engagement was at Stratford, Canada, as night operator on the Grand Trunk Railway. He lost this position by failing to deliver a train order. Edison's next employment was at Fort Wayne, Ind., where he remained but a brief period, going to Indianapolis. The first position he accepted as report operator was at this point. The all-absorbing question was how he could insure success in working the report wire, and at last he hit upon a scheme which was, to say the least, ingenious. In those days, there could be found in every telegraph office old tape recorders. One of these was put in circuit on the report wire, and another of the same instruments alongside of it. The tape, after passing through the first machine and recording the indentations made by the lever point was run through the second instrument, the result being that the first recorder would receive its impression at the rate of forty words a minute, but by feeding the tape more slowly into the second machine, the speed could be reduced to a point where he could make his copy with accuracy and safety. This scheme worked satisfactorily until one night he got so far behind that the paper

made a complaint about receiving the report so late, and Mr. Edison was discharged.

From Indianapolis, Edison went to Cincinnati, where he was employed as day operator at sixty dollars per month, but his salary was soon increased to double that amount on account of excellent work performed. In 1864, Edison removed to Memphis, Tenn., hoping to improve his condition. The telegraphers were under military control and received \$125 per month and rations. His habits were still those of the student, and his investigations and experiments ceaseless. Most of his misfortunes came as the direct result of his experiments. The manager of the office was at work on a repeater which he hoped soon to perfect; Edison started in with the same object in view, and was first to succeed. He brought his instrument to the office one evening, and for the first time in the history of telegraphy, New York and New Orleans were placed in direct communication with each other. A description of Edison's instrument was published, and the manager, instigated by jealousy, dismissed him. Edison found himself destitute of resources and in debt. His desire was to reach Louisville. He had to walk over one hundred miles of the distance to reach that point. When he arrived at Louisville, the streets were covered with ice. The soles were worn off his shoes, his clothing was of the lightest kind, a linen duster did service for a coat, and a straw hat covered his head, his pockets were empty, and all his worldly effects were in a handkerchief. At the telegraph office he found employment, and for two years he remained in the company's service at this point. His bedroom was his laboratory. Unfortunately, one day, he upset a bottle of sulphuric acid on the floor of the telegraph office, which leaked through to the manager's office on the floor below, for which he was discharged.

About this time he became smitten, like many others of his class, with the South American fever. It was rumored that operators were in demand in Brazil. In company with two companions he started for New Orleans with the intention of embarking at that point. But on arriving they found that the vessel they proposed sailing in had left. While waiting for another boat, Edison came in contact with a Spaniard, who told him there was no country he had seen, and he had been almost everywhere, equal to America. This opinion decided Edison upon remaining in his native land, and he turned his steps toward Cincinnati, where he remained for a year and a half, working on "night report." Tiring of work in the Cincinnati office, he returned to his home in Port Huron. He wrote to a friend in Boston for employment, and while awaiting a response, he hung about the office of the Grand Trunk Railway Company. This company had a wire which ran from Detroit to Port Huron, and thence by cable beneath the river to Sarnia. Another wire ran from Toronto

to Sarnia, and the authorities desired to continue the latter to Port Huron without laying a second cable. Edison solved the problem, using the same cable for both circuits, and just at this time his friend in Boston had found employment for him. He obtained a pass to that city as a reward for his work. He entered Boston in about the same condition as a few years previously he had entered Louisville.

The telegraphers in the East were more fashionable in their dress than their Western brethren, and Edison's appearance when he entered the operating room was the cause of much merriment. Of course, the first thing thought of was how to take the "conceit" out of this new man, who had the audacity to announce that he was capable of taking report from the fastest operators in the country. In the New York office, an operator named Hutchinson, who was conceded to be the most rapid sender in the service at this time, was duly informed that there was a green young man at the Boston end, whom the boys wished to have some fun with, and they requested Mr. Hutchinson to "let it come" in his best style. Edison's years of work upon report wires had made him very skillful, in addition to which he had experimented with the object of discovering the best style of penmanship for operators' purposes. He had settled upon a slight back hand with regular round letters, and by this mode was able to produce sixty-five words a minute, a rate fully one-third faster than was necessary. Indicating his readiness to begin, the instrument before him commenced to click. Faster and faster it came, but Edison's ear never failed him. The operators who stood about gazed in wonderment, and the New York man began to abbreviate his words. Finally, when he thought the joke had been carried far enough, Edison opened his key and quietly inquired: "Won't you please send with the other foot?" No more pranks of that kind were played on Edison, who was placed regularly at work on the wire between Boston and New York.

It was during his engagement in Boston that Edison took out his first patent, which was for a chemical vote-recording apparatus, designed for legislative bodies. It was also at this period that Edison commenced work on duplex telegraphy. His engagement at Boston terminated and he went to New York. His finances, always low, were now lower than ever, and he found himself two or three hundred dollars in debt, and in want of a situation.

From a central office near Wall street, was operated the Law Gold Indicator System, and the same office was headquarters for the Telegraphers' Journal. These indicators were distributed in about six hundred brokers' offices, to show the fluctuations in the price of gold. When anything occurred to interrupt the service, each broker immediately dispatched a boy post-haste to the main office, and on such an occasion there appeared within one minute not five hundred

boys, nor five hundred and ninety-nine, but the full complement of six hundred. It was upon such an occasion as this that Edison one day happened to be in Mr. Law's office. An accident had occurred to the transmitting machinery and the whole indicator system had ceased to work. Gold was high, but the excitement caused by this disaster was higher. Within a few seconds the stream of boys commenced to pour in and transform the office into a perfect Bedlam. Mr. Law, a nervous man, was wildly appealing to his superintendent, Mr. Frank Pope, to do something, while Mr. Pope's nervous system, as badly shattered as that of his employer, rendered him just as incapable of doing anything. In the midst of this confusion, Edison walked quietly over, examined the apparatus, and, turning to Mr. Law, said: "I think, Mr. Law, I can show you where the trouble is. There is a contact spring which has broken and fallen between two cog wheels and prevents the gear from moving." This removed, everything commenced to work again regularly and the office was cleared. The manager asked Edison his name, and the episode resulted in the latter being engaged as superintendent at a salary of two hundred dollars per month.

From this time on he commenced to succeed. He invented a stock printer, which is in use today; then a gold printer, followed by his automatic telegraph system. Then came his quadruplex and his inventions in his acoustic telegraphs and telephones, electric railways and many others of lesser importance. In 1878, he invented the phonograph, which is probably more widely known than any of his other work. His name is indelibly connected with electric lighting, the advances which have been made in that art being largely due to his indefatigable labor and exhaustless genius. So prolific is his brain of inventions that the commissioner of the United States Patent Office has described him as the "young man who has kept the path to the Patent Office hot with his footsteps." He has taken out over four hundred patents and has built up some of the largest and most successful manufacturing institutions in the country. His laboratory at Orange, N. J., is the only one of its kind in the world, and is a marvel in its variety and completeness of equipment.

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CLARENCE H. MACKAY.

**President Commercial Cable Company and Postal Telegraph-Cable Company,
New York.**



GEORGE GRAY WARD.

**Vice-President and General Manager, Commercial Cable Company,
New York.**

The Commercial Cable Company.

The Commercial Cable Company has just completed twenty-three years of active existence. In that time its submarine telegraph system has grown enormously in mileage so that at the present time it owns and operates 26,739 nautical miles of cable, as against 6,084 nautical miles in 1884.

The following table furnishes a striking example of progress and affords an interesting study in the development of American submarine telegraphy.

Year.	ATLANTIC SYSTEM. Cable Laid Between	Nautical Miles.
1884	Waterville, Ireland, and Canso, N. S.	2,384
1884	Waterville, Ireland, and Canso, N. S.	2,348
1884	Canso, N. S., and New York.	840
1884	Canso, N. S., and Rockport, Mass., twin core	512
1885	Waterville, Ireland, and Havre, France	510
1885	Waterville, Ireland, and Weston, England, twin core	328
1894	Waterville, Ireland, and Canso, N. S.	2,161
1900	Canso, N. S., and New York	895
1900	Canso, N. S., and Azores Islands	1,698
1901	Azores Islands and Waterville, Ireland	1,205
1901	Waterville and Weston, England	327
1905	Waterville and Canso, N. S.	2,238
1907	New York and Havana, Cuba	1,285
	PACIFIC SYSTEM.	
1902	San Francisco and Honolulu, H. I.	2,276
1903	Honolulu to Midway Islands	1,332
1903	Midway Islands to Guam	2,606
1903	Guam to Manila	1,631
1906	Manila to Shanghai	1,264
1906	Guam to Bonin (Japan)	899
		26,739

The organization of the Commercial Cable Company, now developed to such proportions, with lines reaching over two-thirds of the distance around the globe, was effected in 1883 by the late John W. Mackay, father of Clarence H. Mackay, now president of the company, and James Gordon Bennett, proprietor of the New York Herald, the impelling cause being to create healthy independent competition at reasonable rates, all the other Atlantic companies at that time being affiliated by pooling arrangements.

To the united efforts of both these gentlemen the Commercial project was carried forward to a successful completion and an active competition was thereby brought into the transatlantic cable business. This company has since exerted a marked influence in maintaining equitable tariff rates and in determining a standard of service in every way of a superior character.

In these later days of low rates which has made possible the mighty volume of business handled, it almost taxes credulity to learn that in 1866, the first year of the successful development of the submarine cable, the Atlantic tariff was as high as \$100 for twenty words. By 1870 the rate had dropped to \$15 for ten words, and at the time the Commercial enterprise was launched the charge was fifty cents a word, a rate that the Commercial immediately reduced to forty cents, and later still further lowered to twenty-five cents a word, the last reduction accomplished,

however, only after a long and expensive struggle against the united efforts of the other Atlantic companies to drive it out of business.

With the contemporaneous laying of its first two transatlantic cables in 1884, from Canso, N. S., to Waterville, Ireland, with connecting links on the American side from Canso to New York and from Canso to Rockport, Massachusetts, this company firmly established itself as a factor among the submarine cable companies, until now it may rightfully lay claim to the title of "the leading Atlantic cable company." Its subsequent steady and widespread growth is instructively reflected in the table appearing herewith.

In 1890 the Commercial Cable Company established at Halifax, a close and valuable connection with the Halifax and Bermudas Cable Company upon the completion of that company's cable between Halifax and Bermuda, which was further augmented in 1897, when the Direct West India Cable Company extended this line from Bermuda to Jamaica, touching en route at Turks Island.

It was not many years before the Commercial company's two transatlantic cables were found insufficient to accommodate the increased business resulting from the uniform satisfaction afforded to its patrons, and in 1893 a third cable was determined upon, which was successfully completed in July, 1894.

Six years later witnessed the laying of a fourth cable (completed in 1901), also having for its objective points Canso, Nova Scotia, and Waterville, Ireland, but following a divergent course; namely, by way of the Azores. This intermediate stopping point was selected in order to effect a juncture with the cable of the Europe and Azores Cable Company at the Azores to provide a shorter and quicker means of communication with Portugal, Southwestern Europe, Egypt, Africa, India, the Far East, as well as with South America.

This same year also marked the laying of the first direct cable from Germany to the United States (Borkum, near Emden, and New York City), touching at the Azores en route. Although this cable is owned by a foreign corporation, it is closely allied with the Commercial Cable Company, from whose office in New York the cable is worked.

The progressive policy of the company had long since been apparent and the improved facilities it afforded to the commercial world were of great importance, and recognized by increased patronage. While its growth up to that time was noteworthy, indicating the sound and far-seeing judgment on the part of those who were directing its energies, and which had secured important connections which opened up broader systems of communication, the limit of development had not yet been reached, for other projects of extension, greater than any heretofore carried out, were being planned, the complete realization of which followed in close sequential order.

A Pacific cable to connect the United States with its Pacific possessions, which for many years had been contemplated, was at this time again being earnestly discussed, in Congress, by the press, and by others interested. For political reasons the government recognized acutely the necessity for such a cable. By some government ownership of such a line was advocated; by others that it should be built under a government subsidy. At this juncture, John W. Mackay, a man decisive of character, clear of perception and whose business intuitions were rarely at fault, came forward and offered to lay the cable without any guarantee or subsidy whatever from the government. His position in the business world, the vast wealth and experience he had acquired as head of a large and successful cable company, at once inspired confidence in his proposition, and on every side it was admitted that he of all men was the one best qualified to undertake this much needed enterprise.

When it is considered that comparatively little was known of the contour and nature of the bottom of the Pacific ocean, with its tremendous depths, from some parts of which a cable could never be lifted again to effect repairs, the hesitation up to this time to risk capital in such a project, involving millions of dollars, is not at all surprising.

The necessary concessions having been obtained, the Commercial Pacific Cable Company was organized, and on November 19, 1901, the announcement was made that the contract had been let for the construction of the cable. The first section between San Francisco and Honolulu was completed on January 1, 1903. On July 4, 1903, a most fitting date to patriotic natures, the remaining portion of the Pacific cable was successfully laid, and messages were exchanged between San Francisco and Manila, the intermediate stations being Honolulu, the Midway Islands and Guam.

The successful outcome of this immense undertaking won the applause of the nation, the appreciation of the world, and very naturally gave to the Commercial interests a tremendous impetus. Their allied systems were becoming world-wide in extent, the Atlantic and Pacific oceans were spanned, and a special wire stretched from ocean to ocean (New York City to San Francisco) to connect its Atlantic with its Pacific systems.

Unfortunately, John W. Mackay did not live to see the consummation of this cherished Pacific cable scheme, in the early promotion of which he had shown so much zeal and enthusiasm, for he died on July 20, 1902. The mantle of the father fell to the son, and Clarence H. Mackay has proved to be a worthy successor to a worthy sire.

Following out the chronological order of these quickly succeeding cable expansions, omission should not be made to note the completion on June 1, 1904, of a second German cable, which is

also operated in New York City by the Commercial Cable Company.

In 1905 the Newfoundland government arranged with the Commercial Cable Company to lay for it a cable from the company's station at Canso, N. S., to Port aux Basques, Newfoundland, thus establishing direct communication with that island, which for many years the company was unable to do on account of exclusive rights enjoyed by an English company. The crowning act of that year's work, however, was the successful completion of a fifth Atlantic cable. The large core of this cable makes it capable of transmitting messages at a very high speed.

The events of the year 1906 record the laying of two very important extensions to the Pacific cable; namely, the cable between Manila and Shanghai, and a cable between Guam (Ladrone Islands) and Bonin, where it joins the Japanese cable to Tokio. Both these extensions are of great strategical and commercial value.

The announcement still fresh in our minds of the laying of a cable from New York to Havana by the Commercial Cable Company of Cuba marks the culmination of a project to introduce competition into a field where for many years exclusive concessions made this impossible.

During the year 1907, just closed, the aerial lines which were formerly used for the transmission of messages between the cable termini at Bristol and London, were replaced by underground wires to safeguard the continuity of telegraph service against the possible and probable interruption from storms and other elements of danger to which overhead wires are continually exposed.

The creation of this vast cable enterprise so far-reaching in its influence and conferring benefits so varied, while of course a business venture, has also been actuated by strong patriotic motives, a fact which should not be lost sight of in all present and future estimates of its projector and of his completed work, and of the exceptionally able staff who so loyally have lent their aid.

Mr. Mackay's chief lieutenant and adviser in all of his cable undertakings has been George Gray Ward, vice-president and general manager of the Commercial Cable Company. Not only at the first, but continued down through all the years of its existence, Mr. Ward has filled this official position, supported by the full confidence and financial backing of Mr. Mackay, and since his death by that of his son and successor, and it is largely to Mr. Ward's knowledge, skill, fine executive ability and the aggressive policy he has pursued, that the Commercial Cable Company has reached its present status.

What the future has in store for this company and its allied lines may not, perhaps, be definitely outlined at this time, but it cannot be doubted that the governing ideas of progress that have thus far directed its life and growth and placed it in the van of cable enterprises, will still continue to dictate its policies.

The financing of the dual companies, Commercial Cable and Commercial Pacific Cable, as well as the associated Postal Telegraph-Cable Company, the land line portion of the combined systems, has called for the exercise of wise knowledge and careful methods. It is now vested in what is known as The Mackay Companies, organized early in 1904, to afford a better form of strengthening and safeguarding the stockholders of the Mackay interests, paramount in the several telegraph companies. Capitalized at \$100,000,000, it offers a bulwark of security to the investments for which it stands.

The executive members of the staff of Commercial cable interests the world over are as follows:

Clarence H. Mackay, president; George Gray Ward, vice-president and general manager; Albert B. Chandler, vice-president; Charles R. Hosmer, of Montreal, vice-president; E. C. Platt, treasurer; E. C. Merritt, assistant treasurer; Albert Beck, secretary; J. O. Stevens, assistant secretary; George Clapperton, traffic manager; S. S. Dickenson, general superintendent; S. F. Austin, assistant superintendent, all of New York, excepting Mr. Hosmer; Frederick Ward, manager in England; Robert Herne, superintendent, Rockport, Mass.; F. H. Putt, superintendent, Boston; F. B. Gerrard, superintendent, Canso, N. S.; F. Chevallier, superintendent, Fayal, Azores Islands; R. J. Hughes, superintendent, Waterville, Ireland; E. G. Phillips, superintendent, London; J. Furze, superintendent, Liverpool, and Robert Budden, superintendent, Manchester, all of England; H. J. Tracey, superintendent, Glasgow, Scotland; Emile Ronot, superintendent, Havre, and Leon Crozat, superintendent of agencies, Paris, France; Charles Priest, electrician, New York; John Gott, consulting engineer, London; F. H. Dennis, superintendent Clearing House, New York; John Lawson, superintendent, Havana, Cuba; Patrick McKenna, superintendent, San Francisco; John D. Gaines, superintendent, Honolulu; Ben W. Colley, superintendent, Midway; H. F. Harrington, superintendent, Guam; E. DeSnouee, superintendent, Manila; Daniel Coath, superintendent, Shanghai; Basil Combe, commander cable steamer Restorer, Honolulu, and W. F. Linton, acting commander cable steamer Mackay Bennett, Halifax.

Clarence H. Mackay.

Clarence H. Mackay, New York, president of the Commercial Cable Company and of the other great allied Commercial cable enterprises, as well as of the Postal Telegraph-Cable Company, all of which are included within the interests controlled by The Mackay Companies, corporation, is the only living son of the late John W. Mackay, and succeeded to the control of the vast telegraph properties of his father on October 4, 1902, following the death of the latter which occurred

on the previous July 20. Mr. Mackay was born in San Francisco, Cal., April 17, 1874. Since he assumed the direction of these trusts, although a burden of heavy responsibility for so young a man, he has nevertheless displayed consummate skill in their management and in conducting their extension.

George Gray Ward.

George Gray Ward, vice-president and general manager of the Commercial Cable Company, has proved himself to be a genius in cable management. He was born at Great Hadham, Hertfordshire, England, December 30, 1844, and was educated at a private school at Cambridge. Mr. Ward developed while at school at the early age of ten, a taste for telegraphy and received a prize for his knowledge of the art. On leaving school he entered the employ of the Electric Telegraph Company, and after passing through the various grades of the service at different stations, resigned in 1865, and joined the Egyptian government telegraph service, and for about three years was stationed at Alexandria, Egypt.

Mr. Ward was one of the few who stuck to his post during the cholera epidemic of 1865, and his valuable services rendered to the government at that period, were especially acknowledged by Ismael Pacha, the then viceroy. Realizing that the prospects for advancement were not very promising in that service, he resigned and accepted a position with the first French Atlantic Cable Company (1869), and was selected to accompany the steamship Great Eastern as a member of the electrical staff on board that ship during the laying of the cable. Mr. Ward was stationed at St. Pierre, Miquelon, and remained there five years. In 1874, owing to ill health, he resigned his position and returned to England. He afterward joined the Direct United States Cable Company, as superintendent, and organized that company's system in the United States, making his headquarters in New York. Previous to the advent of the Direct Cable it was considered a great feat to receive an answer to a cablegram from London inside of thirty or forty minutes. Mr. Ward so improved the service as to materially reduce this time. He succeeded in making the Direct Cable Company very popular, not only with the public but with the press. In 1884 he accepted the post of secretary and general manager of the Commercial Cable Company. In 1890 he was relieved of the position of secretary and elected vice-president of the company, and in this position those qualities of sound generalship which have characterized Mr. Ward's connection with the Commercial have enabled him to achieve great successes in the interests of the cabling public, by perfecting an up-to-date unique transatlantic service, while his urbanity, consistent impartiality and tact in the administration of the company's internal affairs, have merited the confidence and affection of the many members of the company's staff. Mr. Ward's skill and diplomacy have more

than once brought delicate and important negotiations entrusted to him to a successful issue. His relations with the officials of the telegraph companies of America and Europe, whether opposed to his company or not, have always been most pleasant. The great services contributed by Mr. Ward in jointly promoting with the Messrs. Mackay, father and son, the important enterprise of the Commercial Pacific cable, viewed not only as a "commercial" undertaking, but in its international value as a possible factor of political significance, is still fresh in the public mind. Its history has appeared in these columns at a comparatively recent date, and requires no further specific mention at this time. Nor is it necessary to refer to the recent accomplishment of the laying of the Cuban cable. Mr. Ward's name and fame as a great cable executive is secure.

Mr. Ward is a vice-president, director and member of the executive committee of the Postal Telegraph-Cable Company, and a member of the New York Chamber of Commerce. He is also a member of the American Institute of Electrical Engineers and many other organizations.

For services rendered the German Emperor conferred upon Mr. Ward the "Order of the Royal Crown of Prussia"; the Emperor of Japan, the "Order of the Rising Sun."

Frank B. Gerrard, Superintendent, Commercial Cable Company, Canso, N. S.

The largest cable station in the world is that of the Commercial Cable Company located at Hazel Hill, Canso, N. S. Nine cables find a landing at this point. The superintendent in charge of this important post is Frank B. Gerrard.

Mr. Gerrard was born at Buckie, Barff, Scotland, July 17, 1854, and received his early telegraph training in the British government telegraph service. He entered the employ of the Direct United States Cable Company in 1874, and was appointed to the cable station of that company at Torbay, Nova Scotia. Here he served for a number of years, a period in which he worked hard, studied much and laid the foundations of that knowledge which has stood him so well in later years. In 1881 he was called to be the assistant superintendent of the Western Union cable station at Canso, a position he continued to fill until 1890, afterward serving the French Telegraph-Cable Company at St. Pierre, Miquelon. From this latter position he retired in May, 1894, to accept the place of assistant superintendent of the Commercial Cable Company's station at Canso. Here he served for ten years under the superintendency of Samuel S. Dickenson, now at New York. During this decade, Mr. Gerrard demonstrated his ability as an all-around cable expert, and his promotion to the superintendency was a logical advancement from every point of view. He is a clever technical student, an able administrator, and the business of the station moves satisfactorily forward under his care.

H. A. Tuttle, Vice-President and General Manager, North American Telegraph Company, Minneapolis.

Henry A. Tuttle, vice-president and general manager of the North American Telegraph Company, Minneapolis, Minn., was born in Oswego, N. Y., September 19, 1846. He entered the telegraph service in 1863, on what was known as the United States Branch Telegraph Company, running from Syracuse to Ogdensburg, N. Y. His first office was at Adams, N. Y. He then went to Iilon, N. Y., for the United States Telegraph Company,



HENRY A. TUTTLE.
Vice-President and General Manager North American Telegraph Company, Minneapolis, Minn.

and at the time of the consolidation he was retained as the manager of the Western Union telegraph office at that point. In 1866 he again went to Oswego, N. Y., and in 1870, succeeded John Fuller, as manager of that office, where he remained until 1876, when he practically retired from the business. In 1881, he returned to telegraphy, as operator, in St. Louis, Mo., and in February, 1882, accepted the managership of the Western Union telegraph office, at Minneapolis, Minn., remaining there four years, when he resigned to construct the North American Telegraph Company's lines, with which system he has since been identified as general manager. Mr. Tuttle, who is well and favorably known throughout the entire country, possesses executive ability in large degree, and the success of his company is due entirely to his untiring efforts.

E. J. Nally, First Vice-President and General Manager, Postal Telegraph-Cable Company.

The election of Edward J. Nally, first vice-president and general manager of the Postal Telegraph-Cable Company, has placed in that responsible position one of the ablest individual forces of the system with which he has so long been associated, a post for which he is eminently fitted, both by long training and judicial temperament.

Mr. Nally is a native of Philadelphia, where he was born April 11, 1859. Like many another who has risen to the higher plane of his calling, he, too, commenced life as a messenger. This was with the Western Union Telegraph Company at St. Louis, September 1, 1875. As a lad he was



EDWARD J. NALLY.

Vice-President and General Manager, Postal Telegraph-Cable Company,
New York.

faithful to employing interests, and early evinced traits of character, showing capability and manliness, since developed with advancing maturity, that early gained for him recognition and promotion. In 1878 he was made a clerk in the office of Col. Robert C. Clowry, now president of the Western Union Telegraph Company, and who at that time was assistant superintendent at St. Louis. Later he followed Mr. I. McMichael, now vice-president and general manager of the Great North Western Telegraph Company, at Toronto, Ont., to Minneapolis, where he had been appointed superintendent in charge of the lines formerly the property of the North Western Telegraph Company, and from whom he derived a valuable training. Here he was appointed chief clerk to Mr. McMichael in 1885, a position he retained

until October 20, 1890, when he resigned to become assistant to the general superintendent at Chicago of the Postal Telegraph-Cable Company, his appointment as assistant general superintendent coming January 1, 1892. He was made general superintendent, January 1, 1901. On October 1, 1906, he was created a vice-president, director and member of the executive committee of the company, and removed to New York, where, on April 11, 1907, his birthday, he was further promoted to the general managership, which placed him at the executive head of the great corporation with which he had so long been identified.

Mr. Adams, Vice-President, Postal Telegraph-Cable Company.

Charles C. Adams, second vice-president of the Postal Telegraph-Cable Company, affords in his career one of the best examples of the rise and



CHARLES C. ADAMS.

Second Vice-President, Postal Telegraph-Cable Company,
New York.

progress of the American telegrapher. He illustrates in his person the possibilities of attaining individual success in life, which in varying degree is placed within the reach of every human being. Without external influences or aids of any kind; none other than those developed in qualities of mind born of strong purpose, of determination to succeed in which moral sense formed a fitting background, elements of character that act always as propelling forces, especially when, as in this case, coupled happily with bodily health, Mr. Adams has reached high position, coming up the ladder of promotion from its lowest round. He was born at Freeport, Pa.,

August 13, 1858, his early education being acquired in the public schools of Pittsburg and at the Academy at Sharpsburg. He was fifteen years old when he left the latter institution, and began the study of telegraphy. A knowledge of the latter acquired, he entered the telegraphic field and for several years found employment in the oil regions of western Pennsylvania in the service of the Atlantic and Pacific and Western Union telegraph companies, and in 1879 as an operator for the latter at Pittsburg. In 1880 he was employed by The Associated Press at Fort Wayne, Ind., leaving the following year to accept an appointment with the Western Union Telegraph Company at New York. Here the personal bearing, the marked executive abilities, his expert qualities as an operator, attracted the attention of the Mutual Union Telegraph Company, and his appointment as manager of its Pittsburg office followed. This was in November, 1881, and for two years he filled this position until the company was merged with that of the Western Union in 1883, when he entered the newspaper service, subsequently returning to New York. In February, 1884, when twenty-five years of age, he was appointed manager of the Postal Telegraph Company at Philadelphia, beginning a service in which he has since remained and in which he has attained distinction. He quickly grasped the possibilities of success for his company, then a new organization, that lay within his reach, and worked hard to advance its interests. He displayed such a degree of energy, of resourcefulness, of executive ability, as to win commendation and which led to his promotion after an eventful two years of service, to the position of superintendent. In the larger sphere in which he was now placed, he was correspondingly successful, so that his appointment as general superintendent of the southern division with headquarters at Atlanta, Ga., followed as a sort of natural sequence. Excellent results attended him at this point, from which on February 16, 1904, he came to New York and was appointed to a vice-presidency of the company.

Charles P. Bruch, Third Vice-President of the Postal Telegraph-Cable Company.

Charles P. Bruch, third vice-president of the Postal Telegraph-Cable Company, has been identified with that company for over sixteen years, having entered that service as assistant to the vice-president in June, 1891. Mr. Bruch was born in Louisville, Ky. His father, Capt. Samuel Bruch, was in charge of the military division of the Mississippi, United States government telegraphs, and was also general manager of the Southwestern Telegraph Company. After his father's death Mr. Bruch, with his mother's family, lived, until he was eighteen years old, in Canton, Ohio, where he learned to telegraph, and was employed as an operator in the Western Union office for several months, when he came to New York.

After working in the Western Union main office in New York as an operator and in other capacities for four years, he left that service to take the secretaryship of the Telegraphers' Mutual Benefit Association. At the conclusion of his fifth year in this position, Mr. Bruch resigned and took charge of the office of the Edison Phonograph Company, under its general agent, the late Mr. E. T. Gilliland, until that company was absorbed by the North American Phonograph Company. He then became the secretary and treasurer of the Non-magnetic Watch Company, remaining in that capacity for several years, when he re-entered the telegraph service, in the employ of the Postal Telegraph Company.

Mr. Bruch has always been actively interested



CHARLES P. BRUCH,
Third Vice-President, Postal Telegraph-Cable Company,
New York.

in various telegraph societies, having been one of the organizers and a director for several years of the Serial Building Loan and Savings Institution; the first president of the Magnetic Club; a member of the executive committee of the New York Telegraphers' Aid Society, and for several terms as president of the Gold and Stock Life Insurance Association. He has been a vice-president of the Telegraphers' Mutual Benefit Association for the past ten years.

He also has been actively associated with various social organizations not connected with the telegraph, among them being the Ohio Society of New York, the Indian Harbor Yacht Club, of which he was a charter member and at one time secretary, and the Canton Society of New York, of which he was president for two years.

Isaac Smith, Superintendent of Tariffs, Postal Telegraph-Cable Company.
Isaac Smith, superintendent of tariffs, of the



ISAAC SMITH.
Superintendent of Tariffs, Postal Telegraph-Cable Company,
New York.

Postal Telegraph-Cable Company, was born in Brooklyn, N. Y., May 10, 1859. He entered the telegraph service in 1880, with the American Rapid Telegraph Company and later with the Bankers' and Merchants' Telegraph Company. He entered the employ of the Postal Telegraph-Cable Company in 1884, being connected with the auditor's and tariff departments until December, 1892, at which time he was appointed superintendent of tariffs of same company, which position he still holds.

Mr. Smith resides in New Jersey, where he has been honored in his home town by being elected a justice of the peace, a member of the board of education, and other municipal bodies.

Edward Reynolds, Auditor of the Postal Telegraph-Cable Company.

Edward Reynolds, the auditor of the Postal



EDWARD REYNOLDS.
Auditor, Postal Telegraph-Cable Company,
New York.

Telegraph-Cable Company, is also a director in that corporation. Mr. Reynolds was born at Catskill, N. Y., November 11, 1866. At eighteen years

of age he began his telegraphic career. Coming to New York in 1889, his service with the Postal company began on August 1 of that year as an operator in that section of the city known as the "dry goods district." His faithfulness, intelligence and capacity met with early acknowledgment, and on April 1, 1891, he became chief clerk to Superintendent Cochrane. On February 1, 1897, he was appointed to a like position in the office of the general superintendent, thence on July 1 was promoted to the chief clerkship in the office of Vice-President Bradley. On January 1, 1900, he was advanced to the position of assistant auditor, and on May 1 of the same year to that of auditor.

W. D. Francis, Superintendent of Supplies, Postal Telegraph-Cable Company.

Walter De Mund Francis, superintendent of supplies of the Postal Telegraph-Cable Company, was



WALTER D. FRANCIS.
Superintendent of Supplies, Postal Telegraph-Cable Company,
New York.

born at Bath, Long Island, August 26, 1862. In February, 1879, he entered the service of the Gold and Stock Telegraph Company as messenger and clerk in the office of the purchasing agent, George B. Scott. He was subsequently engaged by the Union Electric Manufacturing Company, in whose service he spent about two years, being associated there with Ralph W. Pope and Francis W. Jones, late electrical engineer of the Postal Telegraph-Cable Company. In 1884 he was employed by the late Russell H. Robbins, then superintendent of supplies and purchasing agent of the Bankers' and Merchants' Telegraph Company, and during the entire period of Mr. Robbins' connection with the Bankers' and Merchants', United Lines and Postal companies, Mr. Francis was his assistant. During the construction of the Pacific Postal lines Mr. Francis was temporarily transferred to San Francisco and rendered efficient and valuable service in receiving and distributing materials, supplies and cash in connection with construction

work on that coast. Naturally of quick perception, he has by his untiring energy acquired a detailed knowledge of accounts and of everything pertaining to telegraph materials and supplies. His reputation among the business concerns with whom he comes in contact is an enviable one. Capacity for work and extreme industry are perhaps his chief characteristics, but his knowledge of details, coupled with a remarkable memory, enable him to perform his work with rare accuracy and efficiency and to command the respect of everyone who knows him.

Minor M. Davis, Electrical Engineer, Postal Telegraph-Cable Company, New York.

Minor M. Davis, electrical engineer, Postal



MINOR M. DAVIS.
Electrical Engineer, Postal Telegraph-Cable Company,
New York.

Telegraph-Cable Company, New York, was born in North Chatham, Massachusetts, and he is not yet quite fifty years of age. He began his telegraph work as a messenger and became an operator, spending several years as branch office manager and in working at the key in Washington, D. C., Philadelphia, Baltimore and New York. Qualifying himself by study for the duties of a chief operator, he served as wire chief and traffic chief until he was transferred to the electrical engineer's department of the Postal company. During the past ten years Mr. Davis has been traffic manager and assistant electrical engineer of the company he is now serving. In June, 1907, he became electrical engineer of the company.

J. F. Skirrow, Associate Electrical Engineer, Postal Telegraph-Cable Company.

John F. Skirrow, associate electrical engineer of the Postal Telegraph-Cable Company, New York, was born at Blackburn, England, February 19, 1869, and was educated at private schools in that country. At an early age he became a teacher in the public schools of his native country. He came to the United States in May, 1885, and became an apprentice in an engineering firm in

Hartford, Conn., the following year finding employment in New York with the Lidgerwood Engineering Company. Studying telegraphy, with which he became infatuated, he left his position, where he was engaged as a tool maker, to manage a commission office for the Postal Telegraph-Cable Company, in Brooklyn. Soon afterward he entered the Western Union Telegraph Company's service, working in Brooklyn, at 195 Broadway, New York, at Jacksonville, Fla., at Asbury Park and Atlantic City, N. J., and other places, until October, 1890, when he re-entered the service of the Postal company as chief operator at Savannah, Ga. On account of the failing health of members of his family, it became necessary to return North, and November of 1891 saw him a member of the extra list at the Postal office, New York.

In the course of a few months he was transferred to the regular force, and in October, 1892, was appointed quadruplex chief at 187 Broadway. He was temporarily attached to the electrical engineer's staff during the planning and installation of the Postal's new office at 253 Broadway, ren-



J. F. SKIRROW.
Associate Electrical Engineer, Postal Telegraph-Cable Company,
New York.

dering valuable service in this connection. He served in the capacity of quadruplex chief and office electrician until June 12, 1895, when he was appointed assistant manager of the general operating department at New York. This position he held for seven years, until June 1, 1902, when he was promoted to the newly created position of electrician of the eastern division.

On January 1, 1904, he was promoted to be assistant electrical engineer, and on January 1, 1905, in further recognition of his services, to his present position of associate electrical engineer.

During the past dozen or more years Mr. Skirrow has devoted much attention to the improvement of telegraph apparatus and pneumatic tube systems, and switchboards and apparatus of his design have been adopted by the Postal and its connecting companies as their standards. Several

of the most modern of the Postal's plants, notably those at Buffalo, N. Y., Baltimore, Md., and Boston, Mass., were planned by and equipped under the supervision of Mr. Skirrow.

A portable telegraph office, comprising engine, dynamos and quadruplexes, which has seen frequent service in telegraph emergencies during the past few years, was devised by Mr. Skirrow in 1901. This plant furnished special telegraph facilities at short notice during the great Baltimore fire in 1903, during the Peace Conference at Portsmouth, N. H., in 1905, and on other notable occasions. Mr. Skirrow has also given considerable attention to the systematizing of records, wiring diagrams, etc. The well known book of Official Diagrams of the Postal Telegraph-Cable Company's apparatus was prepared under his immediate supervision.

Mr. Hargrave, Postal Superintendent at Birmingham, Ala.

Jesse Hargrave has been appointed superintendent of the Postal Telegraph-Cable Company,



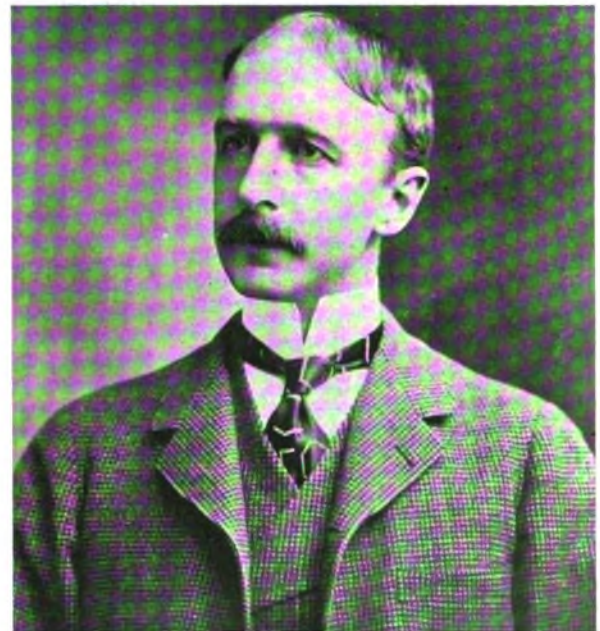
JESSE HARGRAVE.
Superintendent Postal Telegraph-Cable Company,
Birmingham, Ala.

at Birmingham, Ala. He was born at Lexington, N. C., February 18, 1865, the place and date of entry into the telegraph service being at Laurel Hill, N. C., in 1884. Here he served as an operator and assistant agent for the Seaboard Air Line Railway. From this beginning he subsequently served as operator for the Chesapeake and Ohio and the Pennsylvania railroads. Leaving the railroad for the commercial service, he became in sequential order an operator for the Western Union Telegraph Company at Augusta, Ga., at Nashville, Tenn., and at Chicago. This covered practically the year 1888, when he accepted an offer to go to Nashville in the employ of The Associated Press. Here he remained for three years, when he entered the Postal employ at New Orleans as an operator. His genuine abilities as an all-around telegrapher gained for him prompt recognition, and he was soon advanced to the position of chief operator. Always a student, with an exceedingly practical bent of

mind, Mr. Hargrave made rapid progress in his development as an electrician. He gained a quick grasp of his subject, his insight was keen, and it was natural that promotion should be further tendered him. He went to Atlanta, Ga., there to serve the company for three years as electrician and division assistant electrical engineer. But he outgrew his environment, and when he was called to New York and given the office of assistant electrical engineer it was believed that his further career would be continued in that department. Mr. Hargrave, however, had expanded not only as an electrician, but had also showed marked capacity as an executive force. The recent changes determined upon in the Postal service have again shifted and advanced Mr. Hargrave, and in returning to the southern field, this time as a superintendent, he has had bestowed upon him a reward significant of and in keeping with his advancing reputation.

