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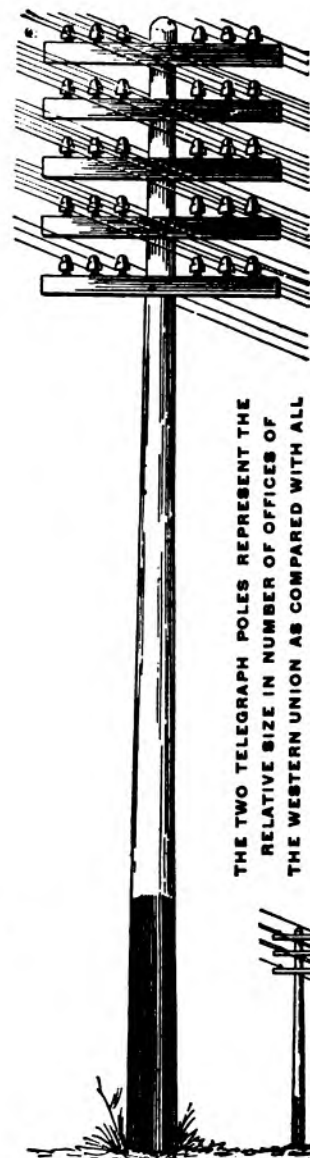
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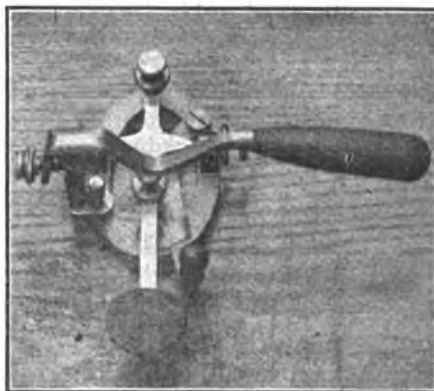
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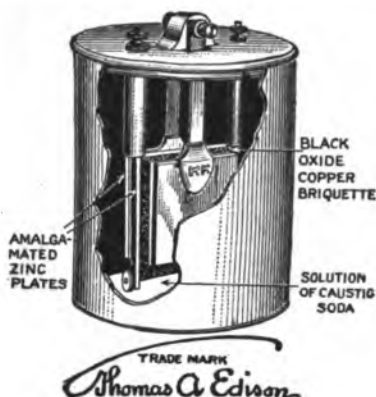
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