T. L. Cuyler, Jr., Assistant Treasurer, Postal Telegraph-Cable Company.

Theodore L. Cuyler, Jr., the assistant treasurer of the Postal Telegraph-Cable Company, has been identified with the company from a time shortly after its organization. He was born in Brooklyn, where he now resides, July 9, 1863, and is the son of the well-known clergyman, one



T. L. CUYLER, JR.
Assistant Treasurer, Postal Telegraph-Cable Company,
New York.

of the most honored names in the Christian ministry, and whose full name he bears. Mr. Cuyler entered the company's service in 1885, and four years later, in 1889, was elected to the position he has since continued to hold, the duties of which he has discharged with much efficiency. He is a member of the Magnetic Club and of other telegraphic organizations.

Mr. Capen, Postal General Superintendent at Chicago.

Welcome I. Capen, general superintendent of the western division of the Postal Telegraph-Cable Company, with headquarters at Chicago, succeeded to that position when his predecessor, E. J. Nally, was called to New York to accept the vice-presidency of the company and shortly thereafter to become its general manager. Mr. Capen comes of sturdy New England stock, and possesses the character, the poise and balance of mind that fits him to meet the important executive responsibilities of the office he now holds. Quiet and unassuming in manner, firm in his convictions and with a thorough knowledge of the



W. I. CAPEN.
General Superintendent, Postal Telegraph-Cable Company,
Chicago, Ill.

duties incident to the important division over which he presides, he is fulfilling the requirements necessarily demanded of him. Mr. Capen was born at Brattleboro, Vt., July 25, 1854. He has been in the telegraph service all of his business life, his record beginning as a messenger boy at ten years of age in his native place with the Vermont, Boston and Montreal Telegraph Company. Later he became an operator for the same company, afterward entering the employ of the Western Union, and in turn serving many of the old opposition companies, eventually reaching the managership of the Automatic Telegraph Company at Baltimore, retiring therefrom when this company passed under the control of the Atlantic and Pacific. Subsequently he served the Western Union at Cincinnati as wire chief, resigning to accept the managership of the Baltimore and Ohio office in that city. His appointment as manager of the Postal Telegraph-Cable Company at Cincinnati began his connection with that company. His abilities were early recognized and from Cincinnati he went to Indianapolis, there to become a superintendent of his company. His call to the superintendency at Chicago followed, from which his promotion to the office of general superintendent was a natural sequence.

Frank J. Loesch, Lawyer.

Frank J. Loesch is the senior partner of the law firm of Loesch, Scofield and Loesch, of Chicago. During the year ended November 23, 1907, he held the distinguished honorary office of president of the bar association of that city. Mr. Loesch was born at Buffalo, N. Y., on April 9, 1852. He began his business career as a messenger for the Western Union Telegraph Company in his native town in 1866. Of an observant mind, studious habits and paying strict attention to his duties, young Loesch soon attracted the attention of his superiors and was early awarded promotion to the clerical service of the company. In 1870 he was transferred to the Chicago office and appointed error clerk, a position he filled for four years, when he became engaged in night work on the books, error sheets, etc., in which employment he continued until August 1, 1881. During this period Mr. Loesch had applied himself diligently to the study of law. So thorough had been his preparation that he readily passed a rigid examination and received high commendation and entered upon the practice of his profession with a mind well grounded for the life work before him. In 1892 he was selected to be the general attorney for the western division of the



FRANK J. LOESCH.
General Attorney, Postal Telegraph-Cable Company,
Chicago, Ill.

Postal Telegraph-Cable Company, an office he still holds. He takes an active interest in all that pertains to the higher welfare of Chicago, and for four years, from 1898 to 1902, was a member of the board of education.

Superintendent L. Lemon at Philadelphia.

L. Lemon, superintendent of the Postal Telegraph-Cable Company, at Philadelphia, affords a fine example of the successful rise of the farmer boy, the best stock from which the business man is evolved. He was born on a farm near Patterson (now Mifflin), Juniata County, Pa., June 9, 1867. In the summer of 1881, when fourteen

years of age, he entered the telegraph service on the middle division of the Pennsylvania Railroad, that from Harrisburg to Altoona, Pa. From this beginning his subsequent career has been a varied and active one. He early acquired the art of telegraphing, and like everything else Mr. Lemon has since done, this duty he performed well, for he was actuated by a conscientious desire to excel, his aim being to make a success of himself. From an operator in railroad employ the transition to the commercial service was a natural one. At Trenton, N. J., he became a Western Union operator, afterward as manager of the same interests at Mifflin, near his old home. Since that time his alternate occupations as operator and manager, first of one company and then of another, in widely different parts of the country, interspersed by returns to railway telegraphing, were many, steadily gaining in practical experience and rising in responsibility of position occupied. Returning from the West, he became manager for the Postal company at



L. LEMON.
Superintendent Postal Telegraph-Cable Company,
Philadelphia, Pa.

Altoona, Pa., from which he was advanced to the charge of the more important office in Baltimore, in which city he also served as superintendent of the fire and police telegraph. His record at Baltimore so far determined the character of the man that his appointment as superintendent, with headquarters at Pittsburg, was a natural sequence. From the latter point to Philadelphia, where he now is, Mr. Lemon has under his direction one of the most important districts of the Postal system.

Benjamin S. Price.

Benjamin S. Price, the superintendent of construction of the southern division, Postal Telegraph-Cable Company at Atlanta, Ga., was born at Bolivar, Pa., July 3, 1858. When twenty years of age he became an operator in the employ of the Western Union Telegraph Company, where he remained until appointed to the position he now holds. Within the field of his present occupation

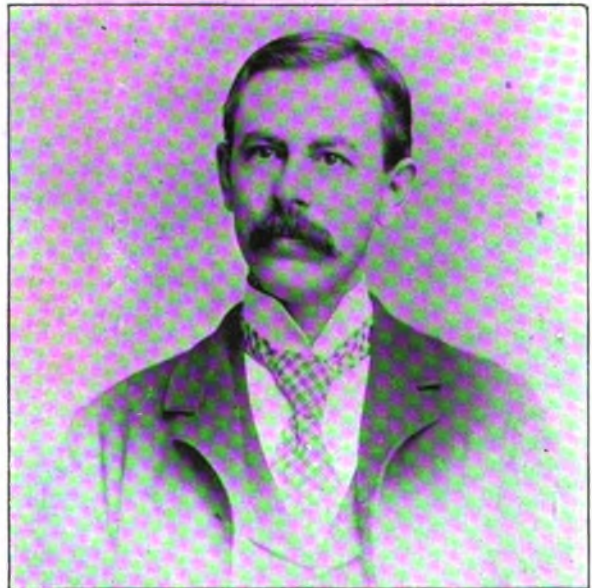


BENJAMIN S. PRICE.
Superintendent of Construction, Postal Telegraph-Cable Company,
Atlanta, Ga.

Mr. Price is doing excellent work, and exhibits in its execution close practical knowledge, and is alert to all requirements.

Mr. Black, Postal Superintendent at Denver.

William Cormack Black is the superintendent of the seventh district, western division, of the Postal Telegraph-Cable Company, Denver, Colo. Mr. Black comes from Michigan, in which state he was born at Detroit, October 5, 1859. When but ten years of age he became an apprentice and messenger attached to the depot of the Michigan Central Railway in that city. When fifteen years old he was given a place in the bookkeep-



W. C. BLACK.
Superintendent Postal Telegraph-Cable Company,
Denver, Colo.

er's office and learned how to telegraph, an art acquired at odd moments of leisure. Thus fitted, in 1875 he secured a position as operator for the

Western Union Telegraph Company, retaining the same until 1884. It was a good school for the young fellow, and he was an observing and faithful student, so much so that in 1884 he was called to be chief operator of the Postal company. For six years he remained in this office, when he was transferred to a like position at Denver, Colo. This was in 1890. Four years later he was promoted to the managership of the office, and in 1895 received the appointment of superintendent which he has since continued to fill. Merit alone has been the governing factor in promoting Mr. Black's success.

Mr. Gingrich, Postal Chief Operator at Harrisburg.

James H. Gingrich, chief operator of the Postal Telegraph-Cable Company at Harrisburg, Pa., at which point he is also agent for Telegraph Age, was born in the Keystone state, at Mexico, November 2, 1860. He was fifteen years old when he first entered the telegraph service, which occurred at Marysville, Pa., in October, 1875, in the employ of the Pennsylvania Railroad. Subsequently he served other railway interests. When going to Harrisburg, at which point he has since remained with a single break, he held positions with the American Rapid Telegraph Company, a brokerage firm, The United Press, manager of the Baltimore and Ohio Telegraph Company office, superintendent and electrician of the East Harrisburg Electric Railway, chief operator of the Postal Telegraph-Cable Company, and for a



JAMES H. GINGRICH.
Chief Operator Postal Telegraph-Cable Company,
Harrisburg, Pa.

period the position of an electrician at the company's main office in New York, subsequently returning to his former place at Harrisburg, which, as at first stated, he continues to hold. As an electrician and telegrapher, Mr. Gingrich has an enviable record to his credit.

J. Z. Hayes, of the Postal Detroit Office.

John Z. Hayes, who holds the position of chief operator of the Postal Telegraph-Cable Company

at Detroit, Mich., is demonstrating his ability as an electrician at that point, for he is a clean-cut and capable man. He hails from Missouri, in which state he was born at St. Louis, April 17, 1862. When but a lad of fifteen, in 1877, he started on his telegraphing career, beginning as a messenger for the old Atlantic and Pacific Telegraph Company. It is said that "like boy, like man," and it is remembered that young Hayes made an excellent record when in the messenger



JOHN Z. HAYES.
Chief Operator Postal Telegraph-Cable Company,
Detroit, Mich.

service. Like others who gain success, Mr. Hayes put thought and care into his work; he studied and experimented; he wanted to know things. After the various changes incident to most telegraphers, Mr. Hayes finally reached Detroit, and since May, 1880, has been with the Postal company, in whose employ he is recognized for his efficiency, and where he holds an excellent record.

John C. Carmody of Fitchburg, Mass.

John C. Carmody, manager of the Postal Telegraph-Cable Company and proprietor of the District Messenger Service at Fitchburg, Mass., is a typical representative of the shrewd, kindly, pushing New England character. Born at Springfield, Vt., September 21, 1862, where he received his early education, he acquired a knowledge of telegraphy at Charlestown, N. H., in 1882. During the four years following he was construction operator on the Connecticut River, Vermont Valley and Sullivan County Railroad. Subsequently he became manager of the Home Telegraph and Signal Company, then operating in connection with the United Lines Telegraph Company at Kansas City, Mo. Returning East in 1887 and engaging in both the commercial and railroad telegraph service, first in Vermont and then in New Hampshire, he went to Fitchburg early in 1890 to enter upon the duties as manager of the Western Union Telegraph Company. Almost immediately thereafter he accepted an

offer made by the Postal Telegraph-Cable Company, and on March 19, 1900, opened the office of this company at Fitchburg, becoming its man-



J. C. CARMODY,
Manager Postal Telegraph-Cable Company,
Fitchburg, Mass.

ager. Here he has since remained, successfully building up a large business at this busy and growing industrial point. As a personal venture, he established a district messenger service in 1893, which he has since maintained at a high state of excellence.

Nathaniel Hucker, Postal Traffic Chief at Buffalo.

Nathaniel Hucker, a forty-niner of the telegraph, traffic chief of the Postal Telegraph-Cable Company, Buffalo, N. Y., was born at Glastonbury, Somersetshire, England, January 28, 1832.



NATHANIEL HUCKER,
Traffic Chief Postal Telegraph-Cable Company,
Buffalo, N. Y.

He entered the service of the Buffalo and Canada Junction Telegraph Company, at Buffalo, as a messenger in February, 1847, and after a few

months was advanced to the position of operator. He remained in this capacity until 1850, when he entered the service of the Erie and Michigan Telegraph Company as manager. Here he continued until August 1, 1855, when he assumed the duties as manager of the House printing system. He was in this position when the Western Union Telegraph Company was organized, and he became its first manager in Buffalo, holding that office together with that of chief operator until May 1, 1881. On October 15, of that year, he was appointed manager of the Mutual Union Telegraph Company, with which he remained until August, 1883, when he returned to Western Union employ for ten years as press operator with the Buffalo Commercial. For nearly fifteen years he has filled the position of traffic chief, as first stated, of the Postal Telegraph-Cable Company.

H. D. Reynolds, Postal Superintendent, Buffalo.

Harvey D. Reynolds, superintendent of the Postal Telegraph-Cable Company at Buffalo, N. Y., a position he has continued to hold from



HARVEY D. REYNOLDS,
Superintendent Postal Telegraph-Cable Company,
Buffalo, N. Y.

the early history of the company itself, was born at Newfane, Niagara County, New York, January 26, 1850. He entered the telegraph business in 1862 at Lockport, N. Y., where he speedily became an operator for the New York Central Railroad. Subsequently in succession he was employed as a railway operator at Medina, Suspension Bridge, Syracuse, Oswego, Utica and Rochester, N. Y. His first service with a commercial company was at Buffalo in 1882, for the Western Union Telegraph Company, where he became night manager, resigning to become chief operator for the Mutual Union, and again returning to the Western Union. On January 1, 1884, he became manager of the new Postal office in Buffalo, and in February, 1891, was promoted to be superintendent. He has worthily

filled the place he occupies, discharging its duties with ability, for he is a man of many parts, a skilled operator. Mr. Reynolds is president of the Old Time Telegraphers' and Historical Association, now in the second year of such occupancy due to the fact of the usual yearly reunion being omitted in 1907.

C. B. Arrington, Postal Superintendent at Nashville, Tenn.

Charles B. Arrington, who now under the re-arrangement of districts, in effect January 1, 1908, has been transferred from the superintendency of the Postal Telegraph-Cable Company, at Jacksonville, Fla., to the wider sphere of activity of which Nashville, Tenn., is the headquarters, is numbered among the younger men in the service to reach high official position. He was born at Trenton, Ky., August 20, 1875, and is therefore now in his thirty-third year. He began his business career in 1890, when he entered the telegraph service of the Louisville and Nashville Railroad in his native place, as an operator. His connection with the railroad covered the years until 1896, during which time he was variously and at different places, operator and train despatcher, filling the latter position for the Missouri, Kansas and Texas Railway system, at



C. B. ARRINGTON,
Superintendent Postal Telegraph-Cable Company,
Nashville, Tenn.

Denison, Tex., for the Louisville and Nashville Railroad at Birmingham, Ala., and for the Southern Railway at Charlotte, N. C. Abandoning railroad telegraphy for the commercial field, he became an operator for the Western Union Telegraph Company at Nashville, Tenn., during part of 1896-97, after which, in 1898, he went with the Postal Telegraph-Cable Company, at New Orleans. For a brief period in 1899 he was engaged in mercantile business in Kentucky on his own account, but soon again returned to railroad work, this time as agent and cashier for the Illinois Central Railroad in Mississippi and Louisiana. In 1900 he was appointed traffic chief of the Postal company at New Orleans, the following

year being made chief operator, a position he has since held continuously.

Mr. Arrington has always been a conscientious worker and a close student, with keen powers of observation, nothing of value appearing to have escaped his notice. His technical acquaintance in the general field of telegraphy has been of such a character that his services have been brought into requisition in connection with submarine cable work as well as that of aerial and underground telegraphs.

C. M. Baker, Postal Superintendent of Construction, Chicago.

Charles M. Baker, superintendent of construc-



CHARLES M. BAKER,
Superintendent of Construction, Postal Telegraph-Cable Company,
Chicago, Ill.

tion, of the Postal Telegraph-Cable Company at Chicago, is a man of varied accomplishments, and in all of the several offices of responsibility to which he has been called at different times, has brought to each the abilities possessed by a well-trained mind. Mr. Baker was born at Alexandria, Pa., April 13, 1854. He entered the telegraph service at Dwight, Ill., in 1868, as operator and lineman for the Great Western Telegraph Company, a position he held until 1873, when he was appointed to a similar position with the American Union Telegraph Company, the successor of the former, also at Dwight. After the consolidation of the latter with the Western Union Telegraph Company he was appointed superintendent of construction of the Mutual Union Telegraph Company, and superintended the construction of the lines of that company from Chicago to St. Louis and Kansas City, and to all other points in the West reached by that company. From 1881 to 1883 he was special agent for the western division of the Western Union Telegraph Company. In June, of the latter year, he was appointed superintendent of construction of the

Postal company, with headquarters at Chicago, Ill., which position he held until 1898, when he was promoted to be general superintendent of construction, an office he held until advanced to that of assistant general superintendent, vice E. J. Nally, now vice-president and general manager of the company, then elevated to be general superintendent of the western division.

Mr. Porteous, Postal Manager at New Orleans.

William A. Porteous, until lately superintendent of the Postal Telegraph-Cable Company at New Orleans, but now, owing to a rearrangement and cutting down of the number of districts, manager of the office in that city, a position he has hitherto held in conjunction with the superintendency, is a native of the city in which he is located. He was educated in the public schools there, and began business life as a messenger boy on the floor of the Cotton Exchange. He shortly afterward went into the office of the Western Union, where he learned telegraphy. From that time on his rise was rapid. He secured a position on the Louisville and Nashville railroad as operator and agent at Bay St. Louis, and from there went west, with the Texas and Pacific. He was afterward connected with the New Orleans and Northeastern and the Southern Pacific.

Returning to New Orleans in 1889, he went into the service of the Western Union Telegraph Company, remaining in their employ until the Postal Telegraph Company opened an office



W. A. PORTEOUS.
Manager Postal Telegraph-Cable Company,
New Orleans, La.

there in 1891. Of this he was appointed manager in which capacity he has since remained with the addition of the superintendency before referred to. Mr. Porteous has an engaging personality, has abundantly demonstrated his managerial abilities, and is popular among the business men of the Crescent City.

Mr. Porteous is a member of the Masonic fraternity and Elks, the Young Men's Gymnastic Club, the Transportation Club and is a Master Pythian.

Thomas W. Carroll, Division Superintendent, Postal Telegraph-Cable Company, Chicago.

Thomas W. Carroll, who has just been appointed division superintendent of the Postal Telegraph-Cable Company at Chicago, ranks among the younger men in the service to reach high position. He was born at Cleveland, Ohio, January 22, 1871, and became a member of the Postal force in that city in 1888. His subsequent record as an operator both at Cleveland and



T. W. CARROLL.
Division Superintendent Postal Telegraph-Cable Company,
Chicago.

Pittsburg, was full of promise, and speedily paved the way for his being promoted to the place of repeater chief in the overland service at Albuquerque, N. M., followed by that of day chief operator at Denver. In the meantime, his electrical training had not been neglected, and proficiency acquired in this particular led to his being transferred to New York, where he was given the post of an electrician in the electrical department of the Postal's home office. Receiving the appointment of assistant electrical engineer at the Chicago office, he filled that situation from April, 1901, to October 1, 1906, when he was elevated to the superintendency.

His present appointment carries still upward a man who has won his way in the telegraph service because of inherent abilities that have been developed by study and close application to duty.

W. P. S. Hawk, Postal Superintendent at Salt Lake City.

William P. S. Hawk, superintendent of the Postal Telegraph-Cable Company at Salt Lake City, Utah, was born at Oxford, Ohio, April 24, 1865. Young Hawk was a boy of but twelve when he found employment in the telegraph service. By the time he was twenty years old he had successfully acquired the art of telegraphy. During the years from 1885 to 1887 he served as

an operator for the Cincinnati, Hamilton and Dayton; Indiana, Illinois and Iowa, and the Missouri Pacific railroads, respectively. He was then appointed manager of the Rocky Mountain Telegraph Company at Fox Benton, Mont., September, 1887, to November, 1890; operator and manager of the same interests at Helena, Mont., to November, 1892, and general manager of the system to July 1, 1898. At the latter date he was appointed to his present position, with headquarters first at Helena, which were afterward removed to Salt Lake City. Mr. Hawk possesses a wide acquaintance with the district over which he presides, considered both in its physical and commercial



W. P. S. HAWK.
Superintendent Postal Telegraph-Cable Company,
Salt Lake City, Utah.

aspects; he knows its needs and its personnel, and in his administration has made an exceedingly capable officer.

E. E. Cord, Chief Operator, Postal Telegraph-Cable Company at New Orleans.

Edward E. Cord, chief operator of the Postal Telegraph-Cable Company at New Orleans, an office to which he has lately been appointed, comes of a telegraphic family, for his father before him was a well-known operator in the Western Union service at Chicago. He was born at Mendota, Ill., May 27, 1866, and obtained his early education in Chicago, graduating from the high school. He afterward took a course in mechanical and electrical engineering at the Boston School of Technology. Entering the telegraph service he became a Western Union operator at Chicago, going thence to Peoria. Later he was appointed manager of the Kankakee office, resigning after the expiration of a year to enter the employ of the Peoria, Decatur and Evansville Railroad Company, at Peoria, as operator and clerk in the general freight and passenger

department. From this point Mr. Cord returned to the employ of the Western Union at Nashville, Tenn., afterward accepting the managership of the office at Decatur, Ala. His appointment to the position of assistant night chief at the Memphis, Tenn., office soon followed, from which in turn he was further promoted to the posts of wire chief and chief operator. From Memphis he was transferred to a like position in the New Orleans office, in July, 1903. In the acquisition of his



EDWARD E. CORD.
Chief Operator Postal Telegraph-Cable Company,
New Orleans, La.

services the Postal company has secured a man of exceptionally bright parts. Mr. Cord has always been a close student and in electrical engineering he has long been credited with possessing expert knowledge. He excels, perhaps, in comprehending multiple-circuit difficulties.

The director of the Norwegian telegraph lines has decided to extend a line to the North Cape, and it will be open for business during the tourist season next year. It is getting harder every year to find a secluded corner which is not invaded by mails and the telegraph. Visitors to the north coast of Iceland say that the postmaster at a fishing settlement where tourist steamers touch mourns the fact that a new burden has been added to his life by mail bags crammed with letters for the traveling public, and if the mails are not fast enough a New Yorker may catch a friend in Reykjavik by cable in a couple of hours.

Plans have been approved by the Secretary of War for rebuilding telegraph wires on the Yukon River; construction of a second wire between Fairbanks and Valdez and in sections of wireless telegraph lines and improvement and extensions to the cable lines.

The interior telegraphic system at Sierra Leone consists of about two hundred miles of land line. The chief electrician and director of telegraphs is Sigismund L. Farmer, Water street, Freetown.

Telegraphy and Typewriting.

BY A. C. REILEY.

Typewriting and shorthand have been called "the twin arts." Doubtless to the ordinary commercial stenographer, who knows the typewriter only in its relation to shorthand, this may seem like the merest truism. But to the telegrapher, who knows the typewriter on another side entirely, this common figure of speech brings some interesting reflections. "Typewriting may be the twin of shorthand," we hear him say, "but it is also the twin of telegraphy." This is certainly a case of very mixed relationship for it thus appears that typewriting is, at one and the same time, the twin of two different arts having little or no relation to each other. This way of putting it simply serves to illustrate most forcibly the universality of the writing machine and the many and widely different fields in which it has made itself an essential factor.

In claiming special kinship and twinship with typewriting the art of telegraphy has some prior claims which will bear the test of any scrutiny. The relation which exists to-day between typewriting and telegraphy was not an afterthought as many have supposed; on the contrary, it dates from the birth of the typewriter. Indeed, it dates from a time before the commercial birth of the writing machine. For the machine before it ever appeared on the market had already been marked out and singled out for the indispensable part which it now plays in connection with telegraphy. We suppose this fact will come as news even to many telegraph operators, therefore the early history of the typewriter in connection with telegraphy should be of great interest to them.

The year 1873 witnessed the commercial birth of the typewriter, for it was in that year that the Remingtons undertook the manufacture of the original typewriter, which bears their name and which is the standard machine to-day among telegraphers not only in this country but the world over.

However, no less than five years earlier, namely, in 1868, the machine which then existed only as an experimental model in the hands of its inventors, attracted the attention of a well-known telegrapher in the employ of the Western Union Telegraph Company, Chicago, who foresaw with prophetic vision its importance to his craft. This telegrapher was E. Payson Porter, and the mention of this honored name at once brings up one of the conspicuous figures in the history of telegraphy. Mr. Porter, who is still living, is not only one of the deans of telegraphy, but is also the pioneer "mill" operator. He was not only the first to use the machine himself, but he also pointed the way for its adoption to the other members of his craft.

When Mr. Porter, in 1868, for the first time saw and operated the typewriter, he astonished the inventor by the rapidity with which he manipulated the keys of the machine at first sight. His

skill was due to the fact that he had formerly worked a "House" telegraph printer. It was through this association that the present Remington or standard keyboard had its origin.

"During an interview with the inventor, C. L. Sholes, of Milwaukee, in 1869," writes Mr. Porter, "I was promised the handsomest typewriter that could be manufactured upon condition that I could copy successfully from the telegraph. When the machine came to me, and after a few days of practice, I took it into General Stager's office. A sounder and key were placed upon the table and the General was the first to manipulate the same for me to copy, which I did readily. Colonel Lynch then attempted to 'rush' me, and failing to do so, an 'expert' sender was sent for from the operating room. A thorough trial of my ability to "keep" up resulted so satisfactorily that the typewriter was taken into the operating room."

The foregoing description by Mr. Porter tells in a nutshell the whole gist of typewriting in its relation to telegraphy. It lies simply in the superior speed of the "mill" as compared with handwriting in receiving over the wire and it is just this difference in speed which, in the past thirty years, has revolutionized the telegrapher's pro-



fession. In the old days he was a good receiver who could keep up with the speed of a good sender, but, thanks to the typewriter, such speed is now possible to every one. The typewriter, therefore, has been a boon to telegraphy because it has increased the efficiency of all telegraphers, and it has also been a boon to countless thousands of individual operators because it has enabled those who were only second or third class telegraphers under the old conditions, due to their comparative slowness in receiving, to advance to the position of first-class.

As early as 1872, as a result of Mr. Porter's efforts, the machine had been introduced in the New York main office of the Western Union Telegraph Company, and a trial had also been made in the Western Union office in Philadelphia. Another pioneer in the field was Walter J. Barron,

who was also a co-worker in the invention of the Remington typewriter. He brought an experimental machine to New York in the fall of 1871 to use in copying messages from the tape in the office of the Automatic Telegraph Company. Three or four more of these machines were put in the office in January, 1872, and were used for press and commercial business. These experimental models, like the first model of the Remington, when its regular manufacture was begun in 1873, were single case machines, writing capitals only, the carriage shift was moved by a foot lever, and, altogether, they were slow and cumbersome affairs compared with the swift Remingtons of to-day. Yet even in this imperfect state the machine had proved itself an essential adjunct to telegraphy and its future was assured.

During the subsequent history of the typewriter its use by telegraphers more than kept pace with its other uses; indeed, the fact that Mr. Porter and Mr. Barron had been the pioneer machine users became a tradition of the cult, and these gentlemen came to have countless imitators in the profession years before the writing machine had made any mentionable impression in commercial life.

One of the most important and epoch-making dates in the history of the typewriter was the year 1882 in which year Messrs. Wyckoff, Seamans and Benedict assumed control of the sale of the Remington. Under their vigorous management the typewriter immediately began to make far more rapid progress than it had done in its previous history. The following year, 1883, marked another important event. In that year The Associated Press adopted the exclusive use of the Remington typewriter, a policy to which it has ever since adhered. Those of our readers whose memories go back to the year 1883 will recall that the typewriter even at that time was little known in ordinary commercial houses. However, it had already become recognized as indispensable in the receiving of the long news messages which were peculiar to The Associated Press service. It will be readily seen that the speed of the receiver gained importance as a factor in proportion to the length of the message and this consideration led thus early to the exclusive adoption of the typewriter for this purpose and also of the Remington as the swiftest and most reliable machine. The action of The Associated Press in officially establishing the "mill" as a necessary part of the telegrapher's equipment, was soon imitated by the telegraph companies who placed "mill" operators on all their more important circuits.

In recent years the use of the typewriter for receiving has become well nigh universal. It has ceased to be regarded simply as a mark of the operator who stands high in his profession, but is now regarded as an essential to the equipment of every telegrapher who would make a success of his calling. Among railroad telegraphers the machine has come to be adopted almost uni-

versally. The operator in the little night office in the woods knows that he cannot hope to rise above that position unless he adopts the "mill," hence the click of the Remington has become as familiar a sound at the small and remote stations as in any of the larger centers. Another feature which has caused the machine to be adopted so universally by the railroad operator is its advantages for the writing of train orders. The large number of copies which can be made on the machine at one writing has commended it for this purpose and it is the testimony of railroad men that the superior legibility of the typewritten as compared with the pen-written train order has added a new factor of safety in railroad management.

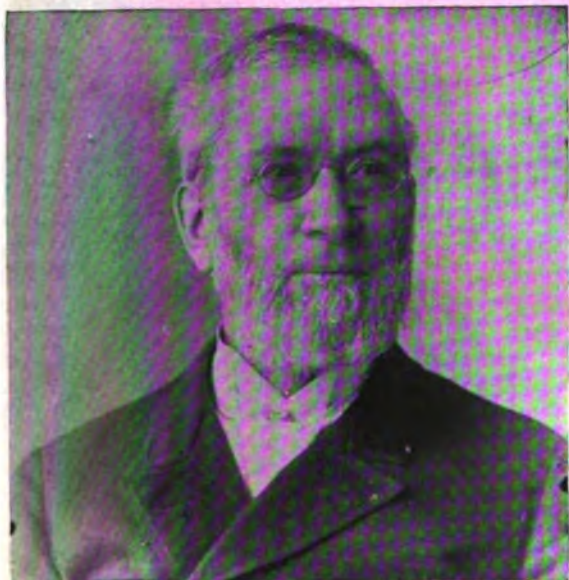
The typewriter is an American invention and naturally it won its first triumphs in the land of its birth. The telegraph services of other countries, however, were not slow to perceive the many advantages offered by the machine in connection with telegraphy. The "mill" operator does not go by that name in other countries, but by whatever name he calls himself, you will find him to-day in Australia, in India, in Russia and, in fact, in every civilized country. The Remington Typewriter Company maintains two schools in India, one at Calcutta and the other at Allahabad, whose sole mission is to train native operators of the Indian telegraph service in the use of the machine. It seems as though it were only yesterday that we read that the Swedish government had adopted the typewriter in connection with its telegraph service and that "the telegrapher's mill," the Remington, was to be used exclusively. These developments in foreign lands are of course recent events compared with the adoption of the typewriter in this country, but they show the "manifest destiny" of the typewriter to win universal recognition as an indispensable adjunct to telegraphy.

These facts are of course familiar to the up-to-date telegrapher, but they convey a message to other operators which their interests demand that they read and read aright. The purport of this message is that no telegrapher to-day can make any mark in his profession nor can he hope to secure any of the better positions unless he receives on the typewriter. The typewriter has made his advancement possible and at the same time has become indispensable to his advancement. He must adopt both of the twin arts, else he has no complete profession—he has only half a profession—and half measures do not command success in this present day world.

Edward Payson Porter, Operator.

Edward Payson Porter, of the Western Union Telegraph Company, New York, was born June 16, 1834. In June, 1846, he entered the telegraph service as a messenger in the Geneva, N. Y., office and in 1849 he was made its manager. When the House printing system was introduced, Mr. Porter entered the Rochester, N. Y., office as a student,

working the Morse system on the Genesee Valley line at the same time, and later for a few weeks also at Utica, N. Y., and at Albany, N. Y., after which he took a position on the New York, Albany and Buffalo line at New York City. He soon returned to the Morse system, working upon the "Union Line" between New York and Boston, in the New York office, and later on the New York, Albany and Buffalo line in Buffalo. In 1860, Mr. Porter went to Chicago and became connected with the Western Union Telegraph Company, and by his



E. PAYSON PORTER.
Western Union Telegraph Company, New York.

efforts the managers of the Western Union Company located at Cleveland, and the managers of the New York, Albany and Buffalo company located at Utica, connected the lines with the use of a "button repeater" in Buffalo, and direct communication between New York and Chicago was established, the business being copied in Buffalo for the purpose of making the entries between the two companies. This direct communication was not, however, continued, and at the organization of the United States Telegraph Company, Mr. Porter placed some stock for that company in Chicago on the promise that direct communication would be secured with New York.

Later Mr. Porter constructed the Metropolitan Telegraph Lines in Chicago, connecting with the United States Telegraph Company, and afterward changing to the Western Union Telegraph Company, when he again became connected with the latter, and has continued with this company until the present time. When Mr. Porter learned of the invention of the typewriter by Mr. C. Latham Sholes, of Milwaukee, Wis., in 1870, he visited that city, and his former experience as a "printing" operator enabled him to astonish Mr. Sholes with his expertness in manipulating the typewriter machine. It occurred to Mr. Porter that the typewriter would be of service in connection with the telegraph, and upon his suggestion a machine was made to make as little noise as possible, and was

used by him in the Chicago office, at first copying Washington "specials," and later for copying messages.

Mr. Porter enjoys the distinction of being the first keyboard operator in the world. On April 11, 1900, through the kindness of Mr. Francis W. Jones, Mr. Porter worked the Yetman keyboard transmitter as a test over the Postal lines between New York and Chicago, with Mr. Yetman in the latter city, and on June 27, 1902, he exhibited the keyboard transmitter to Col. Robert C. Clowry, president and general manager, and Mr. J. C. Barclay, electrical engineer, of the Western Union Telegraph Company, since which date Mr. Porter has used, and is still using, the keyboard transmitter in the Western Union office in New York, by which means he is enabled to renew his youth as an expert sender.

J. R. Dixon, Railroad Operator, Chicago.

John R. Dixon, an operator for the Chicago and Western Indiana Railroad, at Chicago, was born at Dixon, Ill., February 3, 1842. He entered the telegraph service as a messenger at Sterling, Ill., and in August, 1860, was given charge of the office. His patriotism asserted itself at the time of the Civil War, and enlisting as a soldier served during the last two years of that conflict in the territory from Cairo, Ill., to the Gulf, either with his company in the field or as an operator, in which latter capacity he rendered excellent service. At the close of the war Mr. Dixon was employed in the telegraph department and as an agent of the Chicago and Northwestern Railroad at different points, for fifteen years, and for the



JOHN R. DIXON.
Operator, Chicago and Western Indiana Railroad,
Chicago.

past twenty-five years has been a trusted employee of the railroad corporation he is now serving. He is a member of the United States Military Telegraph Corps, and possesses a military record of which he is justly proud. Mr. Dixon has a wide circle of friends in both the railroad and commercial telegraph services, who hold their professional brother in high esteem.



SHIRLEY M. ENGLISH.

General Manager Postal Telegraph-Cable Company of Texas, Dallas, Tex.

S. M. English, General Manager, Postal Telegraph-Cable Company of Texas.

Shirley M. English, assistant treasurer and general manager of the Postal Telegraph-Cable Company of Texas, whose headquarters are at Dallas, Tex., takes rank among the most successful of telegraph managing heads in this country. The system over which he presides may not be as large as some others, but the high state of efficiency to which it has been brought as exemplified in its lines, its offices and in the personnel of its operating staff, is eminently to the credit of the master mind who is the directing power.

Mr. English was born at Mobile, Ala., March 31, 1862, and hence is in the very prime of life, with physical and mental capacity at their best. In 1874, when twelve years old, a tender age for a boy to be turned out into the world to begin his career, young English became a messenger boy in the telegraph service. Yet he took good care of himself, was attentive to his duties, careful and observing, and soon began to develop those qualities of mind and action that have since acted as propelling forces in his history. Competency always attracts attention, and the individual, boy or man, who exhibits qualities of sobriety, of intelligence and of push, which place the stamp of inherent ability, at least, upon one, need not want long for the outstretch of a helping hand to assist them in the struggle of life. Such persons are at a premium in this industrial world of ours; they are sought for, and eagerly secured when found. It is not strange then that the lad, English, got an early "lift," for he was one of the kind described. At a comparatively early age he became manager of the telephone exchange in his native city, and having learned telegraphy, was subsequently appointed secretary of the Mobile and Gulf Telegraph Company, later becoming superintendent of the Mobile City Electric Light plant. Going to the larger city of New Orleans, where he believed greater advantages might be realized, and entering the telegraph service at that point, in which he quickly became expert, he at length attained the position of quadruplex chief in the employ of the Western Union Telegraph Company. He afterward transferred his services to the Postal Telegraph-Cable Company, and for a number of years held the post of chief operator, developing into an electrician of very bright parts. Here it was in the Crescent City that he acted as agent for Telegraph Age, one of the very best representatives this paper ever had. In 1896 the Postal Telegraph-Cable Company of Texas was organized, with headquarters at Dallas. In April, 1897, Mr. English was invited to enter its service as an electrician, for at this time his reputation in this respect had become well established. In this new field of endeavor he made such a fine record for himself that two years later, in 1899, he was promoted to be assistant general manager, an advance which in June, 1902, was followed by his appointment to the office he now holds.

Mr. English's capacity for work appears to be without limit. Under his intelligent and aggressive administration the earnings of the company immediately began to show large increases, the net results of which were correspondingly astonishing as they were gratifying to the executive board. Since that time the earnings have steadily advanced year by year, testifying to the ability of the methods pursued by the energetic general manager.

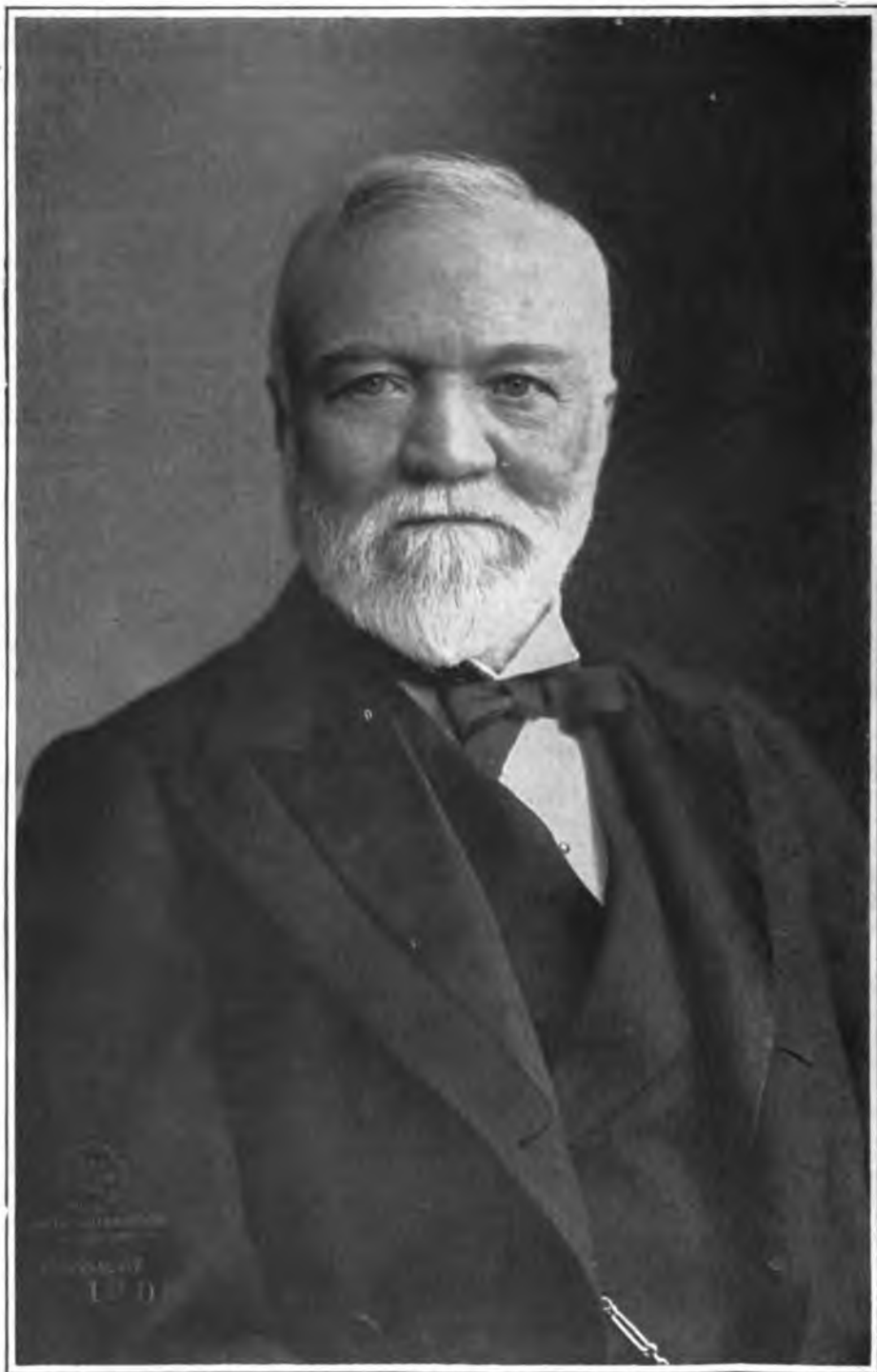
The Postal Telegraph-Cable Company of Texas operates a system embracing lines and leased wires covering the territory west of the Mississippi River in southern Missouri and Kansas, Arkansas, Oklahoma, Texas and Louisiana, with outlets at New Orleans, Memphis, Tenn., Vicksburg, Miss., and Wichita, Kan., at which points it exchanges business with the Postal Telegraph-Cable Company, the Canadian Pacific Railway's Telegraph, and connecting systems, as well as the Commercial Cable Company, Atlantic and Pacific systems and their connections. It will thus be seen that this company fills an important department in the telegraph economy of this country, larger perhaps than it has been credited with.

The lines of this company are of the very best construction in which 210 and 300-pound copper wires are used for all through circuits. Its electrical equipment is of the latest and most improved kind, and is kept up-to-date.

Western Union Telegraphic Code System.

Telegraph Age extends its congratulations to the publishers of the Western Union Telegraphic Code System, of which Benjamin Nachmann is president and A. R. Carmichael manager. These gentlemen have succeeded in establishing, for the first time in the history of code publications, a universal code system. In 1902 they concluded negotiations with the State Department in Washington whereby the Western Union Code and International Cable Directory of the World were purchased by that department of the government to file with the embassies, legations and consulates of the United States throughout the world. By this means the publishers have established a universal code system, as our government is represented in practically every city of importance throughout the civilized world. If a corporation, firm or individual has a copy of the Western Union code and sends cablegrams to any of their correspondents abroad, the latter are at liberty to seek the book at the nearest United States Consulate to translate the message, which entails no cost whatever.

The Western Union code is invaluable and is said to be steadily supplanting the older codes, the use of which has always been limited. The code under review warrants recommendation, as by its use both Americans and foreigners can effect a very material saving in telegraph and cable tolls, as compared with any other similar work.



ANDREW CARNEGIE,
New York.

Photo by Davis & Eickemeyer, New York.

Andrew Carnegie of New York.

It is something to say that a former member of the telegraph profession is regarded to-day as the richest man in the world. Not alone is it wealth that gives to Mr. Carnegie his greatest prominence, although wealth enables him to carry out his many plans of philanthropy, but his benefactions to the race will cause his name to be the longest remembered. From employment when barely thirteen years of age in 1848, as a messenger boy at Pittsburg for the Ohio and Atlantic Telegraph Company, at \$2.50 a week, to the possessor of individual wealth of a magnitude such as the world had never before witnessed, is a transition of which there are parallel cases but no equals. In briefly referring to the chief points of his career he describes himself as being at present a "man of all work." Mr. Carnegie still retains a kindly feeling for the telegraphic profession born of his own early experiences, and he is an honored member of the Old Time Telegraphers' Association. He is regarded as the "father" of the United States Military Telegraph Corps. He was born in 1835 at Dunfermline, Scotland, and his attachment to the land of his birth, to the home of his ancestry, with which he divides his time with the land of his adoption, constitutes a trait of character revealing at once loyalty, tenderness and sympathy for the associations and traditions of the past even as he possesses them in a practical measure for those of the present.

James Kent, Manager of the Canadian Pacific Railway Company's Telegraph.

James Kent, of Montreal, is at the head of the Canadian Pacific Railway Company's telegraph.

Mr. Kent was born at Montreal, January 15, 1854. Leaving school at the early age of fourteen, he found employment with the Montreal Telegraph Company in its local office as a messenger boy. His transference to the operating room as a check boy soon followed. Of a quick and observing nature, he early discerned the possibilities that lay within the path of the operator, and accordingly improved the opportunity afforded him to study and acquire a knowledge of the dots and dashes. This he did and was soon given a position as operator. Here he passed the following five years of his life, closely studying the subject and developing into an operator of most expert parts. Then came his appointment as night chief, followed in 1883 by that of day wire chief. The latter place he continued to hold until August, 1886, when he resigned to cast his fortunes with the Canadian Pacific Railway Company's telegraph. This he did by accepting the position of circuit manager, tendered him by Mr. C. R. Hosmer, who was then engaged in extending the railway's telegraph system and at a time closely approaching the date when it was to be declared open for business. His work while holding this position was most acceptable, so that his promotion in 1890 to be superintendent of the eastern

division was his reward. Later, when Mr. Hosmer retired from the managership the advance-



JAMES KENT.
Manager Canadian Pacific Railway Company's Telegraph,
Montreal, Que.

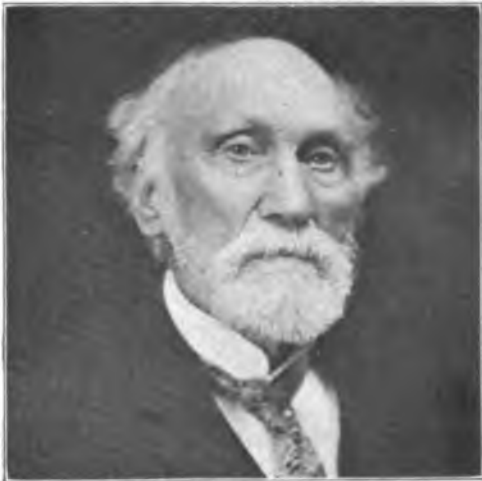
ment of Mr. Kent to the head of the telegraph department followed as a natural sequence.



WILLIAM J. CAMP.
Electrical Engineer, Canadian Pacific Railway Company's Telegraph,
Montreal, Que.

Orrin S. Wood.

Orrin S. Wood, the oldest known telegrapher in the world, reached his ninetieth birthday on December 14, last. His many friends all over this country and Canada, will rejoice to know that this venerable dean of the telegraph fraternity is well and in good health; for his is a personality held in affection by many still living who knew him and were associated with him in telegraph enterprise and management, when he was a directing and vital force among the active workers of that profession. Mr. Wood is living in retirement, dividing his time between his home in New York, where he passes his winters, and his country place at Turner, Orange County, N. Y., where his happiest days are passed amid nature scenes. Mr. Wood's first telegraph experience was acquired under the direct tutelage of Prof. Morse, with whom he had early association, becoming an operator in Washington in August, 1844, in connection with the original



ORRIN S. WOOD.
New York.

line of telegraph opened that year between Washington and Baltimore. As will be remembered, Mr. Wood built the telegraph line between New York and Philadelphia, and afterward that known as the New York, Albany and Buffalo line, along which route he also opened the principal offices. In the article printed elsewhere in this issue, it will be observed that Mr. Wood was the first superintendent and general manager of the Montreal Telegraph Company of Canada, filling this position for eighteen years. In fact, it was under his supervision that the line was built.

George H. Groce, Superintendent of Telegraph.

George H. Groce, of Chicago, superintendent of telegraph and signals of the Illinois Central Railroad, is a Pennsylvanian, the place and date of his birth being Tarentum, February 19, 1864. When sixteen years of age he entered the telegraph service of the Pittsburg and Lake Erie Railroad Company. This was in July, 1880, since

which time he has had a varied and extended career in railroad work, filling positions that may be summed up by telegraph operator, agent, train despatcher, chief operator, division superintendent



G. H. GROCE,
Superintendent Telegraph and Signals, Illinois Central R. R.,
Chicago, Ill.

ent and superintendent of telegraph. These several positions he has held on various roads, the principal of which are the Pittsburg and Lake Erie and Chesapeake and Ohio. His present position, which places him at the head of the telegraph department of one of the great railway systems of the country, has been won by merit and elevates to that responsible post a man of varied telegraphic accomplishments and of fine executive capacity.

C. A. Parker, Superintendent of Telegraph of the Moffat Road.

Charles A. Parker, of Denver, Colo., the superintendent of telegraph of the Denver, Northwestern and Pacific Railway Company (the Moffat



C. A. PARKER,
Superintendent of Telegraph, Denver, Northwestern and Pacific
Railway, Denver, Colo.

road), reached his forty-eighth year on September 2, last, having been born at New Albany, Ind., on that date in 1859. His entry into the tele-

graph service was at Mexico, Mo., with the American Union Telegraph Company, when twenty years of age. Since that time he has had a varied telegraph career, mainly in the railway service, in which he has filled numerous positions, a number of them being in the capacity of superintendent of telegraph of different roads.

Edward J. Wehrley.

Edward Justus Wehrley, connected with the American Telephone and Telegraph Company, New York, is a native of Hanover, O., where he was born August 25, 1873. He began life as a telegraph messenger at Newark, O., when a lad of twelve, subsequently becoming an operator and assistant manager of the Western Union office at that point, afterward superintendent of the local electric lighting plant, and later being engaged in electrical construction work. In 1899 Mr. Wehrley came to New York to accept the position of assistant wire chief of the American Telephone and Telegraph Company, since which



EDWARD J. WEHRLEY.
Special Agent, American Telephone and Telegraph Company,
New York.

time promotion has advanced him to the post of assistant chief operator, followed by that of a chief clerkship, special agent in charge of telegraph work in the traffic department and special agent in charge of the telegraph service leased wire department, which he now fills. Mr. Wehrley is a member of the American Institute of Electrical Engineers, New York Electrical Society and the Telephone Society of New York.

George W. Hickey, Former Telegrapher.

George W. Hickey, a former well-known telegrapher, who now holds a position with the Equitable Life Assurance Company, New York, is a native of Watertown, N. Y., where he was born October 25, 1862. He entered the telegraph service at Carthage, N. Y., in 1881, and his proficiency as an operator soon gained for him recognition, and his promotions carried him to the several posts of inspector, chief operator and manager.

During the Spanish-American War he was active in the operations of the Signal Corps in Porto Rico. Mr. Hickey still retains fellowship with the fraternity, for he is a member of the Old Time Telegraphers' and Historical Associa-



G. W. HICKEY.
New York.

tion, the Magnetic Club and other telegraphic organizations, and is always pleased to keep in close touch with interests with which much of his life has been closely identified.

Isaac Morris, American District Telegraph Company, Cleveland.

Isaac Morris is the manager of the American District Telegraph Company at Cleveland, Ohio. He was born at Cradley, England, August 4, 1853, and was but a lad of ten when he became a telegraph messenger at Dudley Port, that country.



ISAAC MORRIS.
Manager American District Telegraph Company,
Cleveland, Ohio.

Coming to this country he early sought identification with the telegraph, in which he has had a constantly advancing career, for his knowledge of telegraphy acquired by practice, by study and by close observation, has been of a character to in-

sure his selection for advancement. Promotion has carried him from the position of operator to those of traffic chief, wire chief and chief operator, finally placing him in control of the office first referred to.

John H. Shearer, Division Operator, Elmira, N.Y.

John H. Shearer is a division operator at Elmira, N. Y., of the Northern Central Railway Company, a part of the system of the Pennsylvania Railroad Company. Mr. Shearer is a native of York County, Pa., and was born September 18, 1843. His entry into the telegraph service dates from June 1, 1864, at Hanover Junction, Pa., in the employ of the same company with which he has since continuously remained. He worked in this office as an operator for two years, when he was transferred in the same capacity to the superintendent's office at Harrisburg, going thence, after two years, to Elmira to fill the appointment as a train despatcher. This position he filled until 1883, when he was promoted to the dual office of division operator and paymaster, both of which he has since held, until about two years ago, when he was relieved of the latter because of the increasing burden of the duties of the office. Mr. Shearer stands high as a thoroughly well-informed and expert telegra-



JOHN H. SHEARER.
Division Operator, Northern Central Railway,
Elmira, N. Y.

pher. He has earned for himself an excellent name in the business and social world in which he moves, and is recognized as a man of high probity of character.

David Homer Bates.

David Homer Bates was born in Steubenville, Ohio, July 3, 1843, and received a common and high school education in that town, and also in Pittsburg, Pa. In 1859 he entered the service of

the Pennsylvania Railroad Company as messenger, soon learning telegraphy. His immediate superiors were David McCargo, superintendent of telegraph, and Andrew Carnegie, superintendent of the Pittsburg division. When the Civil War broke out young Bates was employed in the general superintendent's office at Altoona, and from there went to Washington, D. C., to enter the government telegraph service. When William B. Wilson resigned as manager of the



DAVID H. BATES.
New York.

War Department telegraph office, in March, 1862, Mr. Bates took his place, and in that position he remained until July, 1866, his superintendent being Major Thomas T. Eckert, as he was then called. During the four years of the Civil War, Mr. Bates had exceptional opportunities for personal acquaintance with Abraham Lincoln, which have been availed of in an intensely interesting volume recently published by the Century Company, to which editorial reference was made in *Telegraph Age*, November 1, 1907. In August, 1866, Mr. Bates entered the employ of the Western Union Telegraph Company as manager of the Washington office. A year later he succeeded David Brooks as superintendent at Philadelphia, and after intervals of service with rival lines, as general superintendent of the Atlantic and Pacific Telegraph Company, Atlantic division, and vice-president of the American Union Telegraph Company, Mr. Bates returned to his old love, the Western Union company, as assistant general manager and acting vice-president, which positions he held until 1884, when he became president of the short-lived but decidedly active Baltimore and Ohio Telegraph Company. When that system was turned over to the Western Union company in October, 1887, Mr. Bates retired from active service in the commercial telegraph field. For twenty years he has been vice-president of the Gamewell Fire Alarm Telegraph Company, whose system of fire and police alarms is installed in nearly two thousand cities and towns in the United States and abroad.

F. P. Foster, Secretary of the International Association of Municipal Electricians.

Francis Perry Foster, of Corning, N. Y., secretary of the International Association of Municipal Electricians, now with the Corning Glass Company, but formerly superintendent of fire telegraph at Corning, is a native of the place in which he resides, and was born September 21, 1867. In early life he removed with his parents to Alabama, and from the first was obliged to earn his own living, at a time when most boys should be at school. Yet he was diligent and studious and made the most of himself. His early years saw much diversity of occupation, employment in various electrical pursuits, in which he showed much aptitude, affording him the greatest satisfaction. He also had some experience in a printing office, in which he worked at the case. Returning to his native place on January 1, 1886, where he has since resided, dentistry engaged his attention, a profession which he has since followed in conjunction with other duties. When the fire alarm system was installed in Corning in 1893 Mr. Foster was a member of the Fire Board, and his knowledge of electrical matters enabling him to settle a disputed technical question, he was given the position of superintendent, which he continued to hold until recently, when he entered the glass business. Mr. Foster was active in



FRANCIS P. FOSTER,
Corning, N. Y.

promoting the formation of the International Association of Municipal Electricians, and has served as the secretary of that body for many years, still filling the position. Mr. Foster is essentially a self-made man and is a close student.

Clement Lee, Superintendent of the Direct United States Cable Company, New York.

Clement Lee, superintendent of the Direct United States Cable Company, 60 New street, New York, is a man well qualified by long ex-

perience, careful training, as well as by a certain natural aptitude for the duties required, to fill the position he occupies in the cable service.

Mr. Lee was born at Whitchurch, Salop, England, in 1858, at which point in 1874 he began his telegraphic career as a junior clerk in the Postal telegraph employ. His appointment as an operator at Liverpool soon followed, a situation he held for two years. He then accepted a



CLEMENT LEE,
Superintendent of the Direct United States Cable Company,
New York.

position in the relay office of the Direct Cable Company at Chester, from which, after three months' service, early in 1876, he was transferred to New York as an operator. The record made by Mr. Lee in this position, long held by him, was an excellent one. He was a careful observer, made the most of his opportunities, and obtained a comprehensive grasp of the business in which he was engaged, his conduct winning the approval of his official superiors. His reward came in 1899, when he was made manager of the office. His further promotion to the position of superintendent in 1905 was another recognition of his all-around abilities.

J. L. Henritzy, Superintendent of Telegraph.

James Lewis Henritzy, who is the superintendent of telegraph of the Colorado and Southern Railway Company at Denver, Colo., is a native of Pennsylvania, and was born in August, 1865. He began his career as a telegrapher at Slatington, Pa., in June, 1879, as a messenger, a lad who had not yet reached his fourteenth year. Improving his opportunities he learned to telegraph, and in November, 1880, secured a position as an operator and clerk in the employ of the Lehigh Valley Railroad, subsequently transferring his services to a like position with the Philadelphia and Reading Railroad at Reading, Pa., which he retained from September, 1882, to February, 1886. He was attentive to business and his habits were studious, and he became an expert and well informed operator. This secured

his appointment in March, 1886, before he had reached his twenty-first year, as chief operator of the Postal Telegraph-Cable Company at Omaha, Neb. It was in August, 1891, that he resigned this place to accept the position of stenographer and cashier of a local brokerage concern in whose employ he remained for over five years. He then, in March, 1897, became chief clerk to the general manager of the Union Stock Yards Company located at South Omaha. From this place he retired to accept in July, 1898, a position as stenographer and operator with the Western Union Telegraph Company in Omaha, there remaining until the close on January, 1900. He then became chief clerk of the telegraph department of the Colorado and Southern Railway Company, Denver, from which, on November 1, 1906, he was promoted to be superintendent of telegraph of that system. As a telegrapher and



J. L. HENRITZKY.

Superintendent Telegraph, Colorado and Southern Railroad,
Denver, Colo.

an executive officer in the operating department of that railroad, Mr. Henritzky stands deservedly high.

Stephen E. Barton, of Boston.

Stephen E. Barton, now extensively engaged in the fire, marine and casualty insurance business at Boston, as a member of the firm of Starkweather and Shepley, has had a varied experience as a telegrapher. He was born at Oxford, Mass., December 24, 1848. Becoming an operator, he entered the telegraph service at Hilton Head, S. C., in 1863, during the Civil War, as a member of the United States Military Telegraph Corps, serving through the war. Going west, he was with the United States and Western Union telegraph companies at Cincinnati and other points in 1865-1866, serving afterward with the Atlantic and Pacific and Franklin telegraph companies at Springfield, Mass. During 1867 to 1869 he was in the employ of the New York, Newfoundland and London and the Cape Breton and Newfoundland telegraph companies; in 1870 serving in the cable department of the Western Union at 145 Broadway, New York, and in the Cape

Breton cable office in 1871. In 1872-73 he was an operator in the Franklin Telegraph Company



STEPHEN E. BARTON.
Boston, Mass.

at Boston and at Worcester, Mass. For a while he was a correspondent of the Boston Herald. Branching into the fire insurance business in 1874, an occupation in which he has since remained, he is still, as he says, "one of the boys."

G. E. Fletcher, Hotel Proprietor, Sandwich, Ill.

George E. Fletcher, proprietor of the Sandwich House, at Sandwich, Ill., formerly a well-known telegrapher, and who still manifests his loyalty to the profession by continuing a subscription to Telegraph Age, which now dates back twenty-two years, was born at Elgin, Ill., November 2, 1855. He made his entry into the telegraph service at Lawrence, Kan., in 1872, and speedily became an operator of merit, at the same time developing abilities of an executive nature that



GEORGE E. FLETCHER.
Sandwich, Ill.

later won for him distinct recognition in the service. For, from the key, he was given mana-

gerial positions, and in such capacity served the Western Union Telegraph Company at Pueblo and Central City, Colo.; Huron, South Dakota, and Bismarck, North Dakota; Great Falls, Mont., and Duluth, Minn. He was also manager of the Chamber of Commerce office of the North American Telegraph Company, at Minneapolis. Retiring from the telegraph business about three years ago, he entered that of hotel keeping, in which he is achieving success.

Albert W. Orton, of Rome, N. Y.

Albert William Orton, a former well-known telegrapher, is now the secretary and treasurer of the Rome Box and Lumber Company, of Rome, N. Y. Born in that city, October 5, 1842, it was also the point at which he entered the telegraph service in April, 1856, the railroad first engaging his attention. From Rome he went to Troy and subsequently to Albany in the employ of the New York Central Railroad. The Civil War breaking out he promptly tendered his services to the government as a telegraph operator, and as a member of the United States Military Telegraph Corps, he had an honorable, active and memorable career. That service placed him in the War Department, with the army, at Alexandria and Tennytown, Va., and at headquarters, Department of Washington, at a point opposite the White House. Subsequently he was an operator for the Western Union Telegraph Company at 145 Broadway, working the Atlantic cable wire, afterward becoming manager of the



ALBERT W. ORTON,
Rome, N. Y.

branch office in the financial district of the Independent Telegraph Company, located at William and Beaver streets. Mr. Orton left the telegraph business in 1868, but although many years have elapsed since his retirement, he still retains his old time regard for the profession to which he often, and with pride, refers.

Charles A. Tinker, Retired.

Charles Almerin Tinker, of Brooklyn, N. Y.,

holds an honored name in the annals of telegraphy. Born at Chelsea, Vermont, January 8, 1838, he learned telegraphy at Northfield, in his native state, in the office of the Vermont and Boston Telegraph Company, in 1852. After three years' service as an operator he succeeded to the management of the office. Going thence to Boston, he finally went west to Chicago, where in January, 1857, he became an operator for the Illinois and Mississippi Telegraph Company. Other changes occurred, and



CHARLES A. TINKER.
New York.

in October, 1861, Mr. Tinker became an operator of the United States military telegraph service in the War Department at Washington, afterward being detailed as an army operator at the front, and later, by recall, being appointed chief operator and cipher operator at the War Department. He succeeded to the management of the office, finally closing up the affairs of the military telegraph. In 1867 he was appointed manager of the Western Union Telegraph Company at Washington, resigning in 1872 to become superintendent of telegraph and general train dispatcher for the Central Vermont Railway, at St. Albans, Vt. In 1875 he accepted the appointment of general superintendent of the Central and Pacific divisions of the Atlantic and Pacific Telegraph Company, at Chicago. This company becoming merged with the Western Union, in January, 1879, Mr. Tinker received the appointment of superintendent of telegraph of the Baltimore and Ohio Railroad Company at Baltimore. In this position he became one of the incorporators with the late Jay Gould and David H. Bates, of the American Union Telegraph Company, with which the Baltimore and Ohio Railroad Company became allied. In 1881, when the Western Union Telegraph Company absorbed the American Union, the former tendered to Mr. Tinker the general superintendency of the eastern division, New York, the duties of which position he entered upon February 1, 1882. He retired from the telegraph service May 1, 1902.

William Maver, Jr., Electrical Expert.

William Maver, Jr., began his electrical experience in 1870, with the Mutual Telegraph Company, in Montreal, Canada, in which city he received his early education. Coming to New York in 1873, he entered the service of the Western Union Telegraph Company as an operator, and subsequently became a quadruplex expert. In 1884 Mr. Maver was offered a position in the electrical department of the Baltimore and Ohio Telegraph Company and was ultimately appointed electrical engineer of that company. Shortly after the absorption of the Baltimore and Ohio Telegraph Company by the Western Union Telegraph Company, in 1889, Mr. Maver was tendered a position as an electrician with the latter company, but decided to branch out as an independent electrical engineer and expert, which he did making his headquarters in New York City, and where he has since enjoyed a uniformly successful practice. Since 1889 Mr. Maver has acted as consulting electrical engineer and expert for the Safety Insulated Wire and Cable Company of New York City, the New York Heat, Light and Power Company, the Consolidated Telegraph and Electrical Subway Company of New York City and for numerous other electrical interests.

Mr. Maver is well known as a prolific writer



WILLIAM MAVER, JR.
New York.

on electrical subjects, and has always kept in close touch with matters pertaining to telegraphy, being the author of the standard work, "American Telegraphy and Encyclopedia of the Telegraph," "Maver's Wireless Telegraphy" and other books.

S. B. Lefley and His Telegraph Key.

The Lefley telegraph key is the invention of S. B. Lefley, of Columbia, Pa. This key possesses a number of excellencies in construction, among them being the triple knife blade hinge, the use of which eliminates all side motion of the lever, thereby giving to it a very delicate touch. The rear end contact, situated at the same distance

from the fulcrum as the key knob, gives a greater opening between contact points, thus making a clearer break. Besides this the contact plate on the end of the lever insures a firmer contact than if two small points were used. Then, again, the lever which is pivoted in the center has a perfect balance, and being thinner at the front end, is given a resilience which makes it easier on the sender, thus doing away with all nerve-racking jar.

This key appears to be rapidly finding its way into popular favor among operators, as its speed and relief-giving qualities become better known. In fact, its use has extended to all parts of the country, including far away Alaska. The inven-



S. B. LEFLEY,
Columbia, Pa.

tor of this clever instrument is a native of Ohio, in which state he was born at Waterville, August 7, 1860. Early in life he acquired a rudimentary knowledge of telegraphy, and as a lad began to show inventive genius which led him to construct at that time a crude, yet meritorious, telegraph key. He attained a fuller understanding of the dots and dashes, and for a period had a varied experience in the telegraphic field. For five years thereafter he held a position as engineer and operator with the Tide Water Pipe Line, going thence in the same capacity with the Standard Oil Company. For eighteen years he occupied, first the position of operator and later that of operator and engineer, with the Crescent Pipe Line Company. In the working out and in the development of the ideas embodied in the key which bears his name, Mr. Lefley has brought to his task a mind disciplined by the long years of application as a practical telegraph operator and by the careful study of his subject.

W. C. Hirschert, Erie Railroad Telegraph Manager at Salamanca, N. Y.

William C. Hirschert is the manager of the Erie Railway telegraph office at Salamanca, N. Y., a busy point, where he is rendering excellent service in a position where the experience gained by years of duty has proved his fitness

and capacity for performing the work involved. He was born at Dunkirk, N. Y., March 26, 1860, where also he learned to telegraph, and where he first entered the service of the dots and dashes in 1881. On May 1 of the following year he became an operator for the Erie Railroad at Salamanca, N. Y., which place has since remained his home. On February 3, 1886, he was promoted to the position of joint manager of the Western Union and Erie Railroad telegraph office. This



W. C. HIRCHERT.
Erie Railroad, Salamanca, N. Y.

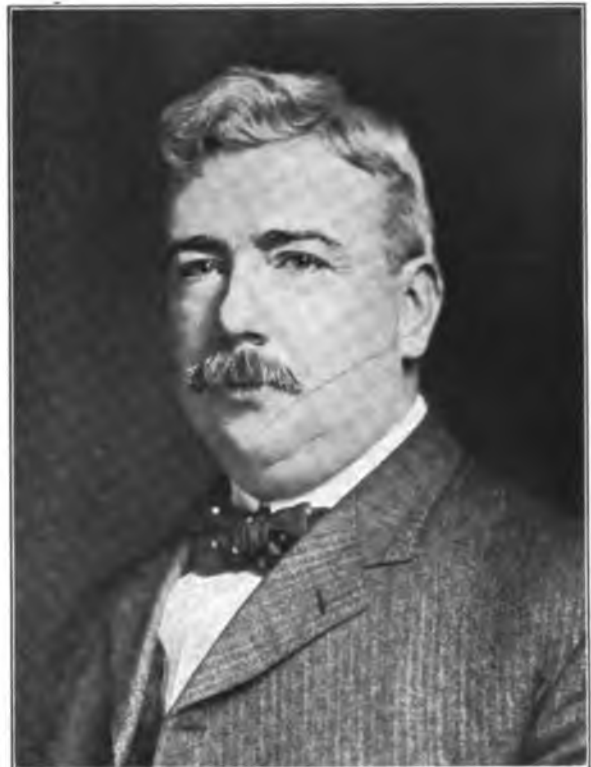
he continued to hold for nearly twenty-one years, until January 15, 1907, when district offices being established, Mr. Hirschert was retained as manager of the Erie telegraph interests.

M. W. Rayens, President United District Messenger Company, New York.

The district messenger service in one form or another in the city of New York constitutes a distinct branch in the local business and social economy of the metropolis, that in its particular sphere of usefulness nothing else approaches. Probably no one has a broader knowledge of the messenger service in its every department than M. W. Rayens, of New York. He has served in the ranks, come up through every avenue of promotion, and has reached his position at the top because it has been earned.

Mr. Rayens was born in Ireland, February 8, 1864. His early education was acquired in the public schools of New York City. In September, 1877, he began his career as a messenger for the American District company. His promotion to a clerkship quickly followed, in which capacity he served in several different offices of his company. Acquiring the art of telegraphy he developed into an expert operator, later serving the Western Union Telegraph Company in this capacity at their branch office at 791 Broadway. At this point he remained for three years, each summer being assigned to the office at Long Branch, N. J. In 1884 he was placed in charge of the office at the Fifth Avenue Hotel, subse-

quently being transferred to the head of the branch office at 854 Broadway. In 1890 he was given the managership of the Western Union delivery department at the main office, 195 Broadway, two years later having his jurisdiction extended to include the receiving department as



M. W. RAYENS.
President and General Manager United District Messenger Company,
New York.

well. His appointment as superintendent of the American District Telegraph Company soon followed. In 1903 he organized and became president and general manager of the United District Messenger Company, of which he is still the head, and which is located at 206 Broadway.

Mr. J. J. Ghegan, President of J. H. Bunnell and Company.

Mr. John J. Ghegan, president and general manager of J. H. Bunnell and Company, incorporated, 20 Park place, New York, like many another successful business man, is a graduate from the key of which he proved himself to be a most efficient operator. Born near Dublin, Ireland, in 1855, he came to this country when but a small lad. He first learned telegraphing in 1869 with the late John E. Zeublin, at the old Western Union Telegraph office at Third and Chestnut streets, Philadelphia. His first position as an operator was on the Camden and Amboy Railroad, under Robert Stewart, then superintendent of telegraph. This employment, however, he soon left to go with the Automatic Telegraph Company, at Chester, Pa. Here his habits of thrift were shown, when at the time of the great Boston fire in 1872 he took advantage of the occurrence and worked extra in

the Western Union service in the neighboring city of Philadelphia. In November of that year, when but seventeen years of age, young Ghegan was made night manager of the Western Union office at Newark, N. J. At this point he successfully organized ticker circuits and a telephone exchange for the Gold and Stock and Western Union companies. Subsequently, on the consolidation of the Bell and Gold and Stock telegraph interests, he became manager of the Western Union offices in



JOHN J. GHEGAN.
New York.

Newark, a position he continued to hold until the consolidation of the American Union Telegraph Company with the Western Union, when he accepted service with the Mutual Union Telegraph Company in superintending the construction of its wires throughout northern New Jersey. Completing this work he went to Monterey, Mexico, there to become the general manager of the Mexican Northern Telephone and Telegraph Company. This position he filled with signal ability for two years, when he returned to New York on invitation to accept a responsible place with the well-known house of J. H. Bunnell and Company, with whose interests he has been continually identified ever since.

The varied experience Mr. Ghegan has gained as a telegrapher has stood him in excellent stead during these recent years of his business life. For, identified with a house making the manufacture of fine telegraphic material a specialty, his practical knowledge of all such requirements, coupled with keen business acumen, and a genial manner, has naturally won for him the confidence of the telegraph people as well as those with whom he is associated. In the recent reorganization of J. H. Bunnell and Company, his services received willing and just recognition in his advancement to the high position he now holds.

As an inventor Mr. Ghegan has also won much credit, recent examples of his aptitude in this re-

spect being shown in his automatic telegraph repeater, which is coming into extensive use, and by his system of duplex duplex telegraphy, simple and ingenious of arrangement.

He has just been allowed a patent on a way duplex which looks very promising and on an improvement in the quadruplex, practical tests of which seem to indicate that the tantalizing reversal bug has at last been entirely eliminated and a perfect working four-sided quadruplex obtained.

Henry A. Reed and His Work.

Henry Augustus Reed, born at Carmel, Putnam County, N. Y., February 11, 1829. Worked on his father's farm, going to district school winters until seventeen years old. Taught school three years. While teaching in Carmel village in the spring of 1849, boarding with John S. Brown, who was operator there, became somewhat familiar with dots and dashes, the battery and instruments, and was given charge of that office July 1, 1849, before ever having tried to send or receive a message.

By working all night and all day on Sunday was able to receive on paper and send, so that Henry F. Makepeace (then chief of the New York office) succeeded in getting his messages and repeated such as went to other places. In a few



HENRY A. REED.
New York.

days he was able to stand alone. Carmel did very little business, but was useful as a testing and repair station. As it was thought that repairs on that section, reaching from White Plains to Stormville (sixteen miles south of Poughkeepsie), could be done more expeditiously from Croton Falls, Mr. Reed was directed to move the office to that place, and in March, 1850, he opened there the first office on the Harlem Railroad. In July, 1850, he was transferred to Hudson, N. Y., going

as far as Poughkeepsie, on the Hudson River Railroad, which had been operating to that place less than a month. From Poughkeepsie he reached Hudson by day boat.

The winter of 1850-51 was the last for the old mail coach along the Hudson River. That winter the mails were carried by stage under military guard from Poughkeepsie to Albany, but the Hudson River Railroad ran its cars to Albany in the summer of 1851, ending the stage period there.

Mr. Reed remained at Hudson two years and then became first assistant to Sam Mac Gowan, manager of the New York, Albany and Buffalo Telegraph Company, whose office was located at Wall Street, New York, but city life did not agree with him and in March, 1853, he took charge of the Poughkeepsie office of the same company.

In March, 1855, Mr. Reed opened a book store in Poughkeepsie, moving the telegraph office into his store, where he had charge of it during the Civil War, but in 1866 his book business requiring his whole attention, he gave up telegraphy, having been engaged therein for seventeen years. In 1876 he became an accountant, making a specialty of the settlement of estates, adjustment of taxes, etc.

In 1878 he was given charge of the estate of Mrs. Samuel C. Bishop, which was operating the Bishop Gutta-Percha works, and was threatened with a suit for the infringement of the Simpson patent for the use of gutta-percha in insulation. The suit against the Western Union Telegraph Company for the use of the cables was before the courts for about two years. During that time Mr. Reed was watching the evidence and studying the literature and science of insulation and all patents thereon, foreign and domestic, and when papers were served on the Bishop attorneys he produced evidence which caused the withdrawal of the suits and saved the estate, although the Western Union had paid \$100,000 damages. Soon after this settlement the present Bishop Gutta-Percha Company was formed in 1885, the legatees of Mrs. Bishop owning the stock. Mr. Reed was made secretary, but continued his accounting business until 1887, when opposing companies were getting the business and he was induced to give up his outside work and take full charge as manager, a position which he still holds. In 1892 he was made treasurer and in 1904 president.

Mr. Reed has three sons, William Boardman Reed, C.E., Union, '82, who is now treasurer of the company; Henry Douglass Reed, M.E., Stevens, '92, who is vice-president and superintendent, and Louis F. Reed, attorney, who is secretary.

Only one of the seven original stockholders is now living, and Mr. Reed and family have acquired four-fifths of the stock of the company, which has increased in value many fold since he took charge a little more than twenty years ago.

Mr. Reed married in 1859 Alice Amelia Boardman, who, with the three sons before mentioned and a daughter, are all enjoying good health.

J. N. Worl, of Westfield, N. J., Retired.

James Norris Worl, of Westfield, N. J., now retired, is an old time telegrapher whose first employment in the telegraph service dates back to May, 1848, and whose subsequent career has been filled with interesting, exciting and historical import. He was born in Philadelphia, April 15, 1833, and is consequently approaching his seventy-fifth birthday. He possesses an extensive acquaintance, and during his career has been associated with many men eminent in the telegraph and cable services. One of the most dramatic incidents of his life was his arrest, because of his telegraph connection, by the government during the Civil War for alleged complicity in the bogus Presidential proclamation calling for 400,000 additional troops, the authorship of which was afterward traced to Joseph Howard, Jr., who was then and is now, a journalist. The story has been told in full in these columns in a sketch written by Mr. Worl himself. Another incident in the life



J. N. WORL.
Westfield, N. J.

history of Mr. Worl relates to the fact that in 1867, in conjunction with his brother, W. S. Worl, he secured a special grant from Congress giving the American Atlantic Cable Company, of which he was the principal member, the exclusive right for twenty years, to land ocean cables on the Atlantic coast. Under this right the shore connections of the United States Direct Cable and the French Cable were laid, the work being done by Siemens Brothers, of England.

Retiring from telegraphic interests in 1870, Mr. Worl became engaged in the manufacture of artificial stone and Portland cement, in which he has continued until within a comparatively short time. Incidentally, in 1872, he became interested in horse railroads, organizing and promoting the company and constructing the road from Hunter's Point, L. I., to Astoria and Steinway. In that year he was appointed postmaster at Ravenswood, L. I., holding that office through the successive administrations of Grant, Hayes and Arthur.

Daniel H. Hebner, Telegrapher and Stenographer.

The subject of this sketch is a telegraph operator and stenographer, employed in the office of the commandant of the navy yard at Puget Sound, Wash. Not only is he proficient at the key, and likewise as a stenographer and typewriter, but he also has abilities as a writer. He has served in his present position for upwards of five years, his appointment, obtained under Civil Service rules, dating from August 26, 1902. His efficiency is reported at ninety-three per cent., and he is recommended for promotion. His present detail comes under the title of "stenographer, typewriter and telegrapher."

Mr. Hebner is a Canadian by birth, having been born at Zephyr, Ont., January 20, 1868. He acquired a business college education, in which he was well grounded in the art of telegraphy, and began his career as a telegrapher at Clearwater, Minn., in November, 1892. As an operator he became expert, acquiring an excellent reputation as such. In the line of his profession he held various important positions in the railroad service, notably in the employ of the Great Northern, Mesaba Southern, Minnesota Transfer and Chi-



DANIEL H. HEBNER.
Seattle, Wash.

ago Great Western. This covered a term of five years, included in which time he was for five months engaged in the railway mail service at St. Paul, Minn., as stenographer and tabulator.

In the line of commercial work Mr. Hebner performed the duties of stenographer and typewriter for about two years for the Konantz Saddlery Company, from which place he was appointed to his present position.

Mr. Hebner possesses a pleasing personality and brings to the practice of his profession a

nice sense of its duties, intelligent application and painstaking effort.

H. G. Haddon, Martha's Vineyard Telegraph Company, Woods Hole, Mass.

Henry G. Haddon, of Woods Hole, Mass., president and general manager of the Martha's Vineyard Telegraph Company, was born at Long Pond, Newfoundland, November 18, 1866. His entry into



H. G. HADDON,
General Manager Martha's Vineyard Telegraph Company,
Woods Hole, Mass.

telegraph employ was at St. Johns, that island, in 1885. From 1887 to 1890 he was manager, respectively, at the several points of Holywood, Harbor Grace Junction, Logo and Grand River, N.F. From 1890 to 1893, he served as an operator at the cable station at North Sydney, C. B., and from 1893 to 1901 he was an operator for the Postal Telegraph-Cable Company, at Boston, Mass. At the latter date he received the appointment to his present position. Mr. Haddon since taking hold of his present undertaking has developed it into a successful business venture.

M. J. O'Leary, Secretary of the Telegraphers' Mutual Benefit Association.

M. J. O'Leary, secretary of the Telegraphers' Mutual Benefit Association, an office he has held since 1897, was born in Cork, Ireland, where he received his education and where he engaged in mercantile business for several years.

On arrival in this country he joined the telegraph service as clerk with the French Atlantic Cable Company, in November, 1880, where he remained till that office was closed June 30, 1882, when he entered the cable service of the Western Union Telegraph Company, in which he remained until he became identified with the organization with which he is now connected. Under his direction the Telegraphers' Mutual Benefit Association has reached a position of commanding influence in the insurance world, its membership has increased to 5,400; benefits to

the amount of \$725,000 have been disbursed and the reserve fund has increased to \$282,000, the largest amount in proportion to contingent liabilities held by any co-operative insurance association.

J. F. Gormley, Retired Telegrapher.

James F. Gormley, a resident of Boston, a well-known telegrapher, now retired, was born in London, England, March 3, 1836. He came to this country when but a mere lad. Finding a home in Hartford, Conn., he entered the telegraph service in that city in 1850, beginning as a messenger boy, soon, however, being taken into the office. Naturally of a bright and inquiring turn of mind, he took advantage of the opportunities offered him to learn telegraphy, and soon gained promotion to the position of operator. Eventually Mr. Gormley became highly expert at the key and enjoyed a fine reputation as an operator. During his life he has held numerous positions of responsibility in the telegraph service, at one time managing and operating a line of several miles, embracing five offices, within the city of New York. Mr. Gormley in the course of a long life has accumulated many facts and incidents regarding the telegraph. These he tells in interesting story, the first installment of which will later on appear in these columns.

Tom O'Reilly, Telegrapher and Journalist.

Tom O'Reilly was born in the City of Edinburgh, Scotland, on December 5, 1854. He en-



TOM O'REILLY.
Philadelphia, Pa.

tered the government telegraph service in that country in 1874. He came to the United States in 1882 and was employed as an expert Wheatstone operator by the Western Union Telegraph Company in New York City. He has been a picturesque and interesting figure in labor circles. In 1883 he was a leading factor in the memorable telegraphic strike of that year, following which he was elected national president of the Telegraphers' Brotherhood in 1884, 1885 and again in 1886. Afterward he was appointed

general organizer and lecturer for the then powerful organization, the Knights of Labor. He was editor of the Knights of Labor Journal from 1889 to 1894, when he was appointed assistant state librarian of Pennsylvania, which position he held during the entire administration of the late Governor Daniel H. Hastings, later being called to Washington to serve in the capacity of confidential clerk to the Hon. T. V. Powderly, commissioner-general of immigration. On the retirement of his chief, Mr. O'Reilly was assigned as immigrant inspector at Niagara Falls, N. Y., and after six months was transferred to the more important station at Montreal, Que., where he remained about one year. He then took a civil service examination for promotion with the result that he was appointed inspector in charge of the immigrant station at Buffalo, N. Y., and remained there three years. The severe winters of the lake region affected his health, the duties became too exacting and he resigned, returning to Philadelphia to resume journal work, which he found more congenial, and in which he is now engaged.

G. M. Eitemiller, Western Union Wire Chief, Pittsburg, Pa.

George M. Eitemiller, wire chief of the Western Union Telegraph Company at Pittsburg, is a native of McConnellsburg, Pa., where he was born May 3, 1849. He entered telegraph employ as a messenger in his home town in July, 1863, and when he had begun to get the hang of telegraphy, was given a position as an operator at Chambersburg, Pa., on the old Inland and Independent lines. The time spent at this point might properly be denominated as his student period. After this, on January 8, 1864, he opened the first telegraph office established at Somerset, Pa. In the fall of 1864, when working at Philadelphia in response to an application made to Major Eckert for a position in the military telegraph service, he was ordered to report to Major Gilmore, then in charge of the North Carolina department. His service in the military telegraphs was of short duration, for owing to his youth his parents objected and he returned to Philadelphia, there to enter the employ of the Atlantic and Ohio Telegraph Company, under David Brooks. After this, in the service of the Pennsylvania Railroad, during a period of double-tracking that road, young Eitemiller was detailed for special telegraph duty at various points. In 1868 he accepted a position with the Pacific and Atlantic Telegraph Company, at Philadelphia, going thence in the same employ to Pittsburg. In 1870 he entered the Western Union office at that point, in the fall of that year going to Richmond, Va., thence going to Savannah, Ga., as manager for the Southern and Atlantic Telegraph Company. In July, 1871, he came to New York and worked for the Western Union in the old office at 145 Broadway. Mr. Eitemiller returned to Pittsburg in 1876, where, in Western Union employ, he has since practically remained.

The Telepost.

BY J. W. LARISH.

Since the sale of his synchronous multiplex telegraph system to the British government in 1885, Mr. Delany has given his best thought to automatic telegraphy.

In the system now perfected by him the record is made on a receiving tape by the electro-chemical effect of the passing of the impulse; no armatures to move, no electro-magnets to energize, no repeaters, no relays, no "balanced line". The moving tape is part of the circuit and the duration of the impulse determines the length of the mark, —short or long, dot or dash.

Thorough tests on telephone circuits prove that the Delany system can utilize telephone wires with no interference from or with conversations going on at the same time. Over a year's daily commercial work proves that the system is able, economically and accurately, under practical-

reaches the delivery department at the receiving station.

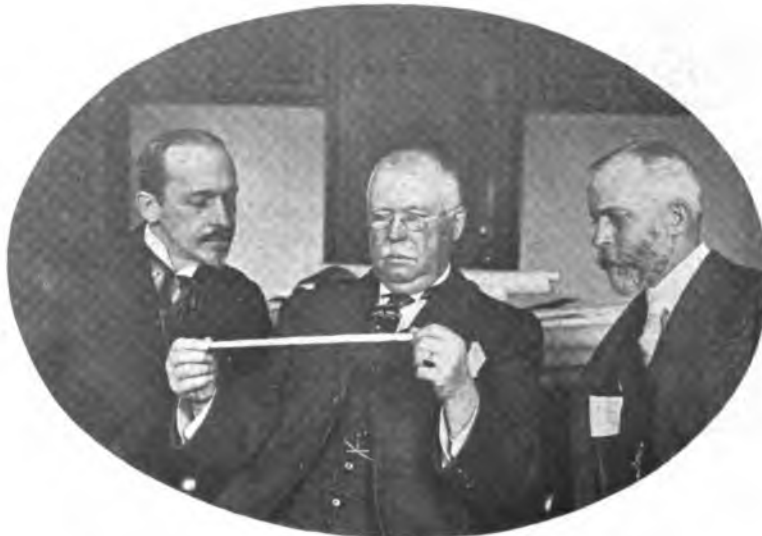
All patents are of comparatively recent date, including one covering most broadly the utilization of the static capacity of the line, which, until Mr. Delany's remarkable discovery, was, as is known to all telegraphers, the chief obstacle to accuracy and speed in automatic telegraphy.

Some ten years ago the Messrs. Sellers became convinced that the telegraph situation in the United States offered an unusually good field for profitable investment, and that the hand-labor methods so universally in vogue should be supplemented by machine telegraphy.

The Messrs. Sellers are from the South, where they are widely and favorably known in connection with industrial, commercial and educational matters, their people having been prominently identified with the best history of the Southwest from the earliest pioneer days.

Recognizing Mr. Delany as the ablest inventor

MR. DELANY AND HIS ASSOCIATES.



H. Lee Sellers.

P. B. Delany.

R. H. Sellers.

ly all kinds of weather conditions to handle a business on one wire that would require seventeen wires quadruplexed or sixty-eight used simplex by present methods.

By a special adaptation of this system a press message may be sent from New York to San Francisco at a speed of one hundred and fifty words a minute and leave at every town on the way a drop copy ready for immediate setting into type.

While some of the ablest and best inventors have worked along the same lines with only partial success, Mr. Delany's many years of constant and persistent effort have enabled him to perfect a system remarkable for the results it accomplishes, the simplicity and originality of its means and its complete adaptability for the needs of a telegraph company. Every feature is covered by patents, from the time a message comes to the operating department until it

reaches the delivery department at the receiving station. In the telegraph field, and believing that he had discovered principles and invented a system which would control the telegraph business of the future, the Messrs. Sellers joined forces with him some years ago.

The result of the alliance is the perfected system owned by the Telepost Company, an independent telegraph company, which will give lower rates and better service than is now enjoyed anywhere in the world.

The Delany system has never been for sale, nor could it ever have been bought by either of the present telegraph companies or by any other interests.

Mr. Delany and his associates have had one thing only in view, which was the utilization of the Delany automatic system for the purpose of giving such low rates that telegraphing in the United States would no longer be an emergency method, but would be used by all classes as freely

as it is abroad, and a service so good that social and ordinary messages would receive the attention now given only to stock exchange business.

This could only be accomplished by organizing an independent telegraph company entirely free from entangling alliances and outside of the atmosphere in which many bad features inherited from a crude and financially reckless past have been intensified and added to during the past thirty years in which the absence of competition has had a deadening effect on all ideas of progress and improvement.

For these reasons many propositions have been rejected and the determination was finally reached that the best method would be by making the Telepost Company strictly and entirely a popular enterprise.

Offices with full demonstration equipments are now open at 225 Fifth avenue, New York, and in the Union Trust Company building, Washington, D. C.

Arrangements are being perfected as rapidly as possible for the equipping of lines for commercial business, which is expected to be begun early in the present year.

Line building of the company will be under the supervision of Wilson H. Fairbank, well and favorably known in telegraph and telephone circles as the ablest line builder America has produced.

The best telegraphic experience and ability in the country will have charge of the management of the company's business, full information of which will be given in due time.

The Telepost Company will be a people's company in ownership as well as in service. Its stock will be scattered as widely as possible so that in every town and village in the United States there will be owners of the "Telepost" who will be interested in its welfare and success.

Joseph W. Larish, Electrician.

Joseph W. Larish is a well-known telegrapher and electrician, and is the electrical engineer of the Telepost Company, New York. He was born at Fountain Springs, Pa., March 31, 1848. He acquired his original knowledge of telegraphy when a student of the Lewisburg (Pa.) University in 1864, incidentally picking up his information. This led him to enter the service, which he did in Pennsylvania. Going to Kansas, he was an operator for three years, from 1867 to 1870, in the office of the general manager of the Kansas Pacific Railroad. The next four years he served as night press operator of the Western Union Telegraph Company at Buffalo, N. Y., following which he was repeater chief and had charge of the quadruplex and other repeating apparatus until 1884, when he was appointed manager of the Baltimore and Ohio Telegraph Company in that city. In 1886 he was made assistant superintendent, subsequently becoming superintendent of that company at Boston, a position he was holding when his company was absorbed by that of the West-

ern Union. Mr. Larish was retained in Western Union employ, being appointed electrician for the third and fourth New England districts. While holding this position he originated and carried out many wise economies, and established himself as an authority in his department of applied electricity. His inventions at this time were also numerous and included several improvements in



JOSEPH W. LARISH.
Electrical Engineer, Telepost Company.

quadruplex apparatus, besides an electric semaphore block signal system of decided utility.

Coming to New York he held the position of electrical engineer of The United Press, from 1903 to 1905, then for a year was connected with the electrical department of the Postal Telegraph-Cable Company, during which time he invented a "city line" duplex, of which he is joint owner, and which is now in general use by that company. In April, 1907, Mr. Larish accepted the position he now holds.

What the College Degree Means in Technical Work.

Success is due, primarily, to the man and not to the institution. A degree from a reputable school is a great help to a man at the beginning of his career, especially if times are dull, positions hard to obtain, and if the man in question can secure also the personal indorsement of the teachers who knew him; but probably no collegiate degree is of any use to a man in his profession after he has been ten years out of school. The college offers a man an opportunity to train himself in those mental, moral and physical qualities which will bring him success. Let each student see to it that he avails himself of his opportunities to the utmost, and success will then be within his grasp.—Prof. George F. Swain in Boston "Tech."

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



WILLIAM H. BAKER.

Former Vice-President and General Manager, Postal Telegraph-Cable Company.

William H. Baker, Former Vice-President and General Manager of the Postal Telegraph-Cable Company.

William Henry Baker, former vice-president and general manager of the Postal Telegraph-Cable Company, a position from which he retired in April, 1907, is now a resident at Bay Side, New York, a delightful suburban spot on the north shore of Long Island. Although having withdrawn from active service in the telegraph, he remains on the advisory board of the Postal company and is still a frequent visitor at his former place of business.

Mr. Baker was born at Buffalo, N. Y., April 13, 1855. Two years subsequently his parents returned to Brooklyn, N. Y., which had previously been their home, and there the son received his education. At the age of fourteen, he found his first employment in a law office in New York, and afterwards entered the service of a commission house. Soon after attaining his fifteenth year, application was made in his behalf for employment to Col. A. B. Chandler, at that time superintendent of the Western Union Telegraph Company, New York, who invited the lad to call at his office. The boy's gentlemanly manners and quick intelligence at once made a favorable impression on Colonel Chandler, which was strengthened during the course of the interview, by his careful observance of the rights of his present employer, and the necessity for giving due notice of his intended change, so that no inconvenience in consequence should be suffered. This incident occurring so early in Mr. Baker's career is mentioned as exhibiting a commendable characteristic in the moral make up of the lad. His capacity for work soon advanced him from the post of office boy, and he was assigned to a clerkship under the immediate direction of Edward C. Cockey, who then had charge in the general superintendent's office, of the accounts of all superintendents of the eastern division of the Western Union Telegraph Company, and also of the office accounts of the sixth district in that division. Under the constant and critical instructions of this prince of accountants, and the counsel of both General Eckert and Mr. Chandler, both of whom were warmly interested in the development of young Baker, the latter continued in various capacities in the service of the Western Union and later of the Atlantic and Pacific Telegraph Company, finally reaching the secretaryship of the latter concern. Early in 1885 he was appointed secretary of the American Electric Manufacturing Company. While his connection with this business was disappointing, it was so through no fault of his, and he acquired therein an acquaintance with electric and other machinery which proved to be eventually of much value. On resigning from this position Mr. Baker bought a membership in the New York Stock Exchange, having shown such aptitude for the peculiar business transacted there, as to lead both himself and some of his friends to believe it wise for him to

engage in it. His own good sense soon led him to dispose of his interests in the "Street," immediately after which he entered the service of Theodore N. Vail, then president of the Metropolitan Telephone Company, with whom he continued for more than two years, and by whom he was highly esteemed, both for his business qualifications and his personal character. In the fall of 1889, Mr. Baker was made a vice-president of the Postal Telegraph-Cable Company, and assumed the duties pertaining to that position on the first of November of that year, shortly thereafter having added to his other duties that of general manager. His courteous manners, his close acquaintance with the details of the telegraph business, a natural fondness for architecture, mechanics, and electrical science, his tact in dealing with the peculiarities of men, and his judgment in administering affairs intrusted to his care, were recognized by all who came in contact with him in business, while his personal friendliness for the rank and file of the service, as well as for all coming within range of his close acquaintance, combined to make him one of the most popular men in the telegraph business.

In his well-earned retirement Mr. Baker carries with him the kindly remembrance and cordial good will of hosts of friends.

P. W. De Baun, chief clerk of the city superintendent's office, Postal Telegraph-Cable Company, New York, has been transferred to the operating department.

Mr. H. H. Hall, manager of the Postal Telegraph-Cable Company at Ashtabula, Ohio., was in New York during the holidays, visiting his daughter in Brooklyn.

The Direct United States Cable Company, with headquarters in New York at 61 New street, according to its yearly custom, is sending out a pad calendar for 1908. It is compact in form, neat in size, useful in purpose, and will find a welcome place on many a business desk.

W. B. Stuart, formerly manager at Macon, Ga., of the Western Union Telegraph Company, has been appointed manager at Savannah, vice J. Marshall, who has been made chief operator of that office. W. B. Powell, formerly chief operator at Savannah, has been made manager at Macon, Ga.

Charles L. Gondolf, who is on trial in New York for the sale of bonds stolen by William F. Walker, the defaulting treasurer of the New Britain (Conn.) Savings Bank, was, it is said, at one time the leader of a band of professional "wire tappers" and that while engaged in that business he met Walker and induced him to invest in some of his "sure things." It is said that Walker spent a good deal of the money he stole with Gondolf and his crowd.

TELEGRAPH AGE has helped many a telegrapher in his career. It will help you. Price, \$1.50 a year. Send for a free sample copy.

Frank J. Howell, of Corning, N. Y., Retired.

Frank J. Howell, of Corning, N. Y., a former well-known telegrapher, was born at that place December 26, 1847. He was early attracted to telegraphy by studying diagrams of the Morse method and reading Civil War bulletins, in which there was something peculiarly suggestive of the art in which he afterward became proficient. A class of eight or nine members was made up to study telegraphy under a local operator who was paid \$25 by each for such tuition. Mr. Howell was further instructed by the late Hon. George M. Smith, formerly train despatcher on the Erie Railroad. Becoming skilled at the key he had no difficulty in securing employment, and his early experiences in Pennsylvania, as related by



FRANK J. HOWELL.
Corning, N. Y.

him, would make an interesting chapter by themselves. At this time, Mr. Howell says, the "woods were full" of ex-Federal and ex-Confederate military officers prospecting in oil well properties. After this in rapid succession Mr. Howell held numerous positions within a comparatively narrow radius, when the desire to travel lead him westward in November, 1868, to accept positions, first at Connersville, and afterward at Indianapolis, Ind., on the Cincinnati and Indianapolis Junction Railroad, under O. M. Shepard, chief operator, and who for several years and until lately was general superintendent of the New York, New Haven and Hartford Railroad. In the spring of 1869 Mr. Howell pushed further westward to De Witt, Iowa, on the Chicago and Northwestern Railroad. To

avoid the rigors of an Iowa winter, he went South as far as Memphis, stopping at various points, and later to Louisville, Ky., there to become a copyist and night operator in the main office of the Louisville and Nashville Railroad. In February, 1870, he again returned to the service of the Cincinnati and Indianapolis Junction Railroad, first at Cincinnati, subsequently at Oxford, Ohio, and at Cambridge City, Ind. A second trip westward with temporary employment at points in Iowa, brought Mr. Howell's telegraph career to a close. In the fall of 1870 he engaged with an atlas-publishing firm at Galesburg, Ill., a business in the prosecution of which required him to furnish sketches of Illinois farm scenes, etc. In 1874 and 1875 he engaged in the publishing business at Edwardsville, Ill., as a member of the firm of Brink McCormick and Co., later in 1875 and 1876 being identified with the Missouri Publishing Company, of St. Louis. About this time graphic sketches illustrative of the camp of the Nez Perces Indians, near Leavenworth, Kan., under Chief Joseph, captured by General Miles; the burial of five of General Custer's officers at Fort Leavenworth; and at Ossawatimie battlefield, the dedication of a monument to John Brown, by the late Senator John J. Ingalls, drawn by Mr. Howell at this time and which were published in Frank Leslie's, attracted much attention. During the period following April, 1879, Mr. Howell made numerous sketches in California for atlas reproduction. Coming to New York, Mr. Howell spent some time in study at art schools, at the same time holding a telegraphic position. For several years he pursued the insurance business at New York, and during the Spanish-American War he furnished occasional sketches depicting local scenes in connection therewith for the Illustrated London Graphic. Mr. Howell, after inheriting an ample estate, returned to Corning to make that place his permanent home after a residence of thirteen years in New York, from October, 1887, to October, 1900.

J. W. Reed, Western Union Manager at Philadelphia.

John W. Reed, manager of the Western Union Telegraph Company at Philadelphia, comes from Illinois, where he was born May 11, 1866, at Urbana. It was in September, 1881, that young Reed, then a lad of fifteen, entered upon his telegraphic career, at Rosendale, Mo. He was quick to learn the meaning of the dots and dashes, and from the first was a good operator, so that when he reached the position of telegraph operator and station agent of the Kansas City, St. Joseph and Council Bluffs Railroad, he was accounted a "good man for the place." The commercial service, however, was more attractive to Mr. Reed than that of the railroad, and seeking employment therein was given a position as an operator for the Western Union Telegraph Company at Muscatine, Iowa. He subsequently served in the same capacity at Cedar Rapids, Iowa, Omaha,

Neb., Butte, Mont., and Helena, Mont. During this period he had steadily gained reputation, and in many ways had demonstrated his abilities as an electrician and his capacity for executive direction. His next position was that of manager



GREEN A. MOHR
Manager, Western Union Telegraph Company,
Philadelphia.

at Durango, Colo., followed by a transfer to the head of the office at Colorado Springs, that state. Here his record was of such character as to lead to his appointment to the important office at Philadelphia.

Mr. de la Motte at the Sandy Hook Station.

Wilhelm Ernst Ludwig de la Motte, manager of the marine service of the Western Union Telegraph Company, at Sandy Hook, N. J., was born November 12, 1842, in Hohenwedstedt, Holstein,



WILHELM E. L. de la MOTTE.
Manager, Western Union Telegraph Company,
Sandy Hook, N. J.

Germany. He entered the service of the telegraph at Norburg, Prussia, in 1865. In 1870 he came to this country, and in 1873 obtained employment with the Western Union Telegraph Company at the quarantine station, at that date located on Staten Island, first at Tompkinsville,

and afterward near Clifton. January 1, 1875, he accepted a position with the Maritime Exchange, at Sandy Hook, N. J. In 1877 he again engaged with the Western Union Telegraph Company and went to Fire Island. Here he passed one year, going thence to the main office at 195 Broadway, New York. After two years, in 1880, he was appointed to the Sandy Hook position, where he has since remained. Mr. de la Motte's duties at this point are peculiar and constant, inasmuch as he reports the movement of all passing vessels. Messages for vessels are signaled by the international code flags from the balcony of the telegraph tower on a 140-foot flag pole.

Mr. Diehl, Postal Manager at Harrisburg, Pa.

Clark E. Diehl, manager of the Postal Telegraph-Cable Company at Harrisburg, Pa., is a native Pennsylvanian, and was born May 2, 1862. In 1878, when sixteen years of age, he



CLARK E. DIEHL.
Manager, Postal Telegraph-Cable Company,
Harrisburg, Pa.

entered the telegraph at Sunbury, Pa., his first work being in the railroad service. Not until 1882 did he identify himself with commercial telegraphy, which was at Philadelphia in connection with the Western Union. Before the close of that year he accepted a position as operator with the American Rapid Telegraph Company at Harrisburg, being promoted to the management of the office in the following May, 1883. Here he continued as manager during the life of that company, retaining the place after the merger with the Bankers' and Merchants' Telegraph Company. When the Postal first opened an office in Harrisburg, Mr. Diehl was appointed its manager, a position he has since occupied. He is an energetic and progressive official, and maintains his office at a high state of efficiency. He enjoys an excellent reputation as an electrician.

The Murray Automatic Page-Printing Telegraph.

(From a London Exchange.)

The Murray automatic page-printing telegraph system, which is now coming into considerable use for dealing with long distance and heavy telegraph traffic, has a rather curious history. The inventor, Donald Murray, was born in New Zealand and trained as a farmer. He subsequently spent twelve years in newspaper work in Auckland, New Zealand, and Sydney, Australia, and during his spare time he developed the idea of working the linotype machine automatically by means of a perforated paper tape. A model of the machine was made and shown operating a typewriter. In 1898 the inventor took it to New York, where it was acquired by the Postal Telegraph-Cable Company with the object of convert-

ber of installations are now in commercial operation, in England between London and Dublin, in Germany between Berlin and Hamburg, in Austria between Vienna and Prague, in Sweden between Stockholm and Gothenburg, in Russia between St. Petersburg and Kazan (1,000 miles of iron wire), and in India between Bombay and Calcutta (1,200 miles of copper wire). The practical trials of the Murray system over long iron lines in Russia have been so successful that the Russian administration has recently obtained an installation of the Murray system for St. Petersburg-Irkutsk, a distance of approximately 4,000 miles of iron wire. This will probably be worked with four repeating stations and an automatic retransmitting station at Omsk, located about half way of this distance. This will be the first prac-



THE MURRAY AUTOMATIC SYSTEM, INSTALLED IN HEAD TELEGRAPH OFFICE, ST. PETERSBURG, RUSSIA. The INVENTOR IS SEATED AT THE TABLE.

ing it into a printing telegraph, William H. Baker and Francis W. Jones, at that time vice-president and general manager, and electrical engineer, respectively, of the company, acting as sponsors for the infant system, which was familiarly known as "The Baby." In this way Mr. Murray was enabled to develop his device into the Murray automatic page-printing telegraph system, quite a different thing from what it was originally intended to be. After two years spent in developing the system in New York, Mr. Murray brought it to England in 1901, and it was then taken up by the British post office. Before it became a really practical commercial success a long series of improvements had to be made, and these have only been completed during the past year. This necessity for perfecting the apparatus has delayed its practical utilization, but a considerable num-

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tical working trial of the facility possessed by the Murray system of automatic retransmission of messages from the received tape. It is expected that in about a year it will be possible to conduct the interesting experiment of transmitting a message automatically from Dublin through London, Berlin and St. Petersburg to Irkutsk on Lake Baikal, a distance of about 6,000 miles, including 4,500 miles of iron wire and a single stretch of 250 miles of ocean cable. Additional circuits are being equipped with the system in Germany, and an installation is being constructed for Norway.

The Murray automatic system is specially designed for working over long lines and for handling heavy traffic. In its capacity for working over long distances no other system, not even the Wheatstone Morse, it is claimed, can approach it. In comparative trials over long distances it has

frequently beaten the Wheatstone in speed by from thirty to sixty per cent. In an experimental trial of the Murray system between London and Berlin a speed of one hundred words a minute simplex (600 letters a minute) was quite easily reached. This was over an English land line of one hundred and twenty-five miles, a repeating station and then two hundred and fifty miles of a four wire ocean cable across the North Sea, another repeating station and three hundred miles of land line in Germany.

The Murray automatic system has the great advantage that it does not print the messages direct at the receiving station. It prints indirectly from a perforated receiving tape. The advantages on long lines gained by automatic transmission from a perforated tape are generally recognized by telegraph engineers, but it is supposed by those unacquainted with the subject that the



VIEW OF A SET OF THE MURRAY SYSTEM AT STOCKHOLM, SWEDEN.

Murray system is handicapped by not printing direct at the receiving station. This is an entire misapprehension. There are just as great advantages in not printing direct at the receiving station as there are in not transmitting direct at the sending station. To give only one illustration of this fact, there is no delay on the line while the typewriter carriage is being run back for each new line or while a fresh telegraph blank is being inserted. There is also the great advantage, now about to be tried practically for the first time in Russia, that the received perforated tape, being identical in form with the transmitting tape, can be used for automatically retransmitting messages to their various destinations over different lines. In the case of the Russian trial of automatic retransmission the object is chiefly to get the highest possible speed over a very long and costly line, with the minimum number of repeating stations, the retransmitted signals being as perfect as the original signals and free from any of the clipping or deformation due to ordinary repeaters.

Brixey vs. Kerite.

The word "Kerite" has become invested with a peculiar meaning and significance, decidedly unique in the history of electrical device nomenclature. The combination of the names of "Brixey" and "Kerite" is a strong one, each suggesting the other, standing for all that is best in the telegraph field in insulated wires and cables, whether designed for aerial, underground or submarine purposes. The Kerite products also cover telephone, power, lighting and other fields. While the range indicated is a wide one, the high quality and durability of the output of the extensive Kerite plant, located at Seymour, Conn., has elevated all its products to the lofty measure of "standard." This pre-eminence has been fairly and conscientiously won in the many years devoted to high standard of excellence and improvement in manufacturing detail and gives the house to-day a commanding position in the trade. Kerite is an insulating material made under secret process, and for nearly fifty years has remained unquestioned in its integrity of action. During this period of half a century of continuous service, tests of the most rigid character, made under peculiar and trying conditions, have demonstrated beyond all question its desirability and adaptability for the purposes intended. Age does not impair its fine qualities, but rather does it tend to its betterment. As long ago as 1868, Prof. Morse, the inventor of the telegraph, impressed with the excellence of the then newly discovered compound, "Kerite," took occasion to write approvingly of it to Austin G. Day, the inventor. This letter, coming from such an eminent source, embodied in the advertisement of Mr. Brixey, printed on another page, will be read with interest. Events have since shown that Prof. Morse's approval of Kerite was another example of his keen insight and good judgment.

Mr. Day spent many years in tests and experiments in the endeavor to procure a compound which would withstand deteriorating influences and trying conditions. Para rubber, while being of the highest class for insulating purposes, was limited as to its natural life. Mr. Day sought a combination which would preserve the life of the virgin rubber and have of itself great life and durability. That his many years' search and labor were well spent has been amply demonstrated by the only real test, the test of time. Kerite insulated wires and cable have done continuous service for the past forty to fifty years and there are in operation to-day many such cables that have given the highest service for this long period of time.

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

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

The Vailograph.

This instrument is an improved vibrator weighing only two and one-half ounces, and is the only sending machine in the world which is applied directly to and worked by the old Morse key. It is made of brass, nickelplated and will last a life time. F. T. Vail, the inventor, formerly chief operator of the "Soo" telegraph service, at Minneapolis, saw the difficulty after years of experience at the key. It was that the dots played havoc with the delicately trained arm and wrist of the operator. It was no strain to make the deliberate dashes, but inasmuch as it took as many motions to make a dot as to make a dash, and dots preponderate in the Morse alphabet, the problem was to eliminate the strain of dot making. This he has accomplished in his sending machine by a little spring hung and weighted like a pendulum. It is attached to the regular Morse key in such a way that the ordinary contact makes the dashes, while, if dots are required, one motion of the key will set the weighted spring vibrating and it will rattle off as many dots as the character requires. This vibration is produced by a lever situated by the bar of the key, and inasmuch as the platinum contact point is attached directly to the spring, the contact is positive instead of indirectly,



THE VAILOGRAPH.

through another spring, as in some other sending devices. The main features of the sender, however, are its compactness and the fact that it is operated by the same motion as the old key. The advertisement of the Vailograph appears elsewhere in this issue.



FRANK T. VAIL,
of Minneapolis, Minn.

Frank Tracy Vail, president of the Vailograph Company is a telegrapher who, when active in the service, acquired a fine reputation, both as an operator of ability and as one possessing close acquaintance with the technicalities of the telegraph. He was born at Cedar Falls, Iowa, in 1869, and after entering the telegraph service on August 1, 1884, rose to be manager of the local office of the Western Union Telegraph Company. His telegraph experience has been gained mainly in the railroad service, and he has held various positions on different lines of railway. For the past fifteen years he has been with the Soo line at Minneapolis, more latterly as chief operator in the general office.

Superintendent Jesse Hargrave, of the Postal Telegraph-Cable Company, as an Author.

Jesse Hargrave, until lately assistant electrical engineer of the Postal Telegraph-Cable Company, New York, and now one of its superintendents, recently essayed the role of author with distinct success. To the new and revised edition of "Electrical Instruments and Testing," by Norman H. Schneider, just out, which treats of the use of the voltmeter, ammeter, galvanometer, potentiometer, ohmmeter, the Wheatstone bridge and the standard portable testing sets, Mr. Hargrave has contributed important matter which appears in the two concluding chapters, one treating on testing telegraph wires and cables, the other in locating faults in telegraph and telephone wires and cables, in which valuable tables are given. Mr. Hargrave's treatment of his subject has been especially well considered and embodies the best thought of this well-known telegraph authority who has devoted all the years of his business life to the telegraph service. Mr. Hargrave's experience in the class of tests he describes, respecting which telegraph people desire specific information, well qualifies him to prepare the descriptive matter he has so carefully done in this volume. There is, in fact, no other book that treats so comprehensively and with so much elaboration of detail the subjects he discusses. Mr. Hargrave's knowledge of the requirements necessary to fit a man for responsible service in telegraph employ has prompted him to furnish all necessary information to meet any probable emergency that is likely to arise in wire and cable testing.

The volume embraces 256 pages, has 133 illustrations and diagrams. Price, cloth, \$1; in full limp leather, \$2. Address all orders to J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Telegraph Age constitutes a "school of instruction" to every would-be telegrapher. It is accurate and authoritative and worth many times the price of subscription (\$1.50) to any who would inform themselves respecting the telegraph.

Messages of the Wires.

"Dot dash dash dot dot dot dash"—day in and day out, thus runs the song of the wire in the big telegraph stations of America. Its ceaseless hum tells the human interest stories of life. The electric spark vitalizes the affairs of men. It lays bare the innermost secrets of the soul. These secrets are held inviolate by the telegrapher. Night and day, Sundays and holidays, sunshine or storm, he must sit at his post of duty, the confidant of the world.

Not excepting doctors and clergymen, there is probably no class of persons in the world that come into more direct contact with the family affairs of men and women of to-day than the operators in the big telegraph stations. The "click, click" of the telegraph instrument rehearses the joys and sorrows of humanity. If a son is dying in a distant country, the message of grief is wired to the mother on the instant. A child is born to royalty and the four quarters of the world are cognizant.

Cupid is often at the telegraph key and the wires hum with words that bring happiness to the expectant lover. When a bank president absconds with thousands of dollars, the telegrapher speeds the startling news to the proper authorities and the army of depositors soon knows the fate of its hard-earned savings. Threats, upbraidings, love ditties, successful achievements, disaster and joyful anticipations are all brought first to the man at the electric key. He is the confidant of humanity upon whose shoulders are thrust the pleasures and tribulations of man.

If the telegraph operator were paid pro rata, in comparison with the physician, for the stories of the hearthside, the passions and tears that make up the lot of every human life, he would be the envy of a Rockefeller or a Morgan. The family doctor is acquainted only with the afflictions of the world. His sphere of activity is limited to disease and death. He is an eye-witness of only one side of life's great drama. It is the grief-stricken side, where he must put on the mask of cheerfulness and buoyancy or else fall by the wayside, a professional failure.

But not so with the man at the telegraph key. He gets the spice with the wormwood, the nectar with the gall, the laughable with the pathetic. The variety of his experiences when it comes to feel the pulse of humanity, is as far apart as the Polar seas. Every phase of life, not alone the pathetic, through his deft fingers, is devoured by the electric current and swallowed up to be ever afterward forgotten. At one moment the operator is whirled to almost ecstatic heights himself by the good news which some orphan child, perhaps, is going to receive; news that very possibly will change the course of a life that conditions had previously made hardly worth the living. Or again, the man at the key is thrilled with excitement as he reads from the instrument the tidings of imminent war between nations and in the next second may be telling to the world the

story of an assassination. Not only do the heart beats of the private citizen first reach the telegrapher, but he also feels the pulse of a nation.

And the man at the wire is faithful to his trust. He is instructed to forget his tales of happiness and woe when he arises from his day of labor. The intimate secrets of family life which spell ruin to so many, are locked in the breast of the telegrapher, never to be reawakened. Names must be forgotten on the instant that the wire hurries them on their journey. No messenger of a king, or courier on the field of battle should be more faithful to his trust, a trust which guards the innermost secrets of mankind. Grown accustomed to the woes and afflictions of men and women, the operator's heart is seldom ruffled. Day in and day out, he sits bent over the electric spark and performs his duty regardless of the tears that are shed and the homes that are shattered by his messages of pathos. Then again, a smile wreathes his face as a humorous ditty by some lovesick maiden is thrust before him.

As in every walk of life, there is a comedy phase to the daily routine of the spark manipulator. His rigid imperturbability is frequently shaken by a ten-word message that flavors of the burlesque. Some fond wife chiding her "hubby" for a few hours' neglect; the sum of twenty-five cents invested for the privilege of sending kisses in the shape of ink stains on the telegraph blank; a threat of death if a person does not show up at a selected trysting-place within a certain hour; the driving home of a bargain which will net some millionaire Jew the paltry profit of six cents—all these and a thousand more go to make the lot of the telegrapher, on the whole, a happy one. The fun is thereby mixed with the gloom, and in the end his ledger of work is balanced evenly.

These are the factors that go to make the life of an operator in either the Postal or the Western Union telegraph offices to-day wider in scope, although less remunerative than that of the doctor, the lawyer, or even the clergyman.

Aside from the human interest element there is a much broader field of activity which his labors embrace. This is the world of business. Here one man meets another on his own stamping ground and it is a fight to the finish for supremacy. This battle of intellects waged in the stock exchange, in the public mart and in the great trade centers of America, is reflected in the telegraph office. A man in the Chicago wheat pit secures a "corner" on the market. Hardly do the speculators themselves know what has happened before the financial circles in New York, London and Paris are aware of it. And how? By the "click" of the telegraph. A panic seizes Wall Street, and that dire word is scarcely breathed by the giants of the "Street," when the telegrapher is pushing the calamitous news from Maine to California. If the operator is entrusted with important secrets in the life of the home, the business secrets that are told the electric spark

from one great magnate to another, via the man at the board, are weighty indeed.

In this way, the telegrapher comes to know the solution of many deep problems which confront the captains of industry, problems, the working out of which has made America the leading power among the nations of the earth. More than once in the history of the United States, the dot and dash reeled off by the operator at his post, has averted disaster in the world of finance. Those messages are filed away in the archives of the big telegraph companies, never to be resurrected, and the knowledge of their contents is known only to the telegrapher who sent them.

The appearance of the messenger boy at the door of the home generally strikes terror to the heart of the housewife. A shudder of fear invariably creeps over the recipient of the telegraph message. It has come to mean a foreboding of ill. And this feeling is not based on any superstition, but on the contents of a great majority of the telegrams that are filed in the telegraph stations. A good proportion of the words that keep the wires busy are of the dark side of life or if not actually the forerunners of sorrow, they oftentimes are of an intimidating nature.

But it is when Cupid gets in his deadly work that the telegrapher chuckles to himself. Some of the brief epistles wired from one ardent lover to his sweetheart are of the most mushy character imaginable. They flavor of the ridiculous in many cases and even make the wires shake with mirth.—Springfield Union.

Type "D" Argus Lightning Arrester.

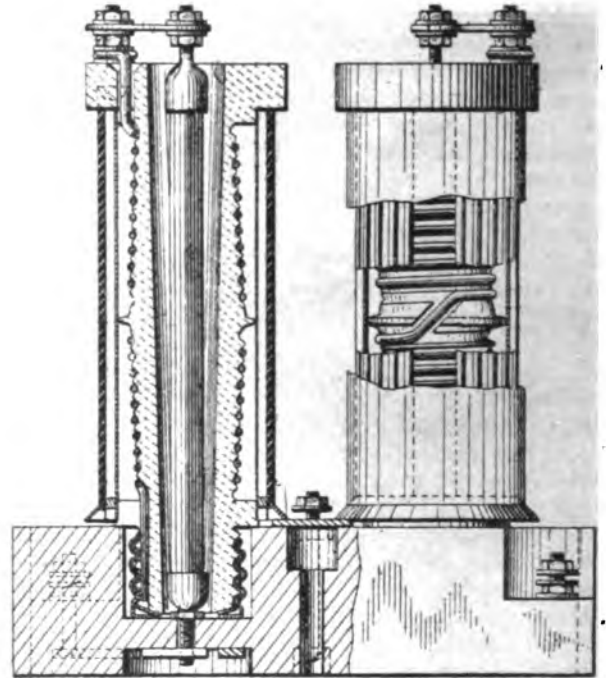
The "Argus" lightning arrester has long been a prominent feature in the products manufactured by Foote, Pierson and Company of 160-162 Duane street, New York. In the new type "D", patented June 18, 1907, of which a line drawing showing detail of construction is herewith presented, new in design, a new principle is embodied, which insures superior results. This instrument contains all the good qualities which have made other types popular, and provides in addition a number of improvements. It has a porcelain cylinder with a taper core which increases gradually from each end toward the center, while around this core is wound a coil of copper wire in a spiral groove. The coil is enclosed in a corrugated copper casing designed for connection with the ground, by which means the sparking distance between the coil and the copper casing is graduated so that as a storm approaches, the first or outside convolutions of the coil will discharge, and as the storm advances nearer, the successive convolutions will take part in the discharge, thereby greatly increasing the capacity.

The idea of the taper core from both ends toward the center, is to insure the placing of the shortest sparking distance to the line. It is pre-

ferable to connect line to the arrester and fuse to the instruments. This arrangement also provides for way stations, where storms are liable to approach from either direction. The arrester has a hollow core in which an enclosed fuse is placed to protect against crosses with high tension circuits.

The porcelain base is arranged for either one or two arresters and is provided with a metal strip having a binding post terminal to which the ground wire is connected. The corrugated copper casing which surrounds the arrester coil, has a wide flange at the bottom which makes contact with this ground strip when placed in position.

It is a well known and established fact, that lightning discharges can be dissipated and broken up much more effectively from sharp



LINE DRAWING, TYPE "D," ARGUS LIGHTNING ARRESTER.

edges or points than from flat surfaces, and this principle is applied to the type "D" arrester in a most efficient manner, the arrester coil being surrounded by the sharp edges of the corrugated casing.

The porcelain base has projections and depressions which interlock one with the other, so that when a number of arresters are placed together they present a solid wall. This arrangement is also very valuable where space is limited, enabling thirty arresters to be placed in a space one foot square.

If you wish to know all about the instruments you work, invest \$1.50 in a copy of Jones' diagrams.

Preservative Treatment of Poles by the Open-Tank Process.

BY D. A. ROCKWELL.

In the work which has been done in connection with the preservative treatment of telegraph, telephone and transmission line poles it has been considered that, compared with other preservatives, dead oil of coal tar is the most efficient and the most economical in the long run. Carbolineum, which is in reality a refined dead oil of coal tar, may have a limited use.

Timber may be treated with dead oil of coal tar by three methods, namely, the closed-cylinder method, the open-tank method, and the brush method. The relative efficacies of the methods are undoubtedly in the order stated.

The open-tank method differs from the closed-cylinder process in that tanks or vats, which are open to the air, are employed. The open-tank process, in that it does not necessitate the use of expensive cylinders and auxiliary apparatus, promises to effect, by reduction of plant costs, considerable economies in the preservative treatment of timber. Another advantage offered in the case of poles is that the portion of the pole subject to the maximum decaying action, that is, the butt end, can be selectively treated. This procedure results in a considerable saving of preservative compound. The possibility of treating poles at a comparatively small cost so as to obtain thereby an increased life of several years should insure a considerable field for the application of the open-tank process.

There are two distinct methods of carrying out the open-tank process of treatment, the single-tank method and the double-tank method.

In this method, the timber under treatment is placed in the tank and covered with dead oil of coal tar, means being taken if necessary to prevent the timber from floating. Heat is applied to the tank, either by a fire built beneath the tank, or, preferably, from the standpoint of fire hazard, by steam coils placed within the tank, and the oil maintained at a temperature of from, say, 212 deg. F. to 230 deg. F., for several hours, depending on the size and character of the timber. As a result of this heating, the air and moisture are expelled from the wood structure, which fact is indicated by a seeming ebullition of the oil.

This method may be carried out in two different ways: a. With change of oil; b. without change of oil.

When the heating process has been sufficiently prolonged, the hot oil can be run out of the treating tank into the emptying tank, method a, and the treating tank quickly refilled with cool oil from the storage tank. The oil storage tanks and connecting pipes should be so proportioned that the emptying and refilling process can be carried out in a short time, as an exposure of the treated surface to the air between the hot and cool oil baths is liable to react on the oil penetration. The timber is allowed to remain in the cool oil

bath for an interval of time such as experience shows sufficient to ensure the desired penetration.

Instead of emptying the treating tank between the hot and cool baths, the valves of the connecting pipes may be so arranged that the oil level in the treating tank is maintained substantially constant during the change of oil. If the supply tanks are of sufficient size, the temperature of the oil in the treating tank will be considerably lowered by this procedure.

In method b the heat supply is shut off at the end of the heating interval, and the oil is allowed to cool by atmospheric radiation. The results obtained by this method are essentially the same as with a change of oil. This method has been successfully followed in the experimental treatment of cedar and chestnut poles, and Norway pine cross-arms.

Method b would probably require a longer time for treatment than method a owing to the slower process of oil cooling. However, if it is desired to make only one run per tank per day, that is, heating during the daytime and allowing the poles to remain in the cool or cooling oil during the night, then method b offers certain economies in plant cost. As it is not necessary to empty the treating tank in order to recharge with poles, the emptying tank is not required. The storage tank can be used in method b if it is desired to store considerable oil at the treating plant. Such a tank greatly facilitates the handling of the oil, as otherwise it is necessary to fill the treating tank from barrels.

DOUBLE-TANK METHOD.

In this method two tanks are provided, one for the hot bath and one for the cool bath. After the timber has been in the hot bath for a sufficient length of time, it is transferred to the cool bath and allowed to remain therein for the necessary time. The question of the exposure of the treated surface enters, however, and, as several minutes might be required to transfer a pole from the hot to the cool bath, it is not felt that the method should be carried out in practice until further experimentation has determined what exposure of the treated surface, between the hot and cool baths, can be made without reacting on the depth of oil penetration into the wood structure.

A disadvantage of the method is the increased cost of handling incident to the transfer of the poles from the hot to the cool oil tanks. This method presents the advantage, however, that the treatments can be carried on without interruption, as both the hot and the cool tanks can be kept filled with poles.

Experiments made in 1905 by the Forest Service showed that penetrations through the sap wood could be obtained on partially seasoned and seasoned cedar and chestnut poles. The results on green poles were not as satisfactory, the penetrations being somewhat irregular. Winter cut poles, after the outer bark is removed, have

an almost impervious layer of inner bark which adheres to the green wood, but wherever this inner bark layer is removed, the oil penetrates the sap wood. It is probable that, by shaving the butts of green poles, good penetrations could be obtained, but it is considered advisable at present to limit the open-tank treatment to seasoned or partially seasoned poles, by which it is established that good results can be obtained.

In connection with the treatment of seasoned cedar and chestnut poles, it is fair to assume that a thirty-foot pole will on the average absorb at least fifty pounds (about six gallons) of dead oil of coal tar.

Seasoned loblolly pine can be treated easily by the open-tank method. This timber seasons in a few months in the South, and the treatment of loblolly pine poles can be carried out without an undue holding for seasoning.

About five thousand seasoned Norway pine cross-arms have been treated by the open-tank process with excellent results. An average absorption of about twelve pounds of dead oil of coal tar per cross-arm was obtained.

PLANT REQUIREMENTS.

In the design and construction of open-tank treating plants, it is necessary to consider the following factors as reacting on the design: 1. Location of the plant and accessory apparatus as affecting the ease and economy of handling poles and oil. 2. Reduction of heat radiating surfaces to a minimum. 3. Means of keeping timber below the oil surface. The last factor does not enter into the pole treatment, but in the treatment of seasoned cross-arms; for example, it has been found necessary to adopt means to keep the arms submerged at the beginning of the treatment.

The effect of a proposed treating plant upon the insurance of the surrounding property should be ascertained before a definite location is selected. In plants heated by steam the fire hazard should be small if the boiler is somewhat removed from the storage and treating tanks. Dead oil of coal tar at ordinary temperatures does not take fire easily, but after catching fire it burns fiercely; such a fire is best controlled by throwing sand upon it.

The apparatus necessary for the operation of method b is a treating tank with steam heating coils, a source of steam supply and a derrick for handling poles and oil barrels.

Method a requires, in addition to this apparatus, a storage tank for dead oil of coal tar, an emptying tank, and a pump for the transfer of oil from the emptying tank to the storage tank, and from the tank-car to the storage tank.

The size of the treating tank is dependent primarily upon the number of poles which it is desired to treat per charge, and also to some extent upon the source of steam supply for heating. The depth of the tank is controlled by the longest poles which are to be treated at the plant.

The greater the height of the tank above the ground level, the greater the difficulty in loading and unloading the tank. A tank eight feet deep will treat the butts of poles up to forty feet in length, and a tank nine feet deep up to fifty feet. Occasional poles of greater length than these could be treated by placing them diagonally in the tank and regulating the oil level to the proper height on the pole. To facilitate the handling of poles, the tank should be set as much below the ground level as is compatible with the requirements for steam circulation. A one-quarter inch steel tank with lap-riveted joints, and properly braced, should be satisfactory.

The oil in the treating tank should be heated by means of steam pipes arranged on the bottom of the tank. The heating pipes may be in the form of a return-bend coil, or, preferably, of a coil made up of branch T's. The latter form would provide a better steam circulation. Although there is very little information relative to the heating of open-tanks filled with dead oil of coal tar, it is estimated, on the basis of theoretical consideration, that, if steam is supplied at a pressure of one hundred pounds per square inch, a steam pipe area of 0.075 square foot per cubic foot of oil will raise the temperature of the oil at a rate of between one degree Fahrenheit and two degrees Fahrenheit per minute. The steam coils should be protected from possible injury, as the dropping of poles upon them, by being coiled about I-beams or rails, the protection being placed so that the smallest poles to be treated will not pass between the beams or rails and strike the coils.

If the bottom of the tank is located lower than the steam boiler, it will be necessary to install a condensing steam trap, condensing well, and an injector or circulation pump, if it is desired to return the condenser water to the boiler.

The steam supply should, if possible, be sufficient to raise the temperature of the oil to 220 degrees Fahrenheit in from two to three hours, which would correspond to a temperature rise of the oil of from one degree Fahrenheit to two degrees Fahrenheit per minute. Assuming a combustion of about eight pounds of coal per square foot of grate surface and an evaporation of eight pounds of water per pound of coal, it is estimated that a grate surface of about 0.035 square foot per cubic foot of oil will be ample. These assumptions are based on the use of vertical boilers of the type used with hoisting engines and a medium efficiency of coal combustion.

In calculating the requisite steam pipe and grate surfaces for any treating tank, it would undoubtedly suffice to assume the oil volume as one-half of the tank space at the highest oil level to be maintained in the tank. It may be considered, for purposes of calculation, that the oil will be heated before the poles are placed in the tank. Even if the poles are in the oil during the initial heating process, the oil will probably absorb the

greater portion of the heat owing to the poor conductivity of wood. After the oil has reached the maximum temperature, sufficient heat must be supplied to overcome the loss of radiation and the heat absorbed by the wood.

The supply of steam can, if desired, be controlled by means of a thermostatic regulator set to maintain a maximum temperature of two hundred and twenty degrees Fahrenheit. If the treating plant is situated near a steam plant of considerable size, it will probably be more economical to obtain the steam from that plant in preference to installing a special boiler for heating purposes. As the steam is required at the maximum rate during only the heating of the oil, it would undoubtedly be possible to furnish from one small boiler steam necessary for heating the storage tanks, tank cars, circulation and oil pumps, and for a steam winch in connection with the derrick for handling the poles.

The oil storage tank for large plants should have a volume of at least 25,000 gallons; that is, somewhat in excess of two oil-tank cars. The tank should be provided with steam heating coils in order to maintain the temperature of the oil above the temperature of solidification. The storage tank should be placed at a height sufficient to enable the filling of the treating tank by gravity. The connecting pipe between the storage and treating tank should be at least ten inches in diameter and controlled by a valve. The storage tank should be equipped with a float gauge to indicate the height of oil in the tank.

The emptying tank should be placed underground so that the oil will flow into it from the treating tank by gravity, and should be of somewhat greater volume than the treating tank. The connecting pipe should be at least as great in diameter as the pipe between the storage and treating tanks.

The treating tank should also be joined to the emptying tank by means of an overflow pipe connected at different heights with the treating tank. By opening proper valves, the oil level in the treating tank can be maintained at the desired height. It will not be necessary to place heating coils in this tank if care is taken to pump the oil back into the storage tank before it has cooled to the temperature of solidification. The tank should be provided with a float gauge as an indicator of the depth of oil in the tank.

A steam-driven pump should be provided for transferring the oil from the emptying tank to the storage tank. The pump would also be used when filling the storage tank from tank cars.

A derrick should be provided in order to facilitate the transfer of the poles into and from the treating tank. The derrick could, if desired, be operated by a hoisting engine, the steam being supplied from the heating boiler.—*Electrical World.*

The First Telegraphic Train Order.

Writing a brief history of the telegraph for the *Northwestern Bulletin*, published by the Chicago

and Northwestern Railway, G. W. Dailey, superintendent of telegraph, a close student of telegraphy, gives credit to the Erie as being the first road to use the telegraph wire, in train service. In his carefully prepared article, which asserts that the Chicago and Northwestern was the first railroad in the West to handle trains by telegraph, he says:

"The telegraph was first used for handling trains by the Erie Railroad, and the first train order was issued in 1846 at Turner, N. Y., a station on that railway. The circumstances surrounding its first use for that purpose are as follows:

"The New York and Erie Railroad, whose eastern terminal at that time was at Piermont, N. Y., on the Hudson River, had a telegraph wire running into several of its most important stations which was known as the 'Ezra Cornell Line.' This telegraph line was built on a highway paralleling the Erie Railroad, and as a matter of convenience the railroad company's agents attended to the commercial telegraph business.

"One day Charles Minot, then general superintendent of the New York and Erie Railroad, was going west on train No. 1, which was scheduled to meet train No. 2, eastbound, at Turner, N. Y. After waiting nearly an hour at Turner for train No. 2, Mr. Minot stepped into the telegraph office and requested the operator to call up Goshen, N. Y., and ask the operator if train No. 2 had passed there. On receiving a negative reply, Mr. Minot sent the following telegram to the Erie Railroad agent at Goshen: 'Hold all trains bound east until I arrive there on train No. 1. Do you understand? Answer.' In a few minutes a reply was received from the agent at Goshen saying: 'I understand I am to hold all eastbound trains at Goshen until you arrive here on train 1, and will do so.' Mr. Minot then wrote out an order to the conductor and engineer of train No. 1 at Turner as follows: 'Run to Goshen regardless of train No. 2.' signed Charles Minot, general superintendent. The engineer of train 1 refused to do it until Mr. Minot said he would ride on the engine with him. The run was made with safety and within a few days thereafter the 31 and 32 orders were regularly established on the Erie and quickly followed by other roads.

"This is a good illustration of the difficulties and opposition usually encountered in introducing new methods of doing things. Since that time the use of the telegraph by railroads has grown by leaps and bounds until at present a railway telegraph department ranks high in usefulness and importance and is a very necessary part of the business machine."

The practical side of the telegraph is discussed in every issue of *Telegraph Age* in a manner to interest and aid every individual operator in the service. Why not secure the benefits of such information by subscribing for the paper—\$1.50 a year.



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1908

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I T E



Letters From Our Agents.

PHILADELPHIA, WESTERN UNION.

Mr. J. B. Fleishman, aged fifty-five years, formerly employed in this office, died on December 17 from a stroke of paralysis. He left the service in 1883, and had been in the brokerage business since. He at one time accumulated considerable wealth, which he afterward lost, but was again on the fair road to fortune.

Miss Fannie Schott, who has just returned from Atlanta, where recently she performed valuable service, is ill with a very severe attack of grip.

Mr. O. M. Pennypacker, wire chief, recently made an enjoyable trip to New York of a few days.

Mr. George Kauffman of this office was married on December 18.

Messrs. Christie and Shugar have returned from Chicago, where they had gone to assist during the late troubles. Messrs. Benckert, Berger and Wilde, Pittsburg, on a like errand, are also at their desks again.

Other absentees despatched on similar missions, including Messrs. Wood, Boland and Maize, who went to Atlanta, Ga., and Messrs. C. B. Wood and H. V. Hudgins, who were assigned to Jacksonville, Fla., are also back in their accustomed places.

Mr. Landon, who went to Atlanta, temporarily, has located at New Orleans for the winter.

Miss O'Donnell, who went to Savannah lately, has decided to locate in that city permanently.

Joseph T. Wilde, one of the wire chiefs of this office, fell down the stairs at his home in Merchantville, and sustained a very severe shock, which laid him up for a week.

Among late visitors to this office were Mr. Charles E. Sawtelle, formerly of this office, and now manager for the Postal company at Cincinnati, and Richard O'Brien, assistant superintendent at Scranton, Pa. Mr. O'Brien has just been elected a director of the Bell Telephone Company of Philadelphia.

Another visitor was William Ettinger, of Jersey City, division operator, of the New York division, Pennsylvania Railroad.

NEW YORK, POSTAL.

Merry Christmas and a Happy New Year was rendered "Happy New York" by a few of the operators who didn't insist that "that's the way he sent it," but acknowledged they made it New York by force of habit.

John H. Twyford has been appointed traffic chief in the Rowland department. The Rowland machines are now being operated to Chicago, Philadelphia, Boston and various other points. Several thousand messages daily are handled on the Rowland machines.

John J. Deffley, aged forty-six years, who worked for this company about ten or twelve years recently as manager of the Herald telegraph department, night, died suddenly of pneu-

monia. His many friends will be shocked to learn of his sudden taking off.

Considerable activity was shown recently when the operators began to fill out their applications for membership in the Postal Telegraph Employees' Association. Nearly all have joined by this time. The president of the association, S. B. Haig, is well known, having served as general traffic chief in the operating room.

It is observed that a great many star operators are employed among the present force.

Typewriters—all makes and prices. Typewriter ribbons, dozen or single. Typewriter and carbon papers, etc.: "Everything for the typewriter." Vibroplex \$7.50; Phillips Code, postage prepaid, \$1; Telegraphers' Journal, Railroad Telegrapher to home address, \$1 yearly. Postage stamps accepted for typewriter sundries. Booklet on request. Remit by post office or express order. Daniel A. Mahoney, 345 Broadway, New York.

OTHER NEW YORK NEWS.

The regular meeting of the Electric Building Loan and Savings Association for the nomination of trustees was held in the office of the corporation at 253 Broadway, New York, December 18, when the following names were placed in nomination for official positions: J. J. Whalen, president; James R. Beard, vice-president; E. S. Butterfield, treasurer; Edwin F. Howell, secretary; John B. Sabine and Alexander J. Schem, counsel and attorneys. The following were nominated as directors: Edward Reynolds, M. J. O'Leary, W. H. Jackson, Eugene P. Tully, J. B. Taltavall, M. W. Rayens, T. E. Fleming, M. M. Davis, F. C. Leubuscher, G. W. Blanchard, G. H. Schnitgen, C. F. Leonard, M. S. Cohen, P. O. Purcell and J. T. Mulhall.

The annual meeting of the corporation will be held in the same place on January 10, 1908. Polls for the election of officers and directors will be open from 2 P. M. to 5 P. M.

The regular meeting of the Serial Building Loan and Savings Institution for the nomination of officers was held in the office of the corporation at 195 Broadway, New York, on December 17. The nominations were: J. C. Barclay, president; James R. Beard, vice-president; E. S. Butterfield, treasurer; E. F. Howell, secretary; J. B. Sabine and Alexander J. Schem, attorneys. Directors, F. J. Scherrer, D. B. Mitchell, J. B. Taltavall, T. A. McCammon, M. J. O'Leary, W. H. Jackson, J. F. Nathan, G. H. Schnitgen, M. S. Cohen, J. A. Hill, M. W. Rayens, T. A. Brooks, E. E. Brannin, G. W. Blanchard, F. C. Leubuscher, J. T. Laidlaw, J. T. Mulhall, W. J. Quinn and S. S. Williams.

The annual meeting of this corporation will be held in the same place on Tuesday, January 14, 1908.

Captain W. H. Allington sailed on the steamer "Colon" for the Isthmus on December 24, on business for the company he represents. He expects to return within thirty days.

The New York Telegraphers' Aid Society makes their statement for the quarter ending September 6, 1907, as follows:

Balance on hand June 6, 1907\$20,172.64
 Receipts 1,497.50

Total\$21,670.14

Disbursements.

Sick benefits\$1,020.71
 Death benefits 400.00
 Expenses 211.87

\$1,632.58

Balance on hand Sept. 6, 1907 20,037.56

Total\$21,670.14

Summary.

Receipts \$1,497.50
 Disbursements 1,632.58

Loss for quarter \$135.08

RELIEF FUND.

Balance on hand June 6, 1907 \$4,085.00
 Disbursements 77.00

Balance on hand Sept. 6, 1907 \$4,008.00

Balances:

Aid Society..\$20,037.56 On deposit..\$23,827.06
 Relief Fund.. 4,008.00 Cash on hand 218.50

Total\$24,045.56 Total\$24,045.56

J. H. Driscoll, W. T. Rogers, F. J. Nurnberg,
 Auditors.

Some Denver Telegraphers Enjoy a Picnic.

C. A. Parker, superintendent of telegraph of the Moffat road, Denver, Colo., gave a little picnic the other day, according to the Republican, of that city, to a number of his Denver telegraph friends. Among his guests were such well known telegraphers at that point as C. O. Blandin, assistant superintendent of the Western Union; G. F. Coit, "Old Farmer" Lawton and the "Farmer's" two boys.

The party was a merry one and enjoyed the ride over the Continental divide, down through Middle Park and Gore canon. They spent the night at the new town of Yarmony and found a bustling town, where no one has had time to erect more substantial houses than tents, which are proving very comfortable.

"Farmer" Lawton, who has been up over the Moffat line on numerous occasions in the summer time, looked very much like an Arctic explorer when he reached the Moffat depot. His wife had knit him an extra pair of wool socks and besides an overcoat that would worry an ordinary man to carry, he exhibited a buffalo robe,

saved for just such an occasion. His sons were as warmly clad, but all agreed that their extra clothing was a burden to them, which they were only too glad to have checked back to Denver by express.

The "Farmer," who is considered an authority in Denver, says people make a mistake in waiting until the summer months to enjoy a ride over this scenic line, as a person really encounters the four seasons of the year by making the trip in midwinter. The beautiful fall weather Denver boasts of almost the entire winter is changed to real winter when one reaches Corona on the great Continental divide. The monster snowplows in operation is a most beautiful sight, but they are soon lost to view as the train glides down the smooth roadbed on the Pacific slope and ere long real spring weather is encountered. Even the wild flowers assist in making the scene perfect and pleasing to the eye. In many respects, this portion of the ride is very similar to that of passing down the Sierra Nevada mountains into the Sacramento valley of California. The only difference is, it requires hours of tiresome riding to notice the change in California, while the Moffat line gives practically the four seasons in less than twelve hours after leaving Denver.

Obituary.

Clarence Harris, an Associated Press operator who had been employed at both Schenectady and Rochester, died in Los Angeles, Cal., where he went previous to his death for the benefit of his health.

James H. Baker, aged fifty-three years, who has been identified with the telegraph department of the Missouri Pacific Railroad at Sedalia, Mo., for the past thirty-three years, died at Kansas City, Mo., on December 12.

Dr. Frank A. Howig, a telegraph operator in the early years of telegraphy and subsequently a lecturer, while still a young man, on the science of electromagnetism, died in Big Rapids, Mich., December 10, aged seventy-nine years. He had practiced medicine since 1858. Among his effects was found a memorandum which stated: "I was among the first public lecturers on the science of electro-magnetism and when only twenty years old delivered over eighty lectures in the State of New York and Canada on that subject, illustrating my remarks with practical applications which never failed to furnish a crowded house at all times and places."

The Cable.

Cable communications interrupted, December 27, 1907:

Venezuela Jan. 12, 1906

Messages may be mailed from Curaçao or Trinidad.

Island of Palma (Canaries) July 12, 1906

Steamer from Tenoriffe.

General Mention.

Mr. A. E. Littler, of Lincoln, Neb., has been appointed manager at Reno, Nev., vice T. H. Brown, resigned.

It is understood that Mr. G. M. Foote, for several years manager of the Postal telegraph office in Newport, R. I., will be promoted and transferred to Washington as traffic manager of the Postal office there.

The Western Union Telegraph Company is installing a new main office at Nashville, Tenn., under the direction of S. R. Crowder, electrician of the southern division. The entire equipment will be new, including the dynamo plant, tables, instruments, etc.

Henry E. West, cable engineer, Signal Corps, U. S. A., on cable ship "Cyrus W. Field," entered the telegraph service with the Western Union Telegraph Company, New York, October 10, 1883, resigning therefrom September 9, 1904, to accept his present position.

Charles Wise, for twenty-five years chief operator of the Western Union Telegraph Company, Evansville, Ind., died on December 23, 1907. He was fifty-five years of age. For two years he had been ill with tuberculosis, six months ago being compelled to relinquish his duties. Mr. Wise was born at Piqua, Ohio, and entered the service of the Western Union company at Indianapolis.

Charles M. Holmes, executive messenger, on duty in the suite of rooms attached to the president's office, of the Western Union Telegraph Company, New York, over which he stands a sort of guard, is one of the picturesque figures in the telegraph service. He performs an important mission in the line of his service, for no one enters the portal of the rooms where he is stationed without coming under his observation. It is safe to say that no cranks or otherwise objectionable persons evade his keen scrutiny. He has been identified with the offices in question for so long a period that his knowledge of "who's who" is intuitive. Mr. Holmes had an honorable

record in the navy during the Civil War. The date of his connection with the company goes back almost forty years.

Telegraphers who would save their earnings would do well to inform themselves respecting the advantages to be derived in dealing with the Serial Building Loan and Savings Institution, 195 Broadway, New York. This institution was designed to promote the financial welfare of telegraphers, and this it has steadily accomplished during all the years of its opportunity, standing strong and steadfast with unimpaired credit.

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

Will buy or sell, in one to five-share lots, Western Union Telegraph Company and Mackay Companies, stocks. Address "Stock Investment," care Telegraph Age, 253 Broadway, New York.

Rubber Telegraph Key Knobs.

No operator who has to use a hard key knob continuously should fail to possess one of these flexible rubber key caps, which fits snugly over the hard rubber key knob, forming an air cushion. This renders the touch smooth and the manipulation of the key much easier. Price, fifteen cents.

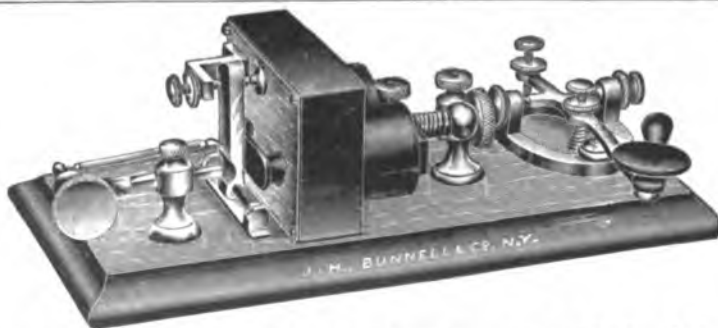
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English, general manager and purchasing
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The Vailograph

is an improved vibrator weighing only 2½ ounces and is the only sending machine in the World which is applied directly to and worked by the old Morse Key.

OPERATORS

IS THIS NOT WHAT YOU HAVE BEEN WAITING FOR?

SIDE MOTION MACHINES WILL SOON BE A THING OF THE PAST. It was thought at first the side motion was necessary for the operator who had lost his "grip," but this has all been proven wrong by the use of the "Vailograph." It is the making of the dots that gets an operator so afflicted.

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is attached to the regular Morse Key in such a way that the ordinary contact makes the dashes, while one motion of the key upward will make the dots.

The key lever is normally held in an intermediate position by means of the tension of spring in the Vailograph, slightly overcoming the tension of spring in key.

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The Vailograph

main features are its direct contact, its vertically disposed vibrator, its simplicity, its compactness and the fact that it is operated by the standard Morse key, doing away with the necessity of learning the side motion as in the lateral vibrator.

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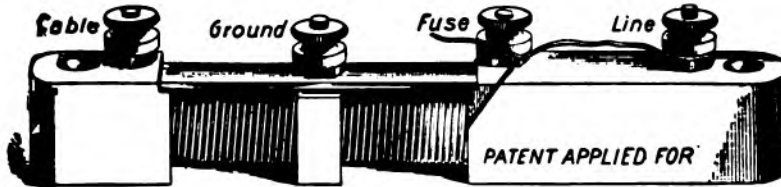
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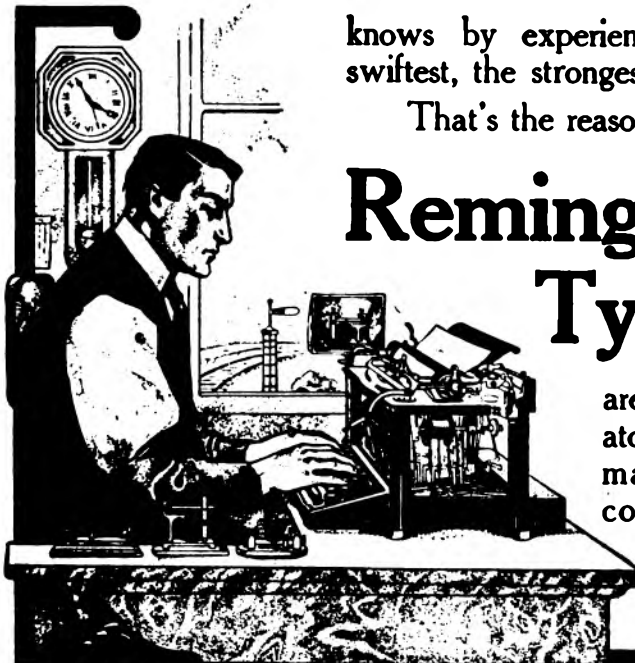
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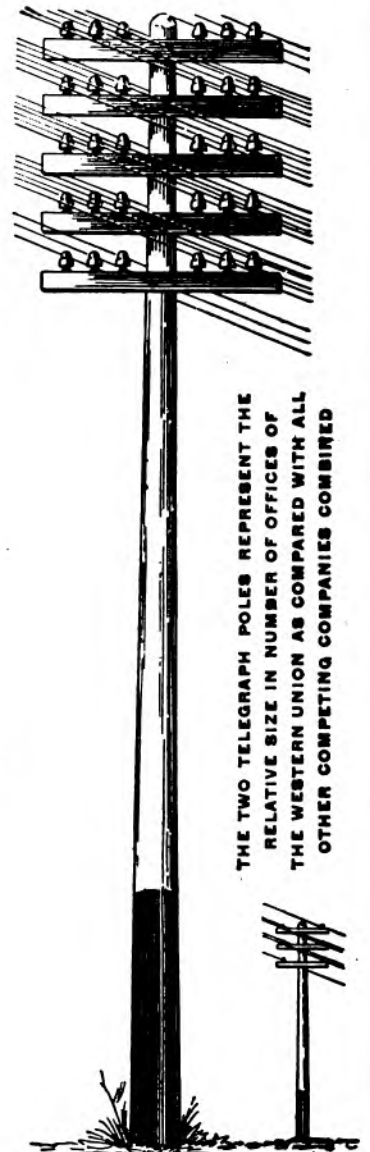
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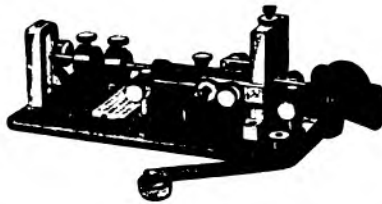
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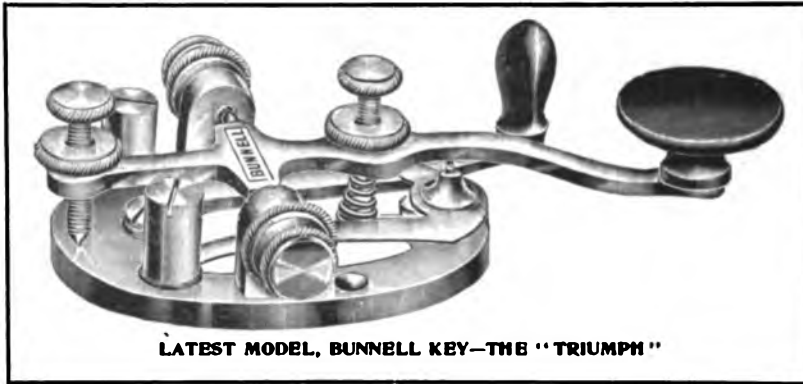
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Twenty-fifth Year.

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SOME POINTS ON ELECTRICITY.

How to Become a Wire Chief.

BY WILLIS H. JONES.
(Part 2.)

Having familiarized oneself to a great extent with a cursory glance of the various circuits, by means of the selfmade charts and notes suggested and shown in the preceding installment of this article, the newly appointed wire chief should then study closely the official chart which the general wire chief furnishes for the purpose of giving accurate information concerning each and every circuit.

As will be seen by a glance at this chart, Fig. A, the form and general features of which are shown in the accompanying diagram, the wires are all represented by straight lines with nothing to indicate the geographical direction they take except by noting the various stations in which the wire or wires are cut in. Such stations are indicated by a black dot placed opposite the stations. Where no dot appears opposite the name of a station or letter representing its call, the omission indicates that such wire or wires do not run through the switchboard there.

This card is very useful when testing for

trouble, as it enables one to know at a glance which stations are available for the purpose of locating a fault, but it suggests no picture of the field to the mind. The latter is one of the essential qualifications of a good wire chief. He should be able, and usually is, to practically see the entire route of every circuit in his board from beginning to end without consulting his chart, hence the value of the individual homemade chart.

The next knowledge a beginner should acquire is that of the value of the respective wires. The chart may indicate that two or more wires go through the same stations and terminate at the same point, yet neither could be substituted satisfactorily for the other in many cases. Thus we may have wires No. 1 and No. 2 running side by side between two points. No. 1 is a railroad train wire and because all stations must have instru-

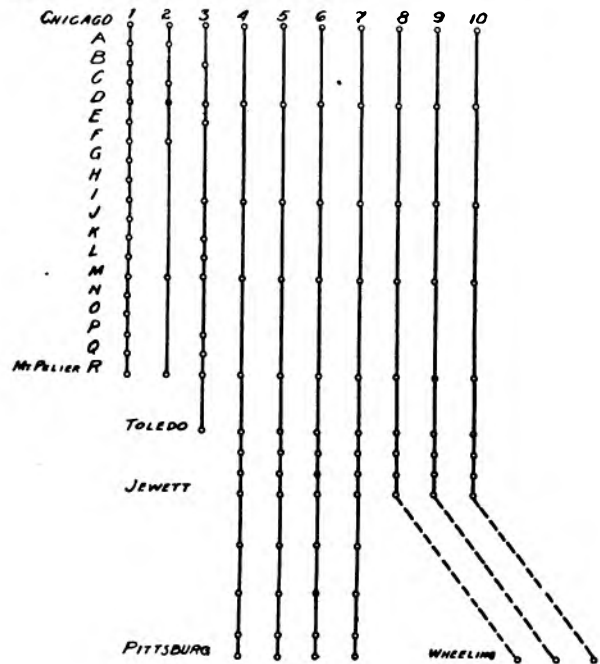


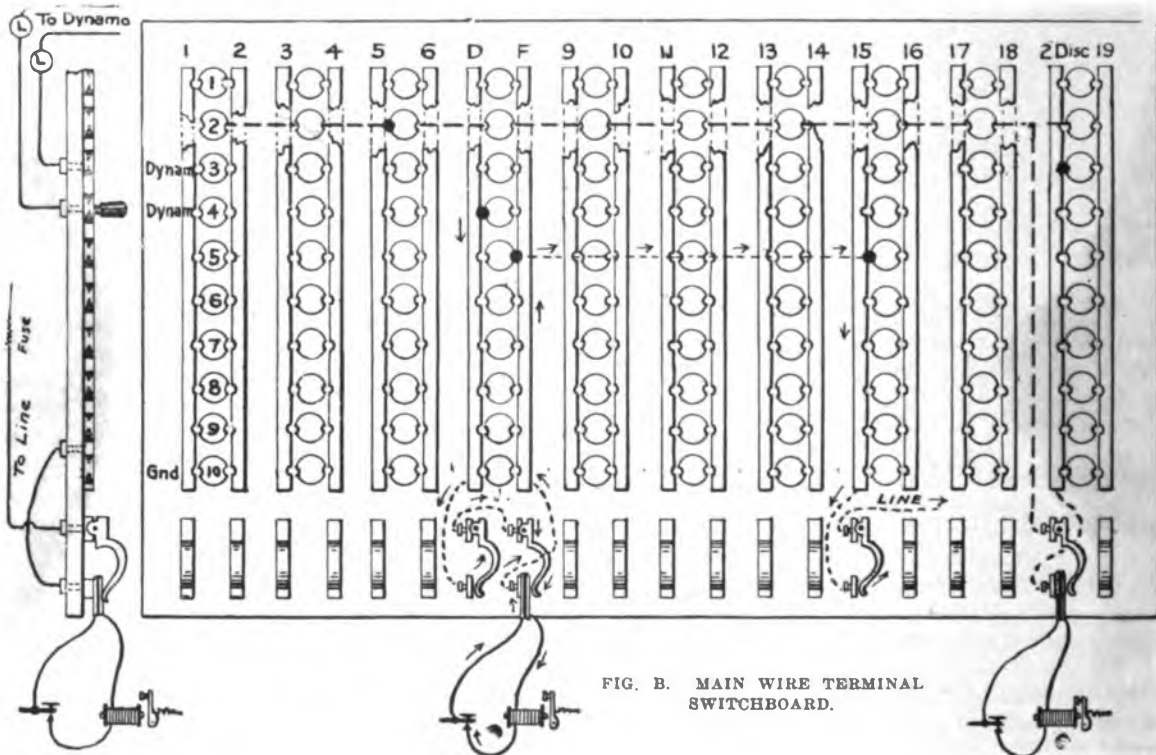
FIG. A.

ments cut in it is necessary to have a big copper wire for No. 1 in order to minimize the total resistance of the circuit. No. 2 may be an iron wire and assigned to a duplex circuit, but because none of the intermediate stations are cut in a smaller wire than No. 1 is permissible for duplex operation. But should all stations on No. 1 be told to cut in and use the small wire, No. 2, for the train wire, in case No. 1 was down, No. 2 would hardly be satisfactory, owing to its greater resistance. It is therefore absolutely necessary that the size and material composing each wire be known and kept constantly in mind. The wire

chief should know that an iron wire of any given guage and length offers seven times as great resistance as it would had it been copper. He should, therefore, make a note of the guage and consistency of each wire in the board and thus know which are copper and iron and otherwise best suited for a given purpose.

The guages used for telegraph circuits are usually 4, 6 and 8 in iron, and 10, 11 and 12 for copper. The resistance in ohms per mile is practically the real measure of their value, other conditions being equal. A rough comparison of iron and the copper wires shows that a No. 4 guage iron wire of a given length is approximately of the same resistance as a 12 guage copper of the same length; a 6 guage iron and a 14 guage copper, and an 8 guage iron and 16 copper pair in the same manner, where the B. & S. or American

lesson learned. The skill of a wire chief is his good judgment and ability to "patch" wires in such a manner as to not only restore the greatest number of broken circuits with a minimum number of available conductors, but to so assemble the parts that the respective sizes or guages of the broken ends are assigned where they will prove most beneficial under the existing conditions. To do this he must possess a thorough knowledge of the working capacity or requirements of each circuit, both as to volume of business and speed of transmission; whether worked Morse, or automatic, etc. For this reason wire chiefs are usually selected from among those operators who have served as traffic chiefs or otherwise acquired an initial knowledge of pretty nearly every through and way circuit in the room. Such persons are always in line for pro-



guage is in vogue. Nearly all text-books on electricity contain tables of reference in regard to the guages and capacities of telegraph circuits and should be studied with care.

MAIN WIRE SWITCHBOARD.

While the general appearance of a several-sections switchboard with its many loops, cords, pegs and other paraphernalia usually impress a novice with the idea that it is a very complicated piece of mechanism, the fact is it is a very simple and easily learned device for assembling and distributing the circuits connected therewith. The main thing is to study its construction, and the manner in which wires are transferred from one section to another when so required. The operation becomes understandable almost immediately. In fact, the shifting about of circuits is the easiest

motion although they may not suspect it.

Figure B illustrates pretty closely the general appearance and construction of a terminal main-wire switchboard. As may be seen, it consists of a number of brass springjacks, vertical strips of brass, and disks arranged side by side across the structure. With the exception of the springjacks and upright bars employed as "flips," or transfers, as some prefer to call them, the construction of the others is identical, and each bar and companion springjack represents the switchboard connection for a given external main line circuit. The detached diagram on the left of the cut shows the complete switch wiring for an external circuit. The main wire should be attached to one lip of the springjack—it does not matter which, so long as all are connected alike—and the

other lip connected by wire to the vertical bar immediately above it. This connection with the long vertical strip provides a means of extending the main wires, loops, or desk apparatus across all the horizontal rows of series connected disks in the board, any one of which latter may be connected with the circuit by means of a metallic peg inserted between the bar and the disk alongside of it. It follows, then, that if we connect any two upright bars to the same horizontal row of disks, the two wires which those vertical strips represent will be joined together in series in one circuit. Vertical strips thus joined together in one common circuit also place in series whatever apparatus happens to be inserted in the respective springjacks beneath them. If the wedge of a duplex set is placed in the springjack of a transfer that particular duplex set will be extended to the wire connected by a peg to the same horizontal row of disks, the number of which corresponds with that of the transfer used. In like manner desks, and all other apparatus are similarly connected or transferred from one circuit to another. Transfers or single flips are constructed practically the same. The only difference is that instead of having an external wire connected to one lip of their respective springjacks the latter are connected permanently to certain rows of the horizontal disks and are numbered to correspond with the number of the row each is assigned to. Thus the transfer jack shown on the right of the diagram is connected permanently to the second row of disks, hence it becomes transfer No. 2. When a desk or other apparatus is inserted in the springjack of that particular transfer the wire we desire to reach must invariably be connected by a peg to row No. 2 and the battery for the circuit connected to transfer No. 2 as shown.

Sometimes we use "double flips." This is simply two single flips placed together in series. They possess the advantage of being able to hold a greater number of wedges and may be connected to any two idle rows of disks desired. The connections for joining two circuits together are shown near the middle of the diagram. The battery disks are always confined to a designated row or number of rows. Unlike the other disks, however, the latter are not joined together in series behind the board. Each round disk is separated from its companion and represents a battery power of a given number of volts.

The student will quickly understand the manner of making these connections if he will try to make a few imaginary patches with this diagram before him.

(To be continued.)

Recent Telegraph Patents.

A patent, No. 873,757, for a transmitting device for electric telegraphy, has been granted to Isidor Kitsee, Philadelphia. A polarized relay has its two coils connected with separate batteries. The armature of the relay is provided with contacts so arranged that each depression of the trans-

mitting key connects the line alternately with the different batteries.

A patent, No. 874,209, for electric transmission of intelligence, has been awarded to Isidor Kitsee, of Philadelphia. Means to neutralize the inducing effect of a power wire on neighboring lines of transmission comprises a conductor placed in the neighborhood of the lines of transmission and connected in shunt with the return of the power wire.

A patent, No. 874,602, for a telegraph key, has been issued to John P. Kinney, of Pocatello, Idaho. The key lever has an operating member arched to span the instrument so that it can be operated from the side opposite that from which the key lever projects.

A patent, No. 874,826, for nullifying disturbances in telegraphic or other signaling circuits, has been granted to Edward Blakey, of Ossining, N. Y., and Robert E. Chetwood, Jr., of Elizabeth, N. J., assignors to the American Telephone and Telegraph Company. A telegraph system consists of a main circuit, a Wheatstone balance system having its branches connected in the main circuit, a receiving instrument in the bridge of the balance, and a condenser connected in a portion of each branch at each side of the bridge, and rendering the portions impassable to steady current.

A patent, No. 875,410, for a printing telegraph receiver, has been awarded to John Burry, of Ridgefield Park, N. J. Relates to receiving or printing apparatus for type telegraph systems.

A patent, No. 875,643, for a printing telegraph, has been issued to John C. Barclay, of New York. Details of circuits and mechanical construction.

A patent, No. 875,660, for a printing telegraph, has been taken out by Frederick J. Haig, of Hyattsville, Md. Construction of printing telegraph in which the transmitter closely resembles in structure and in operation the usual commercial typewriting machine.

The following patent has expired:

Patent No. 443,381, for a telegraph transmitter, held by S. W. Smith, of New York.

Personal.

Mr. Stephen D. Field, the well known electrical engineer of Stockbridge, Mass., was a recent visitor in New York, coming to the Metropolis on one of his periodical trips incidental to his profession.

Mr. W. W. Umsted, manager of the Western Union Telegraph Company at Omaha, Neb., accompanied by his wife, will sail for the south of Europe on the White Star steamer Republic, on the 25th inst., which makes the Mediterranean trip. Mr. Umsted goes abroad for a period of rest.

Miss Bessie Merritt Reynolds, the daughter of Mr. and Mrs. Harvey D. Reynolds, of Buffalo,

N. Y., Mr. Reynolds being the superintendent of the Postal Telegraph-Cable Company at that point, was married on December 31 last to Mr. William Loomis Stow. The newly married couple will make their home at North East, Pa.

Mr. S. S. Garwood, of Philadelphia, a well-known old-time telegrapher, at one time manager of the Philadelphia Western Union office, and for the past twenty years a member of the executive committee of the Telegraphers' Mutual Benefit Association, is mourning the loss of his mother, who died on January 7.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Col. R. C. Clowry, president and general manager of the company, accompanied by Frank Jaynes, of San Francisco, general superintendent of the Pacific division, together with Mrs. Jaynes, Mrs. H. D. Estabrook and Frank J. Scherrer, private secretary to Col. Clowry, are in Florida on a two weeks' vacation. At Richmond, on the journey South, the party was joined by Jacob Levin, of Atlanta, general superintendent; L. J. Maxwell of Richmond, superintendent, and W. F. Williams of Portsmouth, Va., superintendent of telegraph of the Seaboard Air Line, who accompanied it to Jacksonville.

Mr. S. R. Crowder, electrician of the southern division, Atlanta, Ga., was a recent New York visitor, as was also Charles Selden, superintendent of telegraph of the Baltimore and Ohio Railroad Company, Baltimore.

Mr. W. E. Peirce, of Washington, D. C., has been appointed to the position of repeater chief at New Orleans, La.

Mr. W. J. Higgins has been appointed chief operator at Buffalo, N. Y., vice Herbert C. Worthen, transferred to New York.

Mrs. J. L. Hambleton has been appointed manager at Beaver Falls, Pa., vice Miss M. H. Britt, resigned.

Mr. B. W. Jones has been appointed manager at Connellsville, Pa., vice Miss J. M. Taylor, resigned.

Mr. E. W. Wade has been appointed manager at Dunkirk, N. Y., vice Robert Doyle, resigned.

Mr. G. S. Walters has been appointed manager at Warren, Pa., vice C. H. Repman, resigned.

William Ingold has been appointed manager at Portland, Ore., vice William Dumars, transferred to Sacramento, Cal., where the latter succeeds as manager J. W. Whiteley, who has been transferred to the operating department at San Francisco.

A. E. Littler has been appointed manager at Reno, Nev., vice T. H. Brown, transferred to the operating department.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

The tariff rate book for 1908 made its appearance promptly with the new year. The arrangement of this work as usual was undertaken by

Isaac Smith, superintendent of tariffs, and his skilful methods in such work are reflected throughout the 650 pages of the volume. The information conveyed is comprehensive and fully brought down to date, the maps shown are clear, and the volume will be welcome to all who have occasion to use such a publication.

Frank B. Travis, chief operator at Washington, has been appointed manager of the same office, vice J. D. Prosser, resigned.

L. A. Boone, of the Boston office, has been appointed manager at Newport, R. I., vice G. M. Foote, transferred to Washington, D. C.

The Cable.

Mrs. Mary A. Penn Austin, aged eighty-five years, died on December 20, at the home of her son Stephen F. Austin, assistant superintendent of the Commercial Cable Company, New York.

Agitation on the part of the press in Australia has given rise to representations to the Pacific Cable Board to reduce press rates between Australasia and Great Britain. Sir Joseph Ward, the Premier of New Zealand, in the course of an interview, said that he was in communication with the Pacific Cable Board, and that it was sought to reduce the rate from 1s. to 4d. per word.

Cable communications interrupted January 13, 1908:

Venezuela	Jan. 12, 1906.
Orkney, Shetland and Faroe Islands and Iceland	Jan. 2, 1908.
Demerara	Jan. 8, 1908.
Island of Lombok	Jan. 10, 1908.
Cayenne	Jan. 11, 1908.

The London Electrical Review reports that Tom London, chief engineer of the Telegraph Construction and Maintenance Company, Limited, of East Greenwich, who had been sent to Mombasa to superintend the laying and repair of cables, left the cable ship with Mr. Ansell, of the Eastern Telegraph Company, for a shooting expedition, and failed to return. Search parties were organized, and the country was scoured, without success; a reward of £100 was also offered, and the Colonial Office took action. Up to December 31 no news had been received, though Mr. London had then been away ten days.

Mr. London is well known to the cable fraternity in the United States.

Messrs. Muirhead and Company, of London, brought suit in that city for the revocation of the letters patent granted to S. G. Brown, for a telegraph relay used in connection with submarine cabling, on the ground of want of novelty, utility and subject matter. The letters patent referred to the invention of a relay for re-transmitting messages received through cables and for apparatus used therewith. In May, 1906, Alexander Muirhead and Muirhead and Company, Limited, presented a petition for revocation of the patent, which was served on the owners of the patent. Justice Neville, after a nine days' hearing, held that the

petitioners had failed to establish any of their objections to the patent and dismissed the petition. On appeal to a higher court the opinion of Justice Neville was sustained, and the case was again dismissed.

The Railroad.

J. F. Clement, superintendent of telegraph of the Toledo, St. Louis and Western Railroad has been appointed superintendent, with office at Frankfort, Ind.

A course in telegraphy has been added to the studies pursued at the high school, St. Albans, Vt. It is made possible by the action of the Central Vermont Railway Company. The department is in charge of Edward T. Buck, and is well fitted with telegraph instruments.

The Wisconsin Central Railroad is contemplating a legal fight to test the validity of the eight-hour law applying to telegraph operators of the railroads of the state of Wisconsin. While the Northwestern and the St. Paul roads will temporarily at least obey the law, the latter will attach telephone systems to block wires and will try the telephone system.

A new electric signaling apparatus specially designed to prevent collisions in foggy weather, has been on trial in England. The apparatus consists of a short double third rail run between the rails near both the distance and home signals. The third rail is connected by electric wires run along by means of the telegraph poles to levers in the signal cabin. Attached to the engine are electric metal "hangers," or "shoes," which come into contact with the third rail and establish communication with the signal box. The instrument contains two small semaphore arms similar to the home and distance signals at the side of the line. There are also two small glass bull's eyes of red and green to correspond with the miniature semaphore. At the back of the case of the instrument is fitted a bell and there is a telephone at each side. As the train reaches the distance signal the "shoes" hung under the engine glide on to the third line and complete the connection with the instrument on the cab of the engine. Immediately the bell rings in the engine cab and the miniature semaphore in the cab repeats the signals from the signal cabin.

RAILWAY SIGNAL ASSOCIATION.

The meeting of the Railway Signal Association was held in the Engineers Societies building, New York, Tuesday, January 14. At the morning session the subject discussed was the report of Committee No. 4, Automatic Block Signals, as presented at the annual meeting at Milwaukee, and there accepted as a progress report without discussion. At the afternoon session there was a paper by F. R. Cook on Economical Operation of Electric Signals and Care and Maintenance of Storage Batteries; also the report of Committee No. 3, Electric Interlocking. At the Executive

Committee meeting on December 2, 1907, it was voted that the dues for representative members for 1908 should be \$1 per vote per annum. Instructions to committees are to be published in the annual proceedings. Proceedings for 1908 are to be published as follows: Subjects for March meeting to be mailed February 25; subjects for May meeting to be mailed May 1; subjects for September meeting to be mailed August 15. Advance notice of annual meeting to be mailed two weeks in advance of date of meeting; discussion at annual meeting to be mailed December 20. The September meeting is to be devoted to reading of papers presented and accepted by the Executive Committee; no reports of committees for annual meeting to be discussed.—The Railroad Gazette.

PROMOTION OF J. C. BROWNE.

J. C. Browne, general foreman of telegraph, has had his jurisdiction extended so as to include the Missouri Pacific Railway, embracing the entire Gould system, 8,000 miles in extent, with headquarters at St. Louis. Mr. Browne succeeds General Foreman J. H. Baker of the Missouri Pacific at Sedalia, Mo., whose death recently occurred. There will be in future no general foreman for the Iron Mountain and Missouri Pacific, but the work of those two divisions will be handled by C. E. Wynne, assistant general foreman for the Iron Mountain at Little Rock, Ark., and I. C. Redmond, assistant general foreman of the Missouri Pacific at Sedalia, Mo. The changes were effective January 1.

Mr. Browne was born on a plantation in North Alabama in 1866. When twelve years of age he began to serve as a telegraph messenger during school vacations in the meantime learning to telegraph, until 1881 when he secured a position as an operator on what is now the Southern Railway. After a short service with the Western Union Telegraph Company at Memphis in the following year, he became a train despatcher in the general superintendent's office of what at that time was the Little Rock and Memphis Railway. Early in 1884 he became an operator in the general office of the Missouri Pacific Railway at Little Rock. In 1887 he was appointed chief operator and manager of the Little Rock relay office. In 1892, in connection with the same, he worked in construction gangs, performing actual labor of telegraph construction and reconstruction work. In July, 1895, he was appointed general foreman of telegraph construction and repairs in connection with his managership of the Little Rock relay office. In this dual position he served until August, 1907, when he was relieved of the managership of the Little Rock office, and given exclusive charge of telegraph construction and repairs on the St. Louis, Iron Mountain and Southern Railroad, leased and operated lines.

By virtue of his present office Mr. Browne will have charge of all matters pertaining to construction, repairs and maintainance of the telegraph department of the Missouri Pacific system.

Government Control of the Telegraph in Canada.

The question of government control of the telegraph and telephone is agitating the Dominion Parliament. The Governor-General in his speech opening the current session stated that "the time has arrived when the public interest requires that telegraph and telephone companies holding Federal charters shall be placed under government control. A bill will be introduced for that purpose."

In the debate that followed in the House of Commons an explanation was demanded of the government by R. L. Borden of the statement, the questioner wanting to know whether or not it meant bringing these public utilities under the control of the Railway Commission, as had been indicated.

Sir Wilfred Laurier, the premier, in reply said there was a tendency in Canada at present, derived from the other side of the boundary line, to denounce all corporations and represent them as inimical to the public weal. The truth was that the corporations, like all human institutions, were a mixture of good and evil. It was undeniable that corporations had sometimes acted mischievously, but it was also true that corporations had been one of the most potent agents of the creation and distribution of wealth among all classes of the community. It was undeniable that corporate capital, corporate labor and corporate effort would do more than individual capital, labor or effort. Sir Wilfred said that a member had exclaimed: "Down with all corporations, down with the railway corporations, and let the state perform the duties they are called upon to serve." The leader of the opposition argued one way, and concluded the other, but the man who looked upon the question calmly and dispassionately must come to the conclusion that the interests which were served to-day by private enterprise were better discharged than they could be by the state. The question was as to a remedy, and he apprehended that the remedy was not to entrust the railways to the state. The true policy was to have the corporations subjected to the control of Parliament, which would see they discharged their duties properly.

At this point a member demanded: "What about Germany?" Sir Wilfred replied, with some heat, "Thank God we are not here to take example from Germany or Russia." Again the member interrupting said, "What about New Zealand and Australia?"

Sir Wilfred, continuing, answered that the colonies named were young commercial communities that had gone much further than he would agree to go. If the incentive of ambition and emulation were removed the result would be suppression of progress and the introduction of stagnation and immobility. He cited the Canadian Pacific Railroad, first commenced as a government enterprise, but finished and now operated by a private company, in support of his conten-

tion. So far as his recollection went, not a single word had been uttered against the change from public ownership. He alluded to many enterprises of the Canadian Pacific, such as hotels, smelters, lake and ocean fleets, the operation of coal mines, and asked if his honorable friend pretended that this would exist to-day if the railway was a government enterprise. It was true there were complaints in various parts of the country against the railway service, but the remedy was control by the government and parliament. Passing to the opposition's platform relative to the nationalization of telegraphs and telephones, he took issue with the statements made in Mr. Borden's speeches as to the success of government telegraph and telephones in Britain. The report of the British postmaster-general showed that in the last fiscal year there was a net deficit on the telegraph branch of £652,000 (\$3,260,000), and if interest on capital were added to the total, a loss of £923,000 (\$4,615,000), while the telephone department did business at twenty per cent. less than cost. "Now, sir, upon this point, as upon the other," Sir Wilfred went on, "we think on this side of the house that the remedy is not government ownership, as has been advocated by my honorable friend, but private ownership and government control. He has asked me what we mean in regard to this. We mean that we shall introduce legislation to increase the power of the Railway Commission, increase its membership as well, and give it control of telegraphs and telephones, as it has of railways."

Theory of Metallic Conductivity.

Prof. J. J. Thomson, in a recent paper before the British Institution of Electrical Engineers, summarizes the "corpuscular" or electron theory of metallic conduction and indicates a few modifications of it which have become necessary in the light of recent observations. The theory may be stated as follows: "By the action of one atom of the metal on another, corpuscles are split off from the atoms, and they remain diffused through the mass of metal; so that we may picture to ourselves a metal as somewhat like a porous body, the pores of which are occupied by a substance with the properties of a perfect gas. In the older theory it was supposed that these corpuscles remained free for a time sufficiently long to enable them to get in thermal equilibrium with the metal itself, so that, like all gases, the average kinetic energy of the corpuscle was a constant merely depending upon the temperature." The modification now required, says a writer in *Science Abstracts* in giving the points of Professor Thomson's paper, is to suppose that the electric force, instead of acting on the corpuscles after they have left their atoms, really acts upon the atoms before the corpuscles leave them. The atoms probably act on each other like a system of electric doublets, and the electron flows.—*Western Electrician*.

Death of Wilson H. Fairbank.

Wilson Henry Fairbank, aged seventy-one years, died at his home in Warren, Mass., on January 5, after an illness lasting several weeks. Mr. Fairbank was born at Warren, April 3, 1836. Early in life he became associated with his father in the firm of A. Fairbank and Company, the concern furnishing the poles for the first telegraph line constructed between Boston and Lowell. As a constructor of telegraph lines in this country the name of Wilson H. Fairbank occupies a unique and honored position. At an early age he displayed the energy and force of character that distinguished him throughout his business life, for in forty-five days, five days ahead of his contract time, he delivered to the American Telegraph Company over nine thousand poles. The success attending this undertaking determined his future career, which became that of a contractor, in which, particularly in his earlier days, the con-



WILSON H. FAIRBANK.

The well-known Telegraph Line Constructor who lately died.

struction of telegraph lines became almost his specialty. Many of the long and important telegraph lines in all parts of the country were built by him and are monuments to his extraordinary capacity, not only for great undertakings, but as well for their rapid and satisfactory accomplishment.

In 1865 he built a line from Brownsville, Pa., to Pittsburg, Pa., and on reaching Pittsburg the Pacific and Atlantic Telegraph Company was organized and W. H. Fairbank and Company took the contract to build all the lines of this company, to establish all offices and deliver a complete working plant to the stockholders. They built two lines to the East over the Alleghany mountains, one on the national road to Baltimore and Washington, the other over the Pennsylvania Railroad to Philadelphia. They also extended the lines South and West to Cincinnati and Chi-

cago. In 1876, in connection with Jay Gould, General Eckert, D. H. Bates and others, he began the extension of the lines of the Atlantic and Pacific Telegraph Company from Louisville, Ky., to New Orleans. This line was 963 miles in length and was completed in ninety-three days, the fastest construction work which had ever been done.

In 1877 the Continental Telegraph Company was organized, and he took the contract to build the lines from New York to Philadelphia. This was known as the best constructed line in the country up to that time. When the American Union Telegraph Company was organized, he was one of the first in the field, and at one time was running successfully twenty-one different gangs of men and built thousands of miles of first-class lines. He also built ninety miles of what is known as Eckert's line from Jersey City to Philadelphia, considered the best ninety miles of telegraph line in the world. On the consolidation of the telegraph companies in 1881, he became superintendent of construction for the Mutual Union Telegraph Company, and after building over 2,000 miles of lines he was appointed general superintendent of repairs and construction.

In July, 1882, he took charge of the construction of the Postal telegraph lines, and built for that company a very superior structure from New York to Chicago, and thence to St. Louis, also from Buffalo to Pittsburg through the oil regions, and from New York to Washington. After completing his contract with the Postal Telegraph Company, Mr. Fairbank was appointed by the United telegraph lines general superintendent of their construction and repairs. In 1884 he built a line for the Baltimore and Ohio Telegraph Company, extending from Cairo, Ill., to Galveston, Tex., and from Houston to New Orleans. This work of over 1,100 miles was completed in five months.

In 1885 he was engaged by the American Telegraph and Telephone Company as general superintendent of construction to build the long-distance telephone lines, using 90-foot poles and 20 to 100 copper wires. He remained with this company over six years, with full charge of all the Eastern construction. Ill health compelled him to leave the construction business, and he retired to his old home in Warren.

Mr. Fairbank had the tact and intelligence, by which rights of way were secured, formidable obstructions overcome, the sturdy, dogged, sleepless fight that finally wins, which enabled him to take a contract for a thousand miles of line of a dozen wires, and hand it over, a clean, unincumbered plant into the company's hands.

His business life has been one covering a very large field of experience and it is said that the accuracy of his accounts was never questioned.

Mr. Fairbank was interested in a number of manufacturing and commercial enterprises, and his country life and affiliations carried him also

into the Grange and Farmers' Club. He was a Mason and an Odd Fellow, in both of which orders he showed a warm interest. He had served in the Legislature of his state with distinction and marked fidelity, both in the House and Senate, and was honored by his state in being appointed to numerous representative positions.

DEATH OF JOSEPH W. KATES.

Joseph W. Kates died at his home in Manchester, near Richmond, Va., on January 1. He was sixty-six years of age. Mr. Kates had a long and interesting record as a telegrapher. He entered the service in 1856, and was the first operator at the railroad office of the Magnetic Telegraph Company at Wilmington, Del., when it was opened in the year named. From Wilmington he went to Petersburg, Va., thence to Richmond, and in 1860 was appointed manager of the office at Alexandria, Va. His sympathies caused him to cast his lot with the Confederate cause, and he served the South in his capacity as a military telegrapher with conspicuous ability. He was in charge of the office at Manassas, Va., during the battles of Blackburn's Ford and Manassas. He transmitted the famous message from President Jefferson Davis to Gen. Joseph E. Johnston at Winchester, ordering that officer to make a junction with Beauregard at Manassas. He was afterwards attached to General Beauregard's army in the Southwest, and subsequently was appointed military superintendent of telegraph in that general's department, embracing South Carolina and Georgia, with headquarters at Charleston. At the close of the war Mr. Kates found employment in the telegraph service at New York. In 1866 he was appointed superintendent of the Western Union Telegraph Company at Lynchburg, Va., headquarters being removed to Richmond in 1872. In 1882 he was made general superintendent of the Southern Telegraph Company, and in 1888 was appointed to a like position in the service of the Postal Telegraph-Cable Company at Richmond, from which he retired in 1904.

Mr. Kates was held in high esteem by his friends and neighbors in Richmond. Several months ago he suffered a stroke of paralysis.

OBITUARY NOTES.

J. Murray Fairchild, a well-known San Francisco telegrapher, died at Oakland, Cal., December 12, aged sixty-nine years. He was manager of the Western Union Telegraph Company at New Haven for many years, resigning in 1881 and going to the Pacific Coast two years later on account of ill health. Mr. Fairchild was an inventor of some note, one of his inventions being a trap lock for fire-alarm telegraph boxes, a device which came into general use.

Frank McRavey, aged fifty years, one of the veteran telegraph operators in Milwaukee, and for nearly thirty years an employee of the West-

ern Union Telegraph Company, died January 6, after a week's illness of pneumonia. He is survived by his wife, one daughter and two sons.

Services in Memory of Lord Kelvin.

Lord Kelvin's memory was signally honored in a memorial service held Sunday afternoon, January 12, under the auspices of the American Institute of Electrical Engineers, in the auditorium of the Engineers' Building, No. 33 West Thirty-ninth street, New York. Several hundred scientists and technical men, representing national societies, were in attendance, and, in true reverence to the memory of the great man, adopted a resolution extolling the qualities of Lord Kelvin.

President Henry G. Stott, of the American Institute of Electrical Engineers, conducted the meeting. Andrew Carnegie was among those present, but took no part in the speeches.

Speaking of Lord Kelvin as a Christian, the Rev. Dr. Manning said:

"We are here to pay a tribute to one who was not only the greatest scientist of his own age, but one whose name takes its place among those of the masters of thought in any age. It is not surprising that Lord Kelvin should have been a Christian and a churchman. The controversy between religion and science has passed, and we all realize that truth is one, whatever its source. It is an encouragement and an inspiration to hear a man like Lord Kelvin say that the facts of science demand the recognition of a Supreme Power in the universe, and that with the utmost freedom of thought we are bound to recognize that science is not antagonistic to religion, but a help to it."

Professor Elihu Thomson described Lord Kelvin's inventions. Professor Edward Nichols, of Cornell University, in speaking of Lord Kelvin as a scientist, said:

"Lord Kelvin made a lifelong study of the doctrine of energy and the mathematical theory of heat, electricity and wave motion. The constitution of matter he had always with him. His contributions to any one of these great fields would have made him great, but the combination of all of them made him the foremost scientist. He was the only man that could give Cyrus Field a definite answer as to the practicability of the laying of an Atlantic submarine cable. His technical output, or inventions, were valuable by-products of his scientific activities."

Rear-Admiral Melville, T. C. Martin and George G. Ward, vice-president and general manager of the Commercial Cable Company, were among the other speakers. The latter spoke at length on the work of Lord Kelvin in respect to the submarine cable.

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TELEGRAPH AGE has published the best articles on telegraphic subjects that have ever appeared in print. Here-with 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. Taitvall, TELEGRAPH AGE, 253 Broadway, New York.

Adjustment of Relays and Sounders Oct. 1, 1902
 Altering 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
 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, 1906
 British System of Timing Messages Dec. 1, 1902
 Buckingham Long Distance Page Printing Telegraph Sept. 1, 1902
 Barry Page Printing Telegraph Apl. 1, 1903
 Cable Station in Mid-Pacific, Our, Dr. Martin Crook Feb. 16, 1905
 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 Teleg. and Telep. on Canadian Pacific Ry. Mch. 1, 1904
 Composite Telephone Lines Mch. 1, 1906
 Crebore-Squire Automatic Telegraph System May 16, 1902
 Definitions of Electrical Terms, Mch. 16, Apl. 1-16, June 1, July 1-16, 1904
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 K. R. Law as Applied to Quadruplex Circuits Jan. 1, 1904
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 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. Mavor, Jr. Mch. 16, 1904
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 Protection of Telegraph or Telephone Lines When in Hazardous Proximity to High Speed Lines June 1, 1904
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 Simultaneous Telegraphy and Telephony Aug. 16, 1903
 Specifications in Construction of 24-foot Pole Line, American Telephone and Telegraph Company Feb. 16, Mch. 1-16, 1904
 Stevens' Wheatstone Transmitter July 16, 1902
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 Telephone and Telegraph Bureau, U. S., Washington, D. C., May 1, 1905
 Typewriting Typewriter Wire Connections Feb. 16, 1904
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 Type-Telegraph (Dr. Cardwell), F. J. Swift June 1, 1905
 Use of Modern Telephone as Applied to Railroads Jan. 16, 1905
 Vibratory Telegraph Aug. 16, 1903
 Western Union Telegraph Company, History of (With portraits of officials) Jan. 16, 1904
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 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. E. Operator Dec. 16, 1904
 Wheatstone Automatic Duplex Apl. 1, 1903
 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
 Yotmaq Transmitter (Description and Engraving) Aug. 1, 1903

Adams-Randall Telephone Transmitter July 1, 1906
 Braun's New Method of Directing Wireless, A. Fred'k Collins Apl. 1, 1906
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 Morse Transmitters, Mechanical, F. W. Jones July 16, 1906
 Murray Automatic Page-Printing Telegraph, History of Sept. 16, 1906
 Phillips Code, Perfect, G. W. Conkling Apl. 16, 1906
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 Train Order Rules, Chas. Selden Aug. 1, 1906
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 Wheatstone Bridge, F. W. Jones Nov. 16, 1906
 Wright Keyboard Transmitter and Printer, B. Hiltcock Apl. 1, 1906

Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Montreal, Que., June 24, 25, 26, 1908.
 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 Detroit, Mich. Time to be chosen later.
 Railway Signal Association will meet in 1908 at a date and place to be named later.
 Old Time Telegraphers' and Historical Association, will meet at Niagara Falls, N. Y., in 1908, 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 Fort Worth, Tex., on June 18, 1908.
 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.

The influx of new men in the telegraph service who are taking the places of those who went out on strike, has created an increasing demand for that standard work on the telegraph, "Pocket Edition of Diagrams and Complete Information for Telegraph Students," by W. H. Jones, conductor of the department in this journal bearing the title "Some Points on Electricity." Doubtless, this book is required to "brighten up" telegraphic knowledge, especially of those who are returning to the key after absence therefrom. As the volume was written by a telegrapher, yet in the harness, practically familiar with all the "ins and outs" of an operator's work, it conveys just the kind of information most desired. In fact, a careful reading of the book, which contains 334 pages, and a thorough study of its 160 diagrams, will teach the average operator more about telegraphy in its application to his daily work than he can possibly derive from any other source. The price of this book is \$1.50, which includes the cost of carrying charges to any point in the United States. Orders should be sent direct to this office, or to any of our agents who may be found with both the Western Union and Postal telegraph companies in nearly every large center in the United States.

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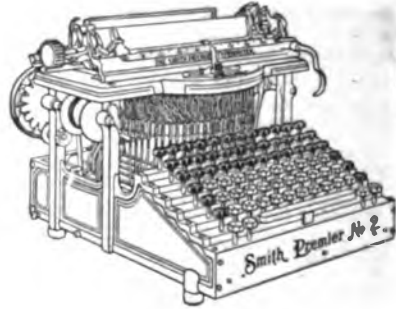
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NEW YORK, JANUARY 16, 1908.

The Book Department of Telegraph Age has always been a prominent and carefully conducted feature of this journal. The desire has been and is to furnish our readers and buyers everywhere the readiest means possible of securing such technical books as they may require. Aiding buyers in their selection with advance information, which at all times is cheerfully furnished; promptness in sending books, filling all orders on the same day of their receipt, has brought to this department a generous clientele. Catalogues fully covering the range of books treating on the telegraph, wireless telegraphy, the telephone, as well as those on the general subject of electricity, together with the principal cable codes, will be sent to any one asking for the same.

The Anniversary Number.

Readers of Telegraph Age appear to be well satisfied with the January 1 issue, the twenty-fifth anniversary number. From all over the country and from Canada we have received numerous letters of congratulation on the production of so fine an edition, the consensus of opinion being that it was by far the best paper that Telegraph Age has ever turned out. Well, we may be permitted to say that we think so, too, and as our friends are pleased and we are satisfied with our efforts, at least for the present, we should like to take our subscribers into our confidence and put them in possession of a few statistical facts relative to this big number. It was an expensive publication, for each paper weighed a pound, and the white paper required for each was valued at about six and a half cents. Several tons of paper were necessary for this edition. The cost of mailing the anniversary number was enormous, for, apart from the domestic postage, which is charged for in "bulk," individual papers going to Canadian subscribers were paid for at the rate of

four cents apiece, while for all other papers going to foreign countries, eight cents apiece was the rate. Thus it will be seen that, outside of the editorial labor involved, the mechanical cost of production and of placing the paper in the hands of subscribers, was very large.

The Threat of Another Telegraphers' Strike.

Statements begin to appear that on the first of March next, unless certain wrongs alleged to exist within the economy of the telegraph, are righted, another strike of telegraphers will probably be called. These reports, which are given more or less currency in the public press, seem to emanate mainly from a clique of unemployed operators at Chicago, who, when the recent strike went into desuetude, were left by the receding wave of a witless excitement stranded on the inhospitable shore of Non-Employment. In the astonishment and bewilderment of mind that has since possessed these individuals consequent upon the realizing sense that the telegraph companies have been able to dispense with their services, has come the temptation to threaten further disturbance in the telegraph industrial field. The declaration, which has been made, that an order to strike would be obeyed by a large majority of operators employed by both the Western Union and Postal telegraph companies, is so ridiculous that were it not for the fact, strange as it may appear, that many so out of employment still hold to the belief that the telegraph companies may yet be forced into a recognition of the union, and so to agree to a general reinstatement of the men, the matter would receive no recognition at our hands. To so illogical an assurance of mind, it is difficult to give credence. The movement referred to has been declared to be a secret one. Perhaps it is, for we do not know what countenance, if any, the Commercial Telegraphers' Union is extending to the ill-advised utterances of those who proclaim their allegiance to that body, but if the non-expressive attitude maintained by the organization be construed as indicating official approval of these circulating threats, the fulfilment of which is designed to work injury to telegraph interests, those instructed with its conduct are assuming a great responsibility.

Telegraphers at all points, who went on strike, feel that their union treated them badly and that they were grossly deceived by its representations. Of striking experiences, no matter with what original enthusiasm and good faith entered upon, they have had more than enough. At the conclusion of their escapade those who did not succeed in gaining reinstatement in telegraph employ are sore because of the plight they are in, many being in actual want; those who were fortunate enough to be taken back are rejoicing at their good fortune, yet marveling at their narrow escape from permanent disaster. No surprise need be felt by any one because within the army of the employed only expressions of loyalty

to employing interests are heard, while condemnation, disgust and distrust of the union, its influences and tendencies, are freely uttered.

It is sheer folly to talk of instituting another strike, and time and opportunity are worse than wasted to give such a proposition thought even. Moreover, outside of Chicago, which, in this instance as in others, is maintaining its reputation as a center of disturbance whether in industrial, social or political matters, the thought of a strike is foreign to the intelligent mind, and those who are agitating the matter should be sternly repressed.

It is estimated that there are between 4,000 and 5,000 telegraphers unemployed in this country to-day, mainly as a result of the strike. With such an idle body of men whose mistaken zeal, to put it as kindly as possible, has placed them in the unfortunate position they are in, and whose ambition now is to get back again at work, it is not probable that an appeal to the employed to strike, which means a surrender of their places to a waiting crowd eager to step into the vacated positions, would be met other than with derision. A strike of commercial telegraphers is not likely to occur again while the present generation is yet alive. Such strikes have a tendency to terminate in a manner that recall the old lady's exclamation when the train on which she was traveling finally came to a standstill in a frightful wreck—"Do they always stop so?"

A Directive System of Wireless Telegraphy.

The article by Messrs. E. Bellini and A. Tosi, published in the December 28 issue of the *Electrical World*, describes in a very clear and interesting manner some experiments on directive wireless telegraphy carried out between three coast stations of the French Government, remarks that paper. At the first stage of wireless telegraphic development all efforts are turned to making the outgoing waves as powerful as possible and the incoming waves as readily detected as possible. In the stage of development already reached, there are too many waves coming from different sources, and the problem is rather how to detect the particular one desired and to suppress all the rest. It has been known for some time that electromagnetic waves coming from a given point on the horizon would be capable of affecting a pair of antennas in the line of arrival, while incapable of affecting a similar pair in a line perpendicular thereto, i. e., a line parallel to the wave front. This plan has been utilized both with open and closed multiple antennas to locate the azimuth of a distant radiant. This method is elaborated in the article to the extent of employing a permanent structure of two closed receiving antennas in mutually perpendicular planes, acting on a movable secondary circuit, so as to swing about a pivot, and determine the azimuth of the distant radiant. The principal value of the experiments reported in the article lies in the quantitative measurements of the power emitted and received by a vertical closed antenna loop. It is shown that the electric and the

magnetic intensities in the waves make a double circle dumbbell diagram or sinusoidal diagram, while the powers are as the products of these two components, or form a double elliptical dumbbell diagram. It is open to debate, however, whether the electrolytic receiver responds more to current than to power. It would appear more probable, from the investigations already published, that this receiver depends almost entirely on the power.

Balloons and Air Ships for Army Use.

Balloons in the future will contribute a more important service in the conduct of war than ever before, for from great heights the movements of the enemy may be observed and telegraphed to the army below. This is fully recognized by the Army Signal Corps, and General James Allen of that corps recently made a call for bids for dirigible balloons and flying machines for army use. This request has served to stir up apparently all the cranks on the subject in the country and in consequence a flood of letters has been poured in upon the department. Major Edgar Russel in speaking of the matter said:

"Of course we are in correspondence with men who have given much study to scientific aeronautics, but the number of persons who have the flying machine bee buzzing in their heads is appalling. For years we have received occasional requests from men who said that they could fly if they only had the chance, and since we began experimenting with balloons about a year ago the stream of letters has been constant, but never so heavy as at present."

While the correspondence in regard to the airships has been heavy, few bona-fide proposals have yet been received at the War Department. It is expected that they will come with a rush before the dates set for opening the proposals, January 15 for dirigible balloons, and February 1 for airships heavier than air. Many persons who write to the department about flying machines overlook the fact that what the Signal Corps demands are not plans and drawings of machines, but the machines themselves. In other words, the department takes the stand: "You must show me." The machines will all be tested at Fort Myer before the award is made.

"Postal" Telegraphy in France.

It is announced from Paris that M. Simyan, French Minister of Posts and Telegraphs, has just made an important reform which will go far to remove the criticism to which the French postal service has long been subjected. The reform takes the shape of a "letter telegram." When a French citizen misses the last mail for some point in France, however distant it may be, he may turn his letter in at a special wicket and by the payment of a very small sum have his letter or letters transmitted by telegraph during the night. At the place of destination the letter thus telegraphed will be placed in an envelope and delivered by the postman on his first round the next morning.

Legal.

In the United States circuit court at Little Rock, Ark., Judge Trieber handed down his decision on January 2 in the case of Logan and Bryan vs. the Postal Telegraph-Cable Company, of Texas, the attorney-general and several of the prosecuting attorneys of the State of Arkansas. The case involved the constitutionality of the act of the late general assembly of Arkansas absolutely prohibiting all contracts for futures on margins, making the posting of quotations *prima facie* evidence of a violation of the act.

The decision has been awaited with great interest, not only by the people of Arkansas but by many brokers in New York, Chicago and New Orleans, as this is the first decision of a federal court on that class of legislation which has lately been enacted by the legislatures of most of the Southern states at the request of the Farmers' Union.

The opinion of Judge Trieber is quite elaborate and covers twenty-seven typewritten pages and is a victory for the state on all questions involved. The court holds that as to the attorney-general and prosecuting attorneys of the state it is without jurisdiction upon two grounds. First, that it is, in effect, a suit against the state and within the prohibition of the eleventh amendment of the Constitution of the United States; and, second, that courts of equity have no power to enjoin criminal proceedings in state courts unless they result in depriving the party of vested rights which are protected by the Constitution of the United States, which the court finds is not the case in this cause.

In sustaining the constitutionality of the statute, it is held that every state has the right to prescribe the rules of evidence for its courts, and for this reason the fact that the act makes certain things *prima facie* evidence of guilt does not make the act unconstitutional under the fourteenth amendment, as the defendant is given an opportunity to disprove this *prima facie* presumption.

It further holds that the state has the right under the police powers to determine what shall constitute gambling and to prohibit such acts, and the courts will not review or pass upon the wisdom of such legislative acts, unless it appears plainly that the statute purporting to have been enacted to protect the public morals, health or safety of the people, has no real or substantial relation to those objects, or is a palpable invasion of rights secured by the fundamental law of state or nation. This statute is declared not to be of that nature.

It was also held that even if plaintiffs had, under the previous laws, a right to conduct such business, and in reliance thereon expended large sums of money fitting up offices, or entered into contracts involving a large expenditure of money, the state has the power to prohibit them from carrying on their business if injurious to public morals; and that there is nothing in the Consti-

tution of the United States to prohibit the exercising of that power, citing cases in which similar laws have been upheld as well as acts of the states repealing lottery charters.

The fact that the contracts for futures were to be performed solely in other states, and that the telegraph company is engaged in interstate commerce in transmitting messages from this state to brokers in other states, does not deprive the state of the right to protect its people from immoral contracts any more than it could be denied the power to protect them from infectious diseases, even if, indirectly, such laws interfere with interstate commerce.

On that point the court said:

"The right of the states under their police power, to prevent the spread of crime and to exclude from their limits paupers, convicts, persons likely to become a public charge and persons afflicted with contagious or infectious diseases, as well as the right to protect its people from being defrauded or injured in their health by adulterated and injurious food, or to enact any laws which will prevent their morals from being corrupted, was not surrendered when the constitution conferred upon congress the exclusive right to regulate commerce among the states; and such acts, even if they do affect interstate commerce incidentally, if the main purpose was to protect its people against wrong and fraud, are a proper exercise of the reserved police powers of the state, and while the act may have affected the telegraph company's interstate business, its primary and main purpose was to prevent dealing in futures on margins in this state."

The court decides with a citation from Chief Justice Marshall, in *Fletcher vs. Peck*, where he said:

"The question whether a law be void for its repugnancy to the constitution is, at all times, a question of much delicacy, which ought seldom, if ever, to be decided in the affirmative in a doubtful case. The court, when impelled by duty to render such a judgment, would be unworthy of its station could it be unmindful of the solemn obligations which that station imposes. But it is not on slight implication and vague conjecture that the legislature is to be pronounced to have transcended its powers, and its acts to be considered as void. The opposition between the constitution and the law should be such that the judge feels a clear and strong conviction of their incompatibility with each other."

And also from Justice Holmes, in a later decision, where he said:

"It is not enough that the statute goes to the verge of constitutional power. We must be able to see clearly that it goes beyond that power. In case of real doubt a law must be sustained."

There is much for telegraph operators to learn respecting their calling which can be readily obtained by reading *Telegraph Age*—\$1.50 a year.

Carnegie Pension for Military Telegraphers.

In our anniversary number was printed the fact that Andrew Carnegie had granted a pension to be paid to those surviving members of the United States Military Telegraph Corps who may be in need of assistance. The correspondence that brought this matter to the attention of Mr. Carnegie and led to the generous action on his part was as follows:

New York City, December 9, 1907.

Mr. Andrew Carnegie,
2 East 91st Street,
New York City.

Dear Sir:

The executive committee of the United States Military Telegraph Corps of the United States Army, of which you are an honorary member, held a special meeting in the directors' room of the Western Union Telegraph Company on December 3, at which it was unanimously voted to address you as follows:

The United States Military Telegraph Corps of the United States Army, inaugurated by you, grew during the Civil War into a mighty arm of the service. Its life was marked here and there with tragedy and exceptional cases of heroism, and everywhere by patriotic and self-sacrificing service unexcelled by that of any other arm.

The service it performed was analogous to that of the signal corps combined with that of the scout and field courier and to a considerable extent it relieved the cavalry arm. The members of the corps shared the perils, privations and sufferings of the private soldier, but thus far they have been denied by the government the soldier's reward. For a quarter of a century the survivors have appealed to Congress for a pensionable status so that they might be on a parity with all other soldiers of the war, but the only thing accomplished has been the granting to them of a certificate of honorable service by the Act of January 26, 1897.

From beginning to end of the Civil War about 1,200 names appeared upon the rolls of the corps, but of that number less than 200 survive. Many of the survivors have passed the Psalmist's limit of life, three score years and ten, while the others are rapidly moving toward it. Some of them are in impaired financial circumstances and a little help would be timely. A preliminary but somewhat careful canvass has been made and it is the belief of the committee that not over ten per cent. of the whole number of survivors, that is, ten per cent. of the two hundred, are in such needy circumstances.

Knowing your love for the craft of your youth and feeling that you take a virtuous pride in the achievements of the corps of your founding, is it asking too much of you to suggest if among your many generous benefactions you can find a place for an "Honor Pension Roll," to which the surviving members of the corps would be eligible? Should you look with favor upon this proposal,

we suggest that the executive committee of the United States Military Corps shall carefully consider any applications for relief that may be made hereunder and will approve only such as may appear to be worthy of such relief, all such applications to have the written approval of at least five members of the executive committee.

We venture also to make the following suggestion, that whatever relief you may see fit to bestow might be, for instance, the equivalent of the pension given by our government to the private soldier in the United States army, that is, say, \$144 per year, and only until such time as Congress may pass a pension bill in favor of the members of our corps. Such a bill has been before Congress for a number of years and we have some reason to hope that it may pass during one of the sessions of the Sixtieth Congress. Perhaps any favorable action you may take upon our present petition may hasten action by Congress.

Yours very truly,

William Bender Wilson,
Ex-Officio Chairman,

David Homer Bates, Secretary.

Robert C. Clowry,

Charles A. Tinker,

Albert B. Chandler,

Members executive committee, United States
Military Telegraph Corps.

New York, December 16, 1907.

David Homer Bates,

Secretary, Executive Committee,

U. S. Military Telegraph Corps,
New York.

Dear Sir:

Yours of December 9 received. I consider it a great privilege to furnish the sum indicated, one hundred and forty-four dollars each year to such members of the Military Telegraph Corps as the committee recommends. Mr. R. A. Franks, president of the Home Trust Company, Hoboken, N. J., has been instructed to place on the pension rolls those the committee recommends and mail them checks each year, beginning January first next.

Very truly yours,

(Signed) Andrew Carnegie.

Claiming that the operation of wireless apparatus on Long Island Sound steamers interferes with the receipt of messages at the United States Naval Torpedo Station at Newport, R. I., Commander Albert Cleaves of the station will protest to the companies owning the steamers against the interference, as the Government has the first rights in the matter. The wireless apparatus at the station succeeded in catching parts of messages from the flagship of Admiral Evans, the Connecticut, and the battleship Alabama, but the working of the Sound steamers' wireless apparatus, it is claimed, interfered with perfect work.

Old Newspaper Row.

William Hamilton Young, night chief operator for the Western Union Telegraph Company, at Washington, D. C., has been in charge of newspaper despatches sent out for that city for more than fifty years. No one living to-day has a wider acquaintance among the leading journalists than this veteran of the electric key. Mr. Young has prepared a brief article on "Old Newspaper Row" for the Illustrated Sunday Magazine, together with some interesting incidents connected with the work of the men who held down desks in the historic old buildings.

Old Newspaper Row, where for nearly fifty years statesmen, jurists, politicians and men of the service met and aired their views, swapped stories and absorbed information, has passed away. Not a single room on Fourteenth street, between Pennsylvania avenue and F street shelters to-day a newspaper correspondent, reporter or press telegrapher. On this block, for more than a quarter of a century, nearly all the representatives of the newspapers in New York, Boston, Philadelphia, Chicago, Pittsburg, St. Louis, Cincinnati and a score of minor cities were located. Scores of "special wires" ran down the walls from the roofs of the buildings to as many telegraph keys. Over these wires millions of words were transmitted to practically every daily newspaper in the country. It is safe to say that the tolls collected by the telegraph companies in payment of despatches from Newspaper Row have been great enough to pay the cost of construction of a new copper wire line from Boston to San Francisco.

Five or six years ago the Occidental Building, which was a perfect hive of newspaper men, was torn down to give place to a modern office building originally intended for newspaper correspondents. But the owner secured an advantageous offer from the Department of Commerce and Labor and "The Row" was doomed.

A year ago the building erected on the corner of Pennsylvania avenue for the Baltimore and Ohio Telegraph Company—consolidated with the Western Union two decades back—was sold to a syndicate as the site of a new hotel. The few remaining correspondents were notified to leave, and one by one they vacated the old building. On the first of November the last one left, and Newspaper Row passed out of existence.

The first despatch by wire from Washington to a newspaper was sent in 1853 by William B. Shaw to the New York Herald. Col. Shaw is still alive and still an active news gatherer. He was soon followed by Horace Greeley, James Watson Webb, Henry J. Raymond, John W. Forney and other men whose names were household words just before and during the Civil War. Telegraph tolls were very high, however (Mr. Bennett paid more for the transmission of the first fifty words of "press" than he pays for a whole column to-day), and it was not until 1861 that

anything like a heavy service was sent out by wire. Only the briefest notes were telegraphed. Everything of length was sent by mail, and usually the signature or the nom de plume of the writer was printed below the article.

As showing the growth of the telegraph news service from Washington I would call attention to three periods. On the night of the assassination of President Lincoln in 1865 the total number of words telegraphed describing that first great Presidential tragedy was 75,000. When President Garfield fell as a result of Guiteau's shot on July 2, 1881, the first day's press business ran up to 248,000 words. On the day after the second inauguration of President Cleveland the Western Union handled the enormous total of 640,000 words of "press." Since that day the press associations have extended their field enormously, and it frequently happened, no doubt, that the total number of words transmitted from Washington to newspapers has reached and passed the million mark.

Some queer queries have come to the men of newspaper row. Every school boy knows that the final session of each Congress comes to an end at noon March 4, on each "odd year." Managing editors don't always know as much. Along about February 15, 1887, Herbert Preston, of the New York Herald's bureau, received a telegram which read: "Wire your opinion as to the probable date of adjournment sine die." Preston replied: "Unless all precedents and the Constitution are violated Congress will adjourn at noon March 4."

In 1877 the late Eugene B. Wright was the representative of the Chicago Tribune. In those days great rivalry existed between the men of the row, and extraordinary efforts were made to scoop each other on important official news. Great anxiety was manifested all over the country to learn what President Hayes would say in his first message to Congress. Four correspondents, one for New York, one for Chicago, a third for Cincinnati and the fourth for a St. Louis paper, formed a combination and made an arrangement with an employee of the government printing office whereby they agreed to pay \$1,500 for an exclusive advance copy of the message. Wright was not the Chicago man in the combination, but during the evening that the "great scoop" was being sent out he passed down Fourteenth street and noticed the four correspondents with their heads together. He suspected that something important was in the air. He got busy with his own special wire which extended from New York to Chicago, via Washington. Before midnight arrangements had been perfected with the Western Union for eight wires from New York to Chicago, and the New York correspondent of the Tribune was on the lookout for the first edition of the New York Times. He secured a copy about 1 A. M., and within an hour President Hayes' message had reached the Chicago Tribune office and was in type for that paper's mail edi-

tion. The Chicago Times, which was one of the four newspapers in the combination, held back its story to assure its exclusiveness and missed the early trains. The Times refused to pay its share of the agreed price and the printer never succeeded in collecting that portion of the pay for his treachery.

During the autumn of the first year of Cleveland's first administration a Buffalo newspaper wired its correspondent to this effect: "Interview President; ask if he will vote for Democratic nominees; Solomon for mayor, Patrick for controller," and so on down the entire list to the most insignificant name on the ticket.

When "Dan" Lamont saw the despatch he grinned and softly hummed a bar from "Pinafore" which sounded like Sir Joseph Porter's "I always voted at my party's call and never thought of thinking of myself at all." That was the answer.

The St. Louis Republic had as its correspondent some years ago one of the most active and industrious of men. He had to keep a wire "loaded" from 6 P. M. until midnight and sometimes the work was difficult. One day he made several attempts to see a certain Senator to interview him on a subject in which the Republic was deeply interested. He failed to locate the statesman but about nine o'clock his attention was called to an interview with the very man in a Baltimore paper. Hastily scribbling an "introduction" he explained the difficulty he had experienced in locating the "interview," closing with: "The Senator was finally found at the residence of a friend on the outskirts of the city," and said: Then he pasted on the clipping from the Baltimore paper and went around the corner.

The telegraph operator proceeded with his task in a mechanical manner. He paid no attention to the meaning of the despatch and when he reached the quotation marks he proceeded: The Senator said: "Eggs steady and in fair demand. Butter firm and stronger; receipts light. Apples higher. We quote—"

Then came a break in from St. Louis: "We don't care a blankety blank what the Senator knows about the Baltimore markets. We have 'em in the office already." You see the correspondent had pasted the clipping wrong side down on his copy.

"Interview Michigan delegation on apostacy of Ex-Mayor Wheaton" was the order received by the correspondent of a Detroit newspaper in the middle '80s. But the Michigan delegation didn't care to be quoted. Summer Howard, a then well known politician, was in town, however, and the correspondent in despair sought him in his hotel. "So Wheaton has flopped," said Howard. "Well, I'm blessed glad of it. You see, Wheaton was always the fly on the bull's hide a little too far back to reach with the tongue and a little too far front to switch with the tail." And that simile went all over Michigan.

Perhaps the most remarkable despatch ever re-

ceived in a newspaper office came from, no one knows where. Peck of Chicago, Miller of Seattle and Detroit, Van Antwerp of Minneapolis, and Hamilton of Buffalo, were sitting in their joint office on newspaper row on Sunday morning, May 1, 1898, planning the day's work, when Peck said: "I have just heard a rumor to the effect that Dewey has sailed into Manila Bay and has destroyed the entire Spanish fleet with the loss of one of his own ships and 300 men."

"Where did you get it?" exclaimed the others.

"I cannot explain it," said Peck, "and I don't take much stock in it, but there you are."

An examination of the files of the Buffalo Times, Seattle Times, Albany Times Union, Minneapolis Journal and various other papers of May 1, 1898, will show the reproduction of that rumor in special editions, but no one was able to get a word in confirmation of the report until several hours after, and no one has ever been able to find out where it started, for Marconi was unknown in those days.

Speedy Foreign Messenger Service.

Sergeant Williams Bevan, of the district messenger service, London, England, is only sixteen, and small for his age, being known among his intimates because of this as "the Bloomsbury giant."

On Friday evening, December 15, 1907, he received a call. Answering it he received an order, brief but pointed: "Take this letter to this address in Berlin, get it signed for, and bring back an answer. Don't be long away, as we're busy."

Off without question went little Bevan. The time was 7.45 P. M. He had to catch the 8.35 P. M. train from Holborn Viaduct to Queensborough, going to Endsleigh Gardens first for his ticket. He did it without stopping to take anything but a clean shirt, collars, and an overcoat. When he reached Flushing he was a little poorly from sea-sickness, for the sea had been heavy, but he at once boarded the train for Berlin, which he reached at 7.20 on Saturday night.

He was quite unable to speak German, but hailed a cab, showed the driver the address on the letter he was carrying, and was at once driven to a well-known club. Here he delivered his missive into the hands of the gentleman it was intended for. His coolness, his uniform, and his small size attracted great attention, and the clubmen, many of whom could speak English, made much of him.

He was taken round in a cab to see the sights of Berlin by night, as he desired to do, and then went to sleep at a hotel. Next morning he was at the club betime to get the answer to his message. When he got that he spent the time until the train started at the Berlin Zoo. Then he repeated his journey across Germany and Holland, caught the boat, and was back in London by half-past nine on Monday night, having beaten the quickest postal route by some five hours.

The Telegraph System Across Africa.

When Cecil Rhodes was dreaming his dreams and drawing out his plans for development undertakings of wonderful proportions in Africa, he laid the foundations of many great works, the completion of which he never lived to see. In regard to most of these projects, it still has to be said that the time for their completion is not yet arrived and will not be for years to come.

It was Rhodes whom we believe Professor George Forbes was able to first interest in suggested schemes for the utilization of the Victoria Falls years and years ago, before electrical transmission was commercially practicable to anything like the distances that obtain to-day. Recent efforts to interest the British public financially in this matter have shown that it is anticipated that at some time or other a pretty substantial value will attach to this electrical concession.

Rhodes had as a very important work in connection with all his African development schemes, the establishment of a system of telegraphic communication from the Cape to Cairo. And, as was the case with so many of his ideas, he showed his belief in the promise of future success in helping in the development of the great continent that he handled it more as a personal scheme. He and his friends found the money, though the possibility of getting any return for many years was quite out of the question; and the doings of the African Transcontinental Telegraph Company, Limited, formed to construct the system, were directly under his guidance. In May, 1898, he was saying: "They could not expect to make any profit until they got through to Cairo, for he did not think the local returns would pay."

Six years ago Rhodes died. He had made arrangements with the German government for the construction of the line through German East Africa, and of certain branch lines in that territory and for the working of such lines. Also for the other parts of the system he had made working arrangements with the British South Africa Company. But many things have happened since the work commenced which have had adverse effects upon the undertaking. For instance, the high submarine cable rates (in 1902 eight shillings and eleven pence per word) have been reduced to two shillings and six pence per word, and this reduction, of course, was a great obstacle in the way of raising further capital for a transcontinental line. The work has, however, been gradually going forward in spite of enormous difficulties. The total length of constructed line is 1,584 miles, made up of 1,389 miles of trunk line from Umtali to Ujiji, and two branch lines, one of 128 miles to Fort Jameson and one to Chiromo of sixty-seven miles.

Telegraph lines are being gradually brought down from Egypt and the north, and it is expected that in the course of time gaps now ex-

isting will be filled and a through line established. Further connections with coast towns such as Mombassa and Dar-es-Salam, and the gradual development of the whole of Central Africa, are expected to add local traffic, but it is admitted by those in control of the undertaking to-day that "a long time must elapse before it can be hoped to make the line self-supporting or profit-earning."

It will easily be gathered from a glance at the map indicating the route followed that the construction of the line has been a work of enormous difficulty. There are the natural difficulties presented by the diversified physical characteristics of the country traversed, which includes low-lying marsh lands, swamps, dense forests and jungle and mountainous regions intersected with deep and wide ravines. To all this we may add the difficulty of procuring and maintaining transport in a sparsely populated country; varied and trying climatic conditions along certain low-lying portions of the route, scarcity of water in some of the high altitudes, and damage done to the line as it progressed by elephants, giraffes and other wild animals.

The route of the existing line from Umtali up to Ujiji may be traced out as follows: From Umtali, in Southern Rhodesia, through Tete, in Portuguese East Africa, where it crosses the River Zambesi to Blantyre, in the British Central Africa Protectorate; thence along the western shore of Lake Nyasa through Domira Bay and Florence Bay to Karonga, where it leaves the lake and strikes a northwesterly course across the Tanganyika plateau, through Fort Hill, Nyala, Ikala, Fife and Abercorn to Kituta, which is on the extreme southeastern shore of Lake Tanganyika. From Kituta it proceeds in a northerly direction, roughly parallel with the lake, but a few miles to the east of it crosses the Kalambo river into German territory and passes through Bismarckburg to Ujiji. Here construction has ceased and a station for the receipt and transmission of telegrams has been opened.

The extreme difficulty of the territory north of Ujiji has led to proposals that for a certain distance connection shall be made here by means of wireless telegraphy. In German East Africa, indeed, there is a gap of some 320 miles, and there are shorter gaps at one or two other points between Cape Town and Cairo, and, while it is still intended that the whole thing shall ultimately be completed in accordance with Cecil Rhodes' plans, the Duke of Abercorn and his associates despair of bringing the undertaking through as a commercial enterprise.

It may be of interest to mention that in the will of Mr. Beit a sum of at least \$6,000,000 was left to be devoted to improving means of communication in the Cape Cairo region, and telegraph and telephone lines and wireless telegraphy are all specially mentioned. It has been sug-

gested that part of that sum might reasonably be put toward the completion of this transcontinental telegraph system.—Albert H. Bridge, in the *Electrical Review*.

Recollection of the Railroad Wreck at Ashtabula.

"It was thirty-one years ago on December 29, 1907, that I sent one of the most pathetic messages that I ever handled. I wasn't very old, then, and I was an operator in the Lake Shore-Western Union office in Erie," said D. T. Murray, of Youngstown, O., now a division superintendent of the Lake Shore system.

"It was just a little bit of a yellow slip of love and greeting from a man who stepped off a train to flash it to his sweetheart in San Francisco. He was on his way as fast as the slow trains of that day would carry him to the West. I remember his face—clean cut and a young man of power. Then—

"Oh, it was days afterward—possibly months—that there came back to me a pathetic little letter from the girl he wired. Would I give her the original message he had sent on that day? Would I give it to her? Yes, certainly. I had been promoted to chief despatcher then and after some red tape she got it. Poor boy! Poor girl! He went over with the train at Ashtabula when the bridge went down. He must have been worthy of her and she of him but none will ever know it now."

Mr. Murray went on with his narrative: "I wasn't as old as I am now. I took the trick early, that night at Erie. There was snow there several feet deep and I was rushing eagerly to the office. I lost a shoe on the way there, and, by the way, I found it the next April when the snow melted. I was at the wire when the accident occurred and then came the order for all operators to be rushed to Ashtabula. People before that had been offering \$20 gold pieces to find out the fate of loved ones. It couldn't be done. They were all there in the bottom of the river by the dozens, including many people of national reputation and men prominent in business in Chicago, Cleveland and elsewhere. Among those so lost was P. P. Bliss, the well known writer of gospel hymns.

"Across the river it was but a step to the telegraph office in the old station, now torn down, and there we were located for the work. There were three wires and twenty operators. We sat idle some of us for an hour or so until they cut in the other wires. They were all tapped and soon every man of us was sending, sending, sending. The correspondents swarmed down on us like fleas. They came from everywhere and the pile of messages before us was something awful.

"A new correspondent would get in town and in five minutes would be writing a column. The people from all over the country were flocking to Ashtabula to look for loved ones. The hotels would not accommodate them. They were frantic—wild—raving. It was an awful wreck."

Canadian Postage Rates.

Newspaper publishers in the Province of Quebec have petitioned the Dominion post office department to restore the old rates on newspapers and magazines between the United States and Canada, a six months' trial of the new rates having proved the injurious effects to the Canadian press and people. The Montreal French Chamber of Commerce has also urged the repeal of the new regulations, and its committee appointed to look into the matter has reported that any restriction placed on the circulation of Canadian papers in the United States and in other foreign countries would prevent the country from being known and appreciated; that it would tend to neutralize the patriotic efforts of the Canadian press, and that it would unfavorably affect immigration to Canada as well as the repatriation of French Canadians. Persuaded that in the interests of colonization and commercial prosperity the country needed far more advertising than was given to it in the press, the Chamber of Commerce has requested the federal government to further such advertising by the creation of a commercial museum and the distribution of explanatory guides on the resources of Canada. The committee states also that the circulation of American magazines is of great advantage to trade and industry, both from a scientific and from a news standpoint, this having particular reference to the technical and trade press. The sharp increase in the rates of postage necessitated an advance in the subscription price of copies of *Telegraph Age* going to the Dominion from \$1.50 to \$2 a year. The United States government through the postmaster-general expresses a willingness to restore the old rates of postage if the Dominion government will take the initiative in the matter, as it was the Canadian authorities that demanded an increase in the rates.

At a recent after-dinner speech in London, Henniker Heaton, after referring to "the God-given gift of electricity now in the hands of a few monopolies," is reported to have said, according to a London paper, that, "incredible as it appears, there are thirteen cables from England to America, and eleven of these are kept idle by the cable ring or cable kings." After such a statement he was naturally in favor of the governments' buying out the "cable kings" at the market price, and giving the cables over for the use of the people forever. We may mention that there are sixteen cables to North America from Europe and three cables to South America, thus making at least nineteen; and the idea of cable companies laying down cables and subsequently keeping them idle, will appeal to anyone with business instincts as being, to say the least of it, ridiculous. After all, however, it occurs to us that Mr. Heaton may have been referring to "wireless cables," which at present seem to be rather idle.

Train Despatching in the New York and Brooklyn Tunnel.

One of the most novel devices in existence was put into practical service for the first time on any railroad to insure the safety of passengers when the Battery tunnel from New York to Brooklyn was opened a few days ago.

Seated at a table at the extreme south end of the Bowling Green station platform, a young man with a telephone fastened to his ear and his right hand upon an emergency signal, had constantly before him an illuminated model of the tunnel on which, by means of moving shafts of red light, he can trace the passage of each train and can instantly locate the exact whereabouts of every train in either tube between the two boroughs named.

This model, an exact reproduction in miniature of the two tubes under the river, is contained in a small black cabinet not more than three feet in length and a foot and a half in width, and the two tubes are represented by two curving streaks of green light which stretch across the dark glass front of the cabinet. These shafts are an exact duplicate of the tubes, showing the deviation in curves, the seven blocks into which the tube has been divided, the location of the ventilator shafts, etc.

When the tubes are clear the entire shaft of light shows green for its full length. The moment a train enters any block between Bowling Green and Borough Hall, Brooklyn, the green light in the block in which it enters gives way to a red light on the miniature model. As the train passes from block to block on its way through the tunnel, its course may be traced by the progress of the red light. The red light in one block vanishes the moment the train enters the next section, so that no single train is ever indicated in more than one block at a time.

On the tiny colored model, both the north and south tubes are represented, the distance carefully brought to a scale and the length of each block carefully marked off. There are seven blocks in each tube. In both of these tubes the same safety block system is in operation that is used in the rest of the subway, with many additional devices added to make the under river section all the safer.

The first block south of the Bowling Green station toward the East River is 900 feet in length, the second 600, the third 1,200, the fourth 2,400, the fifth 1,400, the sixth 850 and the seventh, which is near the Borough Hall station, is only 450 feet. The fourth block is located under the middle of the river, and comprises a long straight stretch where trains are expected to move rapidly.

As a train starts for Brooklyn the contact of its wheels with a circuit causes the first block on the south tube, as shown on the miniature model before the despatcher, to go red. The moment this train passes out of the first block into the second the circuit is broken, and the light in the first block goes back to the original green, while

that in the second block goes red, and so on through the tunnel.

Under the system of operation that is planned there must always be one empty block between trains in motion, except at the blocks near Borough Hall and the Bowling Green stations, where it is thought safe to bring them closer together.

The despatcher at Bowling Green station, with this illuminated model of the tube, will be complete master of every train passing between New York and Brooklyn. To his ear will be attached a telephone, which connects with numerous other telephones located every 300 feet, through the two tubes. At his right hand is an emergency switch, and by a mere turn of his hand he can instantly bring to a standstill every train in the subway. At any moment the model shows two trains to be occupying the same block, or to be in dangerous proximity, or when the telephone tells him of any trouble, he can by a turn of the wrist turn off all the power in both tubes and stop all trains. The lights in the tube, however will not be extinguished. The moment this is done the operator will immediately locate the trouble, and when it is found to be confined to one tube he will call up the central power station and order the power turned on again.

Though any trackwalker, workman or other person in the tube can turn off the power by smashing one of the glass-covered emergency alarms and pressing the button, only a recognized official of the road can order the power turned on again. In order to have the power turned back the employee or official must give his full name to the operator at the central power station and the number of his pass, so he can be fully identified. This is to prevent the turning on of the power suddenly and when not expected by persons in the tube.

Extraordinary precautions have been taken to provide against fire in the tubes or, if there should be fire to clear the tubes quickly of smoke. At the Battery terminus of the tunnel and at the Joralemon street end in Brooklyn, close to the river are two huge shafts. In these are stationed enormous fans, which though officially stated to be for ventilation, are really intended to quickly clear the subway of smoke in case of fire.

Five cars can be run in each tube at one time, making ten trains in operation between Bowling Green and Borough Hall at once. The regular time, as shown on the time tables which have been prepared, is five minutes between the two stations.

The illuminated model has been devised by the engineering force of the Interborough, and it is believed it will make the Brooklyn tubes the safest in the world.

The practical side of the telegraph is discussed in every issue of *Telegraph Age* in a manner to interest and aid every individual operator in the service. Why not secure the benefits of such information by subscribing for the paper—\$1.50 a year.

A New Western Union Office at Augusta, Ga.

A new office has recently been opened in Augusta, Ga., for the Western Union Telegraph Company. It is situated at 745 Broad street, next door to the former office, which was destroyed by fire some months ago, occupies the entire ground floor of the building, having a frontage of thirty-two feet on Broad street and running back a depth of one hundred and fifty feet. The ceiling is eighteen feet high and of stamped steel, painted white. The walls are a very light pea green, giving a nice soft light to work by. The entire front of the building is glass. The public lobby is twelve by twenty-five feet and paved with encaustic tiles, having the letters W. U. T. Co. in the center, making a neat and handsome appearance. The counter is massive and made of dark oak finely finished, and has a blind top. In the lobby are two handsome heavy oak desks, each with space to accommodate two persons at the same time, and comfortable oak chairs are provided at each for the use of patrons. Behind the counter is a space twenty-two by twenty-eight feet for the manager, bookkeeper and clerks, with a suitable room railed off for call bell cabinet and the messengers.

The operating tables consist of ten new oak sextettes, all equipped with typewriter cabinets, and placed in three rows. There are also two repeater tables which accommodate eight sets of quadruplex, eight sets of Atkinson single repeaters and four half sets of the same class of repeaters. The office also has two full sets of quadruplex and four sets of duplex, with twenty-five single sets of instruments on regular tables. The switchboard, in two sections of fifty wires each, is located near the west wall, midway the operating department, and is of the latest pattern, set in a fine oak frame, with plenty of space all around it. In the northwest corner of the room is the motor generator and the charging board for the storage battery, which consists of seven hundred and forty cells. Adjoining the operating department, in a large room, is located a bank of lockers for the use of the operators, a file and stationary room, and the necessary conveniences in the way of toilet rooms for the employees. The office is steam heated, and equipped with electric lights and a reserve of gas fixtures.

The arrangement of the office is the work of S. R. Crowder, electrician of the southern division, and it is needless to say it has been artistically and splendidly done in the most up-to-date style, and it has been highly complimented by patrons and the public.

The company has seventy-two main wires and thirty odd loops at this place, and is now as well equipped to handle business here as at any point in its system. The local officials are: J. W. Brown, manager; G. W. Hammell, chief operator; A. Potter, wire chief; B. H. Rosson, traffic chief; W. E. Seward, night chief, with Charles Smith, assistant.

The total force, including officials, operators and all clerks, numbers thirty-five, not including repair and messenger departments.

New Western Union Office at Nashville, Tenn.

The transfer of the plant of the Western Union Telegraph Company at Nashville, Tenn., from Church street to the Stahlman Building, was accomplished December 21, last. The operating department of the new plant, occupies nearly half of the twelfth floor of the building, and the business office about the same space in the basement. The entrance to the business office is on Third avenue, and the office is entered by descending a flight of marble steps.

With the installation of the new plant Nashville attained the distinction of being the location of the most complete telegraph plant in the South, and one of the best equipped in the country. The quarters are commodious and artistically equipped. The business office is fitted in marble and mahogany. Marble desks are provided for the convenience of the patrons of the office, and a marble partition divides the lobby to be used by the public from the desks of the clerks and attendants. Each desk is equipped with an incandescent light and these, with the lighting effects in general, give the office an artistic appearance, thoroughly in accord with the building. The operating department on the twelfth floor is furnished in oak and equipped with every comfort.

The equipment includes eighteen dynamos, ranging in voltage from six to three hundred and fifty. The work, both of design and installation, was done under the supervision of S. R. Crowder, electrician of the Southern division. A. H. Stewart is the manager of the office.

Governor Hughes Would Place Telegraph and Telephone Companies Under State Supervision.

In his message to the present Legislature Gov. Hughes, of New York, says, regarding the act providing for the regulation of companies furnishing certain classes of public service: "I recommend, however, an enlargement of the scope of the act. In view of the tasks to be assumed with respect to corporations already under supervision, it was not thought best at the outset to extend the act to other corporations. It should now be extended to telephone and telegraph companies and they should be brought under appropriate regulation as to rates, service and other matters similar to that which obtains in the case of the corporations at present subject to the law."

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

The Bogus Presidential Proclamation During the Civil War.

The bogus Presidential proclamation which appeared in May, 1864, during the Civil War, calling for 400,000 men, an emanation of the inventive brain of Joseph Howard, Jr., a journalist, of New York, has frequently been adverted to in these columns, because of the supposed complicity of one of the existing telegraph companies at that time, in its dissemination. Mr. A. W. Orton, of Rome, N. Y., a well-known old time and military telegrapher, and manager at the time named of the office of the telegraph company involved, located in the financial district, New York, was recently interviewed regarding the affair by the Rome Sentinel, the whole presenting a story so interesting that we republish it in full, although a portion, of what appears has already been published substantially in *Telegraph Age*:

"The first that President Lincoln or any of his cabinet knew of the matter was when it was published. It proved to be a fake pure and simple, and was one of the greatest hoaxes ever published. It developed that the proclamation was the work of Joseph Howard, Jr., a newspaper correspondent, and a forceful and fluent writer, who was well acquainted with the phrases peculiar to the President and the style of copy then in vogue by The Associated Press, by which organization the proclamation purported to have been sent out. The fact of the matter was that The Associated Press had nothing to do with it and it had never been sent over their wires or any other. In these days it would be impossible to perpetrate any such hoax, for each newspaper taking Associated Press dispatches has a wire running into its office and its own operator at the key. During the Civil War and for many years thereafter, dispatches were received at the office of the telegraph company like all other messages, and delivered to the newspapers by messengers. There were no separate newspaper wires, as there are now. This being the case it would seem to be a comparatively easy matter for a man like Howard to send in a bogus message on the regular press blanks of the telegraph company and have it accepted. As a matter of fact, however, only two of the New York papers were caught the *World* and the *Journal of Commerce*. The others got on to the hoax, some before their papers went to press and the others in time to suppress the edition which contained the matter. As soon as possible after the objectionable publication was made, the United States authorities seized and closed the offices of the *World* and *Journal of Commerce*, and also numerous offices of the telegraph company supposed to have been instrumental in sending out the proclamation. Mr. Howard and the telegraph operators handling Associated Press matter were likewise arrested and sent to Fort Lafayette. The case was fully investigated within a few days, and the newspapers were absolved from blame. Ultimately all the men connected with the affair were released without further punishment.

"*Telegraph Age*, of New York, has recently published several articles in regard to this bogus proclamation, the story of which is very readable. But there is a local color to this bit of history which has not been touched upon or mentioned by the *Age*, and which adds immensely to its importance. It is stated in the *Age* that Mr. Howard, the author of the forged proclamation, was without a confederate. This is incorrect. There are many residents of Rome who have distinct and clear recollection of a young man named F. Avery Mallison, who was Joe Howard's confederate in getting out the proclamation, and who was arrested and imprisoned in Fort Lafayette for his offense. "Ave" Mallison, as he was familiarly called, was keen and bright, his greatest delight was a practical joke. He was an early telegrapher, and before 1856 was manager of the telegraph office in Rome. Mallison's assistant in that office was Timothy Alexander. Mallison and Alexander have long since passed away.

"In 1856 Albert W. Orton, who is a resident and business man in Rome, became the messenger in the telegraph office. The first year he received the munificent salary of \$50, and for the second year he was paid \$75. The second year he slept in the office, opened and swept out the store in the morning, and did the most of the telegraphing, besides carrying the messages. After that he went to Albany and was telegrapher for the late Chauncey Vibbard, superintendent of the Central Railroad. Subsequently he was with the late Samuel Sloan, who was president of the Hudson River Railroad, and whose office was in New York. This was before the consolidation of the Central and Hudson River roads. From Albany he went into the military telegraph service in the Civil War. A part of the time he was at the front, and the rest at Washington. He was well acquainted with Secretary Lincoln, Secretary of State Seward, Secretary of War Stanton, and other members of the cabinet. From the war service he went, at the solicitation of friends, to New York, where he was given the position of manager of an office in Wall Street. He was there in May, 1864, when the bogus proclamation was published, although he had nothing to do with it and got into no trouble over it. He was on the day trick and left the office at 4:30 in the afternoon, while the soldiers did not take possession till 8 o'clock at night. Mr. Orton has a very vivid recollection of the bogus proclamation episode and the results. In an interview he says:

"At the time of the proclamation hoax there were two telegraph companies with lines connecting between the eastern cities, New York, Boston, Philadelphia, Baltimore, Washington and Pittsburg being the principal stations. These were the American Telegraph Company, the president of which was Col. E. S. Sanford, and the Independent Telegraph Company, whose president was James J. Speed. The president of the American line was, as I remember, appointed by the government military censor of telegrams

passing over their lines. The Independent was a new company and a competitor of the American line. The New York main office was at 28 Nassau street. The manager was Wallace Leaning, who for some time had been a prominent figure in New York telegraph circles, owing to his proficiency as an operator. A. N. Aplin was assistant or chief operator. This company had a branch office in the Wall Street district. It was located at the corner of William street and Exchange place, in the rooms known as the Gilpin Exchange, where the gold markets were held, the office being partitioned off inside the main or trading room. Of this office I was the manager and I had several operators on my force.

"After the bogus proclamation came out Gen. John A. Dix, who was the commanding officer over the military department, which included New York City, acting through orders from the Secretary of War, Mr. Stanton, had the offices of the New York World and the Journal of Commerce seized by the military, guards being placed inside and outside. Guards of soldiers under command of Col. Ludlow took possession of the Independent Telegraph offices, arresting the managers of all the office forces found at work in New York, Philadelphia, Washington and Pittsburg. At 28 Nassau street, New York, Wallace Leaning, A. N. Alpin and three other operators, Fish, Johnson and Edwards, were arrested on the evening of May 18. The day force had left the office, which reduced the number to Mr. Leaning and the four operators. After searching through the files in the office and the pockets of the employees, the men were ordered by Colonel Ludlow to form in line, and were marched out and put into carriages and driven to the Park Barracks, which occupied the site of the present New York postoffice. They were placed in the officers' headquarters under guard. Manager Leaning was then driven to General Dix's headquarters in Bleecker street. After a short interview he returned, and it was evident that his mission was unsuccessful as to the men being released. They were again ordered to move. They were taken to the Battery and placed aboard the police boat Berden, which was waiting to receive them, and it was then evident that one of the government harbor fortresses was to be their destination. The night was dark and the rain began to descend in torrents when the little boat was made fast to the lee of the gloomy fortress at Fort Lafayette. While the telegraph company was innocent of any wrong doing, it was put out of business for the space of eight days. The operators had for companions secessionists, pirates, blockade runners and bounty jumpers. They were released on Saturday night.

"Another file of officers and soldiers was marched to the company's branch office, corner of William street and Exchange place, about 8 o'clock on the same night, with orders to arrest office force, and especially the manager, and seize office and equipments. The soldiers, with bayonets fixed, had full possession from evening of

the 18th until Saturday, the 24th of May. This branch office being the Wall Street branch, the hours were from 8 a. m. till 4.30 p. m., which permitted the office force to escape the arrest and imprisonment that was meted out to the employees at the other offices in New York. The managers and operators arrested in Philadelphia, Washington and Pittsburg, were marched through the streets to the depots and sent to Washington, where they were confined in the Old Capitol Prison. It turned out that the guilty party was a man named Joseph Howard, who had been a prominent reporter for the New York Times. At the time of the bogus proclamation he was connected with the editorial or reporters' staff of the Brooklyn Eagle. Howard was afterward arrested and confined in Fort Lafayette. The proclamation never saw the inside of any telegraph office. It was believed that the proclamation was got out to influence the trend of the markets in Wall Street, but the hoax was discovered between the time the New York papers were published and the opening of the markets, which destroyed any effect upon gold or securities.

"Why the authorities selected the Independent Telegraph Company as the probable cause of the issuing of this proclamation no one seemed to know, but the orders came through Washington influences. The government at Washington, as a partial compensation, and to show its good faith, through President Lincoln and Secretary Stanton, granted equal government privileges with the other company and directed that the Independent line should receive its share of government patronage. The president of the Independent line, J. J. Speed, received the following letter:

"Washington, D. C., May 29, 1864.

"Sir: The investigation by this department relieves your company from all suspicion of being concerned in the transmission or publication of the recent forgery purporting to be a proclamation by the President and attested by the Secretary of State.

"The satisfactory arrangements made with your company will, I trust, do much toward impressing the public with a just confidence in your telegraph lines and the loyalty, prudence and discretion of its management.

"(Signed) Edwin M. Stanton,
"Secretary of War."

"Guards were promptly withdrawn, the telegraph company's officers released, property restored and the company resumed business again.

"On the release from Fort Lafayette, Mallison, the confederate of Howard, in giving his experience in the celebrated American fortress, where he spent four months at the expense of Uncle Sam, said: 'Of rations there were three grades, viz.: The soldiers, the prisoners, and the retaliatory; the prisoners being two degrees below and composed of the leavings of the soldiers' rations.'

"Colonel Burt, the commandant of the fort, was formerly with General Scott in the Mexican War.

and had charge of the execution of death sentences on deserters. In his hours of inebriety his mind would run almost entirely upon shooting people. Such instances as the following occasionally occurred: About one o'clock one dark night 'Ave' was aroused from his slumbers by a corporal and a guard and hurried before the colonel, who addressed him this wise: 'Young man, your case is an exceedingly hard one. Young, talented and of respectable connections, you have abandoned all for a path of infamy. I am at loss whether to send you to the Dry Tortugas during the war or to have you shot in the morning. On the whole, I think I will have you shot. Adjutant, set that down, shoot him at 6 in the morning. Young man, how many balls would you think proper, six or eight?'

"'Ave,' who understood it, said: 'Being a small man, I think six would be sufficient.'

"Said the colonel to the adjutant: 'Set him down for six balls at six in the morning. Take him away and bring in another.'

"The order for Mallison's release was simple and concise: 'Release Mallison, the proclamation man.'

"The part that Mallison took in getting up the bogus proclamation was simply to write it out at the dictation of Howard. Mallison was such an inveterate joker that he probably thought that the publication of the hoax would be the funniest thing in the world. But to be shut up in Fort Lafayette for four months was anything but amusing. However, even in prison, Mallison's penchant for joking showed itself. I have found in the Rome Sentinel of July 26, 1864, the following: The Yonkers Gazette, speaking of F. A. Mallison, now in Fort Lafayette for his connection with Howard in the issue of the bogus proclamation, says that Mallison freely expresses his wonder that Mr. Lincoln did not accept the proclamation as genuine, and father the document as his own. 'Why,' said he, 'if he had done that he would have had 400,000 men under arms by this time and marching into Dixie.' Perfectly sensible. Avery is in his right mind, as usual.

"Joseph Howard was released from Fort Lafayette in the latter part of August, 1864. His father made several trips to Washington bearing petitions signed by Henry Ward Beecher and other prominent men. Mallison was released the latter part of September, 1864. Mallison, like many other old-time operators, drifted from the telegraph fraternity, into newspaper work, for which he was well suited.

Nikola Tesla Makes a Forecast for 1908.

Nikola Tesla make a forecast which he says is not a prophesy. He writes:

"The coming year will be great in thought and result. It will mark the end of a number of erroneous ideas which, by their paralyzing effect on the mind, have throttled independent research and hampered progress and development in various departments of science and engineering.

"The first to be dispelled is the illusion of the Hertz or electro-magnetic waves. The expert already realizes that practical wireless telegraphy and telephony are possible only by minimizing this wasteful radiation. The results recently attained in this manner with comparatively crude appliances illustrate strikingly the possibilities of the genuine art. Before the close of the year wireless transmission across the Pacific and transatlantic wireless telephony may be expected with perfect confidence. The use of the wireless telephone in isolated districts will spread like fire.

"The year will mark the fall of the illusionary idea that action must diminish with distance. By impressing upon the earth certain vibrations, to which it responds resonantly, the whole planet is virtually reduced to the size of a little marble, thus enabling the reproduction of any kind of effect, as human speech, music, picture or character whatever, and even the transmission of power in unlimited amounts with exactly the same facility and economy at any distance, however great.

"The next twelve months will witness a similar revolution of ideas regarding radio-activity. That there is no such element as radium, polonium or lonium is becoming more and more evident. These are simply deceptive appearances of a modern phlogiston. As I have stated in my early announcement of these emanations before the discovery of Mme. Curie, they are emitted more or less by all bodies, and are all of the same kind—merely effects of shattered molecules, differentiated not by the nature of substance but by size, speed and electrification.

The "Handbook of Wireless Telegraphy," by James Erskine-Murray, furnishes another contribution to the study and discussion of wireless telegraphy of a character such as to place this volume in the front rank of works dealing with the subject. It is a dignified and scholarly production. It furnishes a bright picture of the possibilities and the actual accomplishments of wireless telegraphy, yet the entire presentation of the question, comprehensive in its details, is treated in a simple, non-technical manner, well suited to meet the requirements of the student and the general reader. The history of wireless telegraphy is traced and a description of the appliances used for the product of high-frequency currents is given. The author makes a commendable attempt to set forth the problems of the laws governing transmission of signals to long distances and of the losses that occur through atmospheric absorption or other causes. The codes used in this country and those abroad, together with tables of electrical constants, are given. The book is bound in cloth, contains 332 pages, and is illustrated. Its size is 5½ by 8½ inches. It will be sent postpaid on receipt of price, \$3.50. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

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

Mr. Gifford Refers to the New York, Albany and Buffalo Telegraph Line.

Sidney B. Gifford, of Syracuse, N. Y., was a skilful telegrapher, and for many years active in its service, is a lovable character and an exemplary citizen. His information respecting the telegraph is varied and extensive. No man, probably, is more familiar with the history of its beginning and development in Central New York than he, for his own connection was contemporary therewith. Beginning as an operator at the key, he retired from the service with the rank of superintendent of the Western Union Telegraph Company, completing a long and honorable record. In the quiet of his home he is fond of meeting members of the craft, old time associates, with whom he is always ready to engage in reminiscent conversation.

In referring a few days ago to the building of the New York, Albany and Buffalo Telegraph Company, now long since incorporated with the Western Union system, he said the work of construction began at Utica in the fall of 1845, and progressed simultaneously both east and west. The line reached Buffalo, its western terminus, July 3, 1846, and was completed through to New York September 9, of the same year. It is interesting to note, on the authority of Mr. Gifford, that the more important initial offices along the line were opened at places and on dates, all within the year 1846, as follows:

Albany and Utica, January 31; Syracuse, May 1; Auburn, May 25; Rochester, June 1; Troy, August 7; Hudson and Rome, October 28; Geneva, November 9, and Schenectady, December 6. Canandaigua and Batavia came later.

The Geneva office was established in the fire engine house in that city with Park Fellows in charge. This information as to Geneva Manager Steigelmann, Mr. Gifford said, found in 1876 in an old Geneva newspaper.

The first telegraph office in Syracuse was located upstairs in the railroad depot, which was built over the tracks and which extended from Salina to Warren streets. B. F. Partridge was the first operator at Syracuse.

John D. Stone, who was a printer in Auburn when the office in that place was opened by Edward F. Barnes, went to Rochester in July to assist Mr. Barnes, who was then manager in that city. Subsequently Mr. Stone opened the Schenectady office, and later went to Syracuse, March 13, 1848, where he remained until August, 1868, when he left the service. The late James D. Reed when engaged in 1875 and 1876 in the preparation of his book, "The Telegraph in America," sought Mr. Gifford's aid when hunting for material relative to the early history of the New York, Albany and Buffalo Telegraph Company, and found the assistance Mr. Gifford was able to furnish to be of great value.

In a recent letter addressed to E. Payson Porter, of this city, by Mr. Gifford, the last paragraph concludes with this bit of old time rem-

iniscence: "I well remember you were at Geneva, N. Y., in May, 1850, when I started in here (Syracuse), and on August 1, 1851, went from Geneva to a point unfortunately having escaped my memory."

The Telegraph in Brazil.

In a recent report on the trade of Brazil, the Austro-Hungarian Consul at Rio de Janeiro states that the telegraph system of Brazil has rapidly developed during recent years, and there are at present 60,000 kilometers of land, sea, and river lines and cables. The government telegraph lines have a length of 27,349 kilometers, with a total length of wire of more than 50,000 kilometers, and 3,331 telegraph stations. Special attention during the year 1906 was paid to the extension of the landline 2,100 kilometers long from Rio de Janeiro to Cuyaba (Matto Grosso) to the Acro district and San Antonio on the Maderia river, and from there to the capital of the State of Amazonas. This town (Manaos) is at present only united to the Brazilian system by the line of the English Amazonas Telegraph Company and the river cable in the Amazon river to Belem de Para. By this extension a new, shorter and more convenient direct line would be established between the north and the federal capital of Brazil. The Acro district has at present no telegraphic communication, which is also true of San Antonio, for which town such a communication will become necessary as a result of the construction of the Madeira-Marmore Railway. The Brazilian telegraph authorities have now decided to construct the Cuyaba-San Antonio line with a branch to the districts of the Alto Acre, Alto Purus and Alto Jurusa, and a commission under the leadership of Major Rondon, has been sent out to lay this line, as well as to make investigations with a view to the construction of a railway in these districts. As the line of the Brazilian Government has already touched the border of Paraguay in three places, endeavors are being made to establish direct communication between that country and Brazil. Of the foreign telegraph companies established in Brazil, may be mentioned the English company "Amazonas Telegraph Company," which constructed a line between Manaos and Belem de Para, and received from the Government a yearly subvention of £17,125 for ten years from 1895; and the Western Telegraph Company, also an English company, which laid submarine cables along the Brazilian coast and to Europe.

It pays to start life as a telegraph operator, remarked an official of the Chesapeake and Ohio Railroad. He said that President Stephens, General Manager Doyle, General Superintendents Gryce and Knapp, Superintendent King, Trainmaster Wright as well as M. T. Spicer, chief clerk of the president, and several other minor officials all started to earn their daily bread as telegraph operators.

Reminiscences in the Busy Life of an Old-Time Telegrapher.

BY JAMES F. GORMLEY, OF BOSTON.*

When the writer began his career as a telegrapher in the office at Hartford, Conn., in the early fifties, it was a time when the House printing telegraph system was in vogue. Hartford, then as now, was an important center, at that time one of the two capitals of the state, and its press specials formed no inconsiderable part of the telegraph business at that point. "The Courant," one of the oldest newspapers published in this country, printed important items of European news, hence it was, even at that comparatively early period, that intelligence from the incoming steamers was awaited with interest. News of this class, as so frequently has been described in *Telegraph Age*, was dropped overboard in sealed cans from incoming steamers when off St. John's, N. F., picked up by a waiting yacht of The Associated Press, hurried ashore and transmitted by wire to New York. This would reach its points of destination in the states in time for publication considerably in advance of the steamers arrival at Halifax, the first port of call. At this time D. H. Craig, the founder of The Associated Press, was the general manager of the association. The first items to come through would be brief mention in cipher embodying the general news, then would follow the market reports, the list of cabin passengers (not numerous in those days) and finally the ship news, enumerating the arrival and departure of vessels at foreign ports, in the movements of which the American public might be interested. When finally the steamer reached Halifax the news would come forward more in detail. The same American spirit of enterprise prevailed then as exists to-day in the prompt seizure of opportunity, and the ready adoption of means to an end.

The hours of business in the telegraph office at Hartford were frequently long and irregular, specially on "steamer days," and sometimes when "good night" was clicked off the valediction might very properly have been changed to the salutation of "good morning," so far as the hour was concerned.

At the time of which I write the manager of the Hartford office was W. O. Lewis, but he was soon called to New York to take charge of the Sandy Hook line, regarded as a very important circuit because of the marine intelligence de-

spatched over its wires. Mr. Lewis was succeeded at Hartford by M. S. Roberts, who was the first "House" operator in that city.

Two of the lines of telegraph connecting New York and Boston were the New York and New England, or the "Bain" line, as it was called, and the New York and Boston Magnetic Telegraph Company, more familiarly known as the "Morse" line. The latter passed through Hartford. Eventually a merger of these two lines resulted in establishing the New York and New England Union Telegraph Company, usually called the "Union" line. Still another new company organized about this time was the American Telegraph Company. Following the tendencies of the day for consolidation, this company absorbed the Commercial, or the Boston and New York Telegraph Company. Behind this enterprise there were a number of heavy capitalists, including such men as James Eddy, of Portland; Hiram O. Alden, of Belfast, and others in the state of Maine, and Cyrus W. Field, Wilson G. Hunt and Peter Cooper, of New York. The acquisition of this New York connection when taken in conjunction with the Maine and Nova Scotia system, controlled by the same interests, and the line built by the identical parties in Newfoundland, provided a telegraph line under single control direct to New York, a route in its entirety of prime importance inasmuch as it permitted the quick handling of all foreign intelligence. A repeating station was established first at Hartford, but which was afterwards removed to Springfield, Mass. At Hartford there was a Grove battery of one hundred cups or jars. This was located on a different street from that on which the office was situated, and it was a part of my duty to connect it with the office every morning before eight o'clock, and disconnect it at night, after the conclusion of the day's business.

In those days there used to be a House line extending from New York to Buffalo. This was taken over by the Morse company, an act of merger that resulted in providing us with many additional operators. Among them was John Selden, into whose care was given the management of the repeating station at Hartford, succeeding George B. Prescott, who was transferred to Springfield. In the meantime M. S. Roberts went to New York with J. C. Hinchman, where both were employed on the Washington (House) line. J. W. Stancliff succeeded Mr. Roberts at Hartford. Another operator who became associated with us was John B. Oatman, who subsequently went to New Haven, and later to New York, where he became a member of the Stock Exchange. He died about five years ago. Another operator was Arthur Ingraham, who was stationed at Bridgeport. In the meantime the writer from the position of office boy had risen to that of operator. When the repeating station was removed to Springfield the duties of operator at Hartford devolved upon myself, working long hours, often extending far into the night, and

* James F. Gormley, of Boston, the author of this sketch, and who will likewise contribute several others in series, is a well-known former telegrapher, who has had an active and varied telegraphic career. His mind is richly stored with memories of the service, and of those who took an active part therein. What he has to say is of an interesting reminiscent character, and his utterances will be followed with attention, as they recall other days, other scenes and other names, long since passed into history.

frequently being hard at it on Sundays. There was a certain esprit de corps exhibited in the telegraph service which appears to be lacking to a great extent in these latter years, for we were proud of the telegraph and to serve it was considered to be an honor—somehow it seemed to confer distinction on the individual.

At that time our company had but two offices in the entire state of Connecticut, one at Hartford, the other at New Haven. I recollect being called up one Sunday morning to know whether a message could be delivered at Litchfield, a town twenty odd miles to the westward of Hartford. In response to my offer to undertake the commission a message was shortly after received addressed to the Rev. John Pierpont, a noted divine, announcing the very serious illness of his wife. I personally acted as messenger, driving over and back across country in a buggy, the trip detaining me over night. It was an expensive telegram, but the charges were paid.

From Hartford I was transferred to Springfield, where I worked the New York circuit, changing tricks with Manager George B. Prescott. The American Telegraph Company having built a one-wire line to Troy, N. Y., and thence connecting with Albany, I was again shifted, this time to the former place. All business destined for the west taken by the American company was sent to Springfield, then on to Troy by the new line, where in turn it was repeated over the wires of the New York, Albany and Buffalo Telegraph Company. When the change was brought about removing the repeating office from Troy to Albany, the writer accompanied the transfer.

Shortly after this time the American company absorbed the Hughes printer, a system now so generally used on the European continent, and the invention of D. E. Hughes, of Kentucky. The House printing men readily adapted themselves to the Hughes system, quickly mastering its manipulation. It may be said that we also "took to" the combination invented by George M. Phelps, for his device embraced the good points of both the House and Hughes systems. By means of Mr. Phelps' invention we were enabled to work the full New York and Boston circuit without repeating.

A. A. Lovett, superintendent of the Commercial Telegraph Company, and who afterwards held a like position in the employ of the American Telegraph Company, constructed a line of telegraph connecting Pittsfield, on the line extending from Springfield to Troy and Albany. The building and operation of this short link was the cause, no doubt, that induced the Pope Brothers, of Great Barrington, Franklin L., Henry W. and Ralph W., to enter the telegraph service, for the advent of the electric wire into the precincts of their quiet home town engaged their attention and aroused their enthusiasm. I made the acquaintance of all three of these boys, and bright fellows they were. Frank, especially, used to come often to see me, and on such occasions would

frequently spend most of his time in the yard of the New York Central railroad, inspecting its every detail, examining the engines and in sketching.

The American Telegraph Company had strung a single wire between New York and Philadelphia, which was to be operated by a Hughes printing instrument. I was invited to go to New York to take charge of this wire. Rufus B. Bullock, who afterwards became governor of Georgia, and recently deceased, was stationed at the Philadelphia end. The New York office of the company was located at the corner of Hanover and Beaver streets, and William B. Clum, who died about a year ago, was the manager. At 21 Wall street was located the office of the New York and Washington House Printing Telegraph Company, which operated two wires to the national capital, with way offices at Trenton, N. J.; Philadelphia (Third and Chestnut streets), Wilmington, Del., and at Baltimore. J. C. Hinchman, whom I had previously known at Hartford was the manager of the New York office, and in his office was my old friend M. S. Roberts, together with a young fellow named Henry Bishop. The latter was going to England, there to work a Hughes instrument, and I was invited to accept the position thus to be made vacant. I was glad to do so, for I was brought in contact with those with whom I was well acquainted. There were a number of bright men, all congenial, acting together with a single harmony of purpose, connected with this line and stationed at its various offices. At Philadelphia, for instance, the staff embraced H. E. Thayer, manager; Robert Black, John Woodruff and George Snyder, operators. To this special coterie of telegraphers at the Quaker City I desire to add the name of James Merrihew, because he was a good fellow, and who at that time was manager of the Magnetic Telegraph Company. In Baltimore the force included such persons as Messrs. Filer and Mergenhard and John Lombard, while at the Washington terminal were to be found A. B. Talcott, Charles Noyes, Fred W. Royce and William F. Shiebler, the latter of whom recently died. Mr. Talcott, then as now, was familiarly addressed as "Pop." while Mrs. Talcott, whom everybody liked, was referred to as "Marm."

(To be continued.)

The throne has sanctioned the construction of a telegraph line into Lhasa, the capital of Tibet, and the residence of the supreme head of the Lamaist hierarchy. This innovation was recommended by the Chinese resident at Lhasa who, since the advent of the British expedition of 1904, has been working for the enlightenment of the Tibetans. The throne furthermore will give hospitals, schools and a mail service to Lhasa, and it is reported that a request has been made for permission to publish a newspaper there.

A Distinguished Group.

Members of the United States Military Telegraph Corps have always held a place high in honor and close to the heart of the telegraphic fraternity in this country. The original body of men who served their government at the key during the Civil War period, contributed peculiarly intelligent and brave service in its defence, differing in character, yet the peer of any that was rendered by the great army that went out to do battle for the country. The ranks of the body of telegraphers are now depleted and broken, but so long as any individuals remain to respond to the annual roll call they will be held in high esteem, and when at last all shall have passed over to the great majority, their names and fame will be held in loving memory.

A special interest attaches to the four who

subject of minimizing the effect of high tension currents on paralleling telegraph circuits, had a patent issued to him on December 10, 1907, which provides for neutralizing electromagnetic and electrostatic disturbances to telegraph circuits by single-phase railway lines. Energy is supplied from the high-tension conductors to the trolley circuit through step-down transformers. The trolley wire is arranged in sections, each section extending from one transformer station to another. The central point of the secondary of each sub-station transformer is connected to earth, and the outer terminals of the secondary winding are connected to the ends of the two sections ending at that sub-station. With this arrangement it will be seen that at the instant when one section is at a positive potential with respect to earth the adjacent section will be at an equal negative poten-



THOMAS THOMPSON ECKERT,
Chief of the War Department Tele-
graph Staff, 1861-1866.

CHARLES ALMERIN TINKER,
Cipher Operator, War Department
Telegraph Office, 1861-1866.

DAVID HOMER BATES,
Manager and Cipher-Operator, War
Department Telegraph Office,
1861-1866.

ALBERT BROWN CHANDLER,
Cable and Cipher-Operator, War
Department Telegraph Office,
1863-1866.

were virtually at the head of the organization during the war, all of whom are still living, hale and hearty, although the eldest, General Eckert, is nearing his eighty-sixth birthday. The engraving showing this distinguished group, herewith presented, will be received with interest, a welcome souvenir that will doubtless be preserved by many

Eliminating Disturbances on Telegraph Lines.

J. B. Taylor, of the General Electric Company, Schenectady, N. Y., who in conjunction with the electrical engineer's department of the Western Union Telegraph Company, New York, has been experimenting for some months past with the ob-

ject of minimizing the effect of high tension currents on paralleling telegraph circuits, had a patent issued to him on December 10, 1907, which provides for neutralizing electromagnetic and electrostatic disturbances to telegraph circuits by single-phase railway lines. Energy is supplied from the high-tension conductors to the trolley circuit through step-down transformers. The trolley wire is arranged in sections, each section extending from one transformer station to another. The central point of the secondary of each sub-station transformer is connected to earth, and the outer terminals of the secondary winding are connected to the ends of the two sections ending at that sub-station. With this arrangement it will be seen that at the instant when one section is at a positive potential with respect to earth the adjacent section will be at an equal negative poten-

Bills for the purpose of establishing portfolios of telegraphs and telephones have been introduced in the legislature of the Province of Manitoba, Dominion of Canada.

Report of the Erie and Michigan Telegraph Company for 1853.

BY NATHANIEL HUCKER, OF BUFFALO.

In looking over some old papers recently I found a copy of the annual report of James D. Haviland, superintendent of the Erie and Michigan Telegraph Company, giving the receipts and expenses of all offices of that system for the year ended December 31, 1853.

The force of the main office ("A" Buffalo) was as follows: Nathaniel Hucker, manager, with the late James W. Hawn as operator, and two messengers. At the Dock office the late W. D. Allen was manager and E. D. Benedict, bookkeeper, and two messengers.

In the receipts of the "A" Buffalo office are included the tolls received from the two connecting lines, the New York, Albany and Buffalo Electric Magnetic Telegraph Company and the Buffalo and Canada Junction Telegraph Company.

In 1855 the following companies operated the Morse patents west of Buffalo: The Erie and Michigan, known as the Speed lines; the O'Reilly lines, and the New York and Mississippi Valley Printing Telegraph Company, using the House printing patents. The O'Reilly lines were taken over by the House system in 1855, and the Speed lines in 1856. Shortly after the absorption of these companies the present Western Union Telegraph Company was formed, when the late Ezra Cornell retired from active telegraph work. This consolidation of the various interests provided the foundation of the fortune of Mr. Cornell, the founder of the Cornell University, at Ithaca, N. Y., also the foundation of the fortunes of the late Hiram O. Sibley, of Rochester; J. H. Wade, of Cleveland, Ohio, and other well known pioneers of the telegraph systems of to-day, now controlled by the Western Union. Nathaniel Hucker was the first manager at Buffalo of the Western Union, who at the time of the consolidation filled the position as manager of the House companies.

According to Superintendent Haviland's report the Erie and Michigan telegraph system (Speed line) embraced the following points:

"A" Buffalo, main office; "DK" Buffalo, branch office; Dunkirk, N. Y.; Fredonia and Westfield, N. Y.; Erie and Girard, Pa.; Conneaut, Ashtabula, Painesville, Cleveland, Milan, Norwalk, Sandusky City, Fremont, Maumee, Toledo and Monroe, Ohio.; Detroit, main office, Detroit Dock, main office, Ypsilanti, Ann Arbor, Chelsea, Jackson, Albion, Marshall, Battle Creek, Kalamazoo and Niles, Mich.; South Bend, New Buffalo and Michigan City, Ind.; Chicago, Waukegan, Kenosha, Racine and Milwaukee, Wis.

The total receipts and expenses for 1853 taken from the superintendent's report, follow:

Receipts.	
To cash on hand January 1, 1853.....	\$3,013.00
Received for messages	69,305.49
Received for reports	3,389.66
Rent and for doing business of other lines....	1,806.93
Total	\$77,515.08

Expenses.	
By paid other lines	\$18,706.12
Salaries	26,766.23
Rent	2,829.09
Lights and fuel	764.09
Local repairs	2,479.35
General repair, rebuilding, etc.	8,770.67
Battery	953.42
Stationery	1,408.61
Postage	81.41
Furniture	331.39
Refunded	1,215.19
Miscellaneous	1,385.27
General Expenses	4,862.35
Cornell and Speed Lines	3,179.84
Taxes	187.24
Dividends	21.00
Amount on hand	3,573.81
Total	\$77,515.08

Superintendent Haviland, in concluding his annual report, says: "The above statement shows an increase of \$13,398.79 over the year 1852. During the past season the company has paid off the greater portion of its indebtedness, and at the close of the year has sufficient funds on hand and accounts due, which, when made available, will enable them to satisfy all outstanding claims.

"About 450 miles of old lines have been rebuilt during the past two years, and preparations made for rebuilding the remainder during the coming season.

"Under the head of general expenses is included payments made on the purchase of an opposition line between Chicago and Milwaukee and several large items of indebtedness of long standing.

"If the business of the company next season shows an increase equal to the past, there can be no doubt of securing a satisfactory dividend."

The Morse Electric Club.

The first annual meeting of the Morse Electric Club held since the organization was effected on April 25, 1907, occurred at 195 Broadway on the afternoon of Wednesday, January 8. The officers elected last year were again chosen. These are J. B. Van Every, president; J. C. Barclay and B. Brooks, vice-presidents; F. J. Scherrer, secretary, and R. J. Murphy, treasurer. Gardner Irving and M. H. Kerner, whose initial term as directors had expired, were re-elected for a period of three years. The directors constituting the remainder of the board are John A. Hill and P. J. Casey, whose terms will expire in 1909, and M. J. O'Leary and A. G. Saylor, who have each two years longer to serve. It was decided to hold a dinner on the evening of Saturday, February 29.

"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, carrying charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

H. C. Worthen Becomes Night Chief Operator at New York.

Herbert C. Worthen, chief operator of the Western Union Telegraph Company at Buffalo, N. Y., has been transferred to New York and promoted to the position of night chief operator. This advancement places a member of the younger element in the service in a position of much responsibility, and is a deserved recognition of merit. Mr. Worthen was born at Shelby, N. C., July 22, 1877. Left an orphan at an early age,



HERBERT C. WORTHEN.

Night Chief Operator, Western Union Telegraph Company, New York.

he learned telegraphy at the Oxford, N. C., Masonic Orphan Asylum, of which institution he was an inmate, afterwards entering the telegraph service of the Seaboard Air Line Railway, December 5, 1890, at Clay, N. C. Here he remained, filling successively promotive places, until May 23, 1898, the last two years of his stay working as relief train despatcher. Subsequently he passed several months at Washington, D. C., with the Western Union Telegraph Company, but since August 8, 1898, was in the employ of that company in New York, with the exception of about a year passed with the Laffan Bureau of the New York Sun, and a few months in the train despatcher's office of the Atlantic Coast Line Railroad, at Richmond, Va. During the time he has been with the Western Union company he has been in charge of their interests at the Tribune office, and has held, respectively, the positions of traffic chief of the Southern and Eastern divisions and wire chief of the Southern switch and that of Southwestern wire chief, going to Buffalo to accept the position of chief operator in that city about a year ago. On his departure from Buffalo the force at that point presented Mr. Worthen with a handsome gold watch as a testimonial of their esteem. Mr. Worthen was elected vice-president of the New York Telegraphers' Aid Society in April, 1906.

Radio-Telegraphy.

A patent, No. 874,745, for telegraphy, has been granted to Patrick B. Delany, of South Orange,

N. J. A system of wireless telegraphy.

A. A. Allan and R. Bickerdike have been elected president and director, respectively, of the Marconi Wireless Telegraph Company of Canada. The elections were rendered necessary on account of the recent death of Lieut.-Col. Henshaw, president of the company.

John W. Griggs, former attorney-general of the United States and at present the attorney for Marconi, the inventor of one of the wireless systems of telegraphy, was heard in opposition to the Berlin treaty on January 8. The article of the treaty which provides that wireless messages shall be exchanged between ships and coastal stations and between ships themselves, regardless of the particular system adopted by such ships and stations, is not regarded favorably by Marconi, as his attorney set forth.

Nevil Maskelyne, manager of the Anglo-American Telegraph Company, which controls the Poulsen wireless rights, is quoted in London papers as follows: "The new year will not only see the establishment of the Poulsen wireless telephonic service across the Atlantic, but also the establishment of the Poulsen wireless transatlantic service whereby photographs and sketches illustrating European news for American newspapers and photographs of criminals with such fidelity that they can be readily identified will be flashed across the Atlantic at the rate of one every five minutes."

The United Fruit Company has negotiated with the De Forest Wireless Telegraph Company for the establishment of stations at Belize, Puerto Barrios, Puerto Cortez, and Ceiba, Central America, probably extending the system as far south as Port Limon, Costa Rica. It is assured that wireless communication between these points and the United States will be in operation by the first week in February. The United Fruit Company will serve the public, but subject to censure of all messages, retaining the privilege of refusing for transmission such messages as may appear prejudicial to their business interests. The business men of Ceiba are much elated, and welcome the advent of the wireless as a factor of inestimable value to them in their commercial relations with the United States.

Letters From Our Agents.

PITTSBURG, WESTERN UNION.

We Pittsburgers point with pride at having one of the best-managed telegraph offices on the continent. How could it be otherwise, with Superintendent E. B. Saylor, Manager N. E. Church, Chief Operator W. J. Dodge, General Wire and Repeater Chief I. N. Barton and General Traffic Chief Sears, at the helm? The reputation of these gentlemen is too well-known to require further comment, as their names are synonymous with

good discipline, kind treatment and skilful management in their respective positions. Mr. Barto has an experienced and capable assistant in W. H. Maize; and his staff at the board consists of Messrs. Cupp, Dagens and Larimore. The repeater department (largest in the Western Union system) contains nearly 100 sets of quadruplex, duplex, single, and Barclay printing repeaters, the latter being under the management of Dennis Kelly. The local Barclay printing department occupies a conspicuous position at the Fifth avenue end of the operating room, and is a marvel of neatness and convenience, having been installed by District Electrician George Kendricks. Three circuits are in successful operation at present—New York, Philadelphia and Buffalo; and others will be added as soon as instruments can be obtained from the manufacturers. Mr. P. Repsher has charge of this department, which is beginning to cut an important figure in matters telegraphic. After several weeks' experience with the block system, on one of the railroads entering Pittsburg, Robert Sterling is back at his former post in the repeater department, and everybody is glad to welcome him.

W. E. Price continues in charge of the Commercial News Department. Night Chief Operator Schiller has a pair of valuable assistants in traffic chiefs Rugg and Garrity, while Messrs. Armstrong and Wilson are required to show cause for delayed traffic in the way room days.

We are pleased to learn that Mrs. E. B. Saylor, wife of the superintendent, who has been seriously ill during the past several weeks with typhoid fever, is gradually regaining strength, and that there is no further cause for anxiety.

It was stated in the January 1 issue that G. M. Eitemiller was the wire chief in this office. This was an error, for Mr. Eitemiller left the service about four years ago, the position now being filled by I. N. Barto.

NEW YORK, WESTERN UNION.

Herbert C. Worthen of Buffalo, N. Y., has been transferred to this office as night chief operator, vice J. C. Robinson. A sketch of Mr. Worthen appears elsewhere in this issue.

Robert H. Morris, mechanical engineer, has returned to duty after a siege of sickness.

OTHER NEW YORK NEWS.

Assessment Nos. 472 and 473 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of Asa K. Burroughs, at Bedford, O.; Albert E. Grier, at Denver, Colo.; Jacob C. Houck, at Buffalo, N. Y.; Daniel A. Gibson, at Chicago, Ill.; Richard H. Woodward, at Long Branch, N. J.; Edward E. Cropper, at New York; Marshall A. McCord, at Laurel, Del.; Edward Sholes, at Oak Park, Ill., and John J. Deffley, at New York.

The Serial Building Loan and Savings Institution has declared a semi-annual dividend of two and one-half per cent. The directors of the association will meet at a dinner to be given at Shanley's on the evening of January 30. The Electric

Building Loan and Savings Association has also declared a semi-annual dividend of two and one-half per cent. The directors of this association will meet at the dinner to be held jointly with the directors of the Serial Building Loan and Savings Institution.

The proceedings of the forty-first annual meeting of the Telegraphers' Mutual Benefit Association, which was held at New York, November 20, 1907, has made its appearance. Within its nearly thirty pages of well-arranged matter and of neat press work, the pamphlet embraces the report of President B. Brooks, of Secretary M. J. O'Leary, of Treasurer A. R. Brewer, the report of the auditing committee, together with a mass of carefully compiled statistical information. Altogether the presentation made shows the condition of this substantial old telegraphic organization to be in excellent shape.

A bank account and the possession of a home tend to make one independent, for they afford one a start in life, promote manly feeling and enthusiasm, and enlarge the outlook on life. If you are a telegrapher let the telegraphers' friend, The Serial Building Loan and Savings Institution, 195 Broadway, New York, do for you what it has done for others.

Old established, centrally located business in New York for sale, portion sublet as telegraph office more than paying rent and running expenses. Subway, surface and elevated roads pass door. Suitable for flowers, fruits, cigars or delicatessen. Excellent opportunity for telegrapher. Address "Opportunity," care Telegraph Age, New York.

Will buy or sell, in one to ten share lots, Western Union Telegraph Company and Mackay Companies, stocks. Remittances by New York draft or express money order are requested. Address "Stock Investment," care Telegraph Age, 253 Broadway, New York.

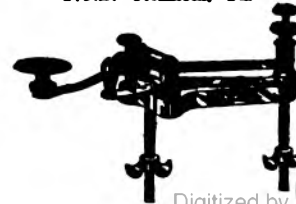
Rubber Telegraph Key Knobs.

No operator who has to use a hard key knob continuously should fail to possess one of these flexible rubber key caps, which fits snugly over the hard rubber key knob, forming an air cushion. This renders the touch smooth and the manipulation of the key much easier. Price, fifteen cents.

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

Leg Pattern \$1.50
 Legion Pattern 1.00
 F.O.B. Columbia, Pa.

THE LEFLEY KEY.



The Best Key on the Market for Business and Profit. Because it does not stick; is durable; speedy; insures fine clear-cut Morse; an easy sender.

Send draft, express or P. O. money order.

S. B. LEFLEY,

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The Postal Telegraph-Cable Company of Texas.

Executive Offices, Dallas, Tex.
S. M. ENGLISH, General Manager.

Operates west of the Mississippi River in Southern Missouri and Kansas, Arkansas, Oklahoma and Indian Territories, Texas and Louisiana, with outlets at New Orleans, La.; Memphis, Tenn.; Vicksburg, Miss., and Wichita, Kan., at which points it exchanges business with the

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

THE Canadian Pacific R'y Co's Telegraph

Executive Offices, Montreal
JAS. KENT, Manager

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

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

Direct Through Wires to All Parts of
CANADA
NEW YORK CHICAGO SAN FRANCISCO
BOSTON, ETC.

The Great North Western Telegraph Company of Canada

H. P. DWIGHT, I. McMICHAEL,
President. Vice-Pres. and Genl. Mgr.

Head Office: TORONTO

DIRECT WIRES TO ALL PRINCIPAL
POINTS

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

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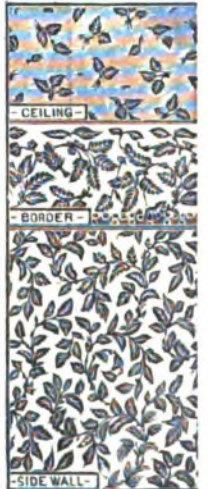
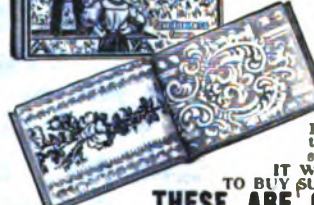
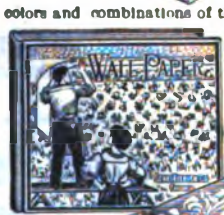
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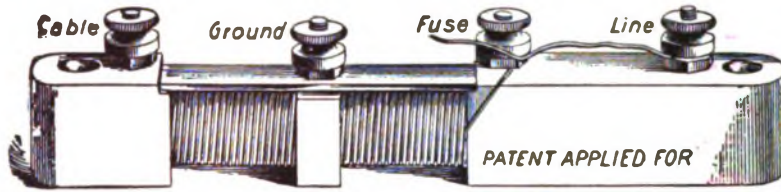
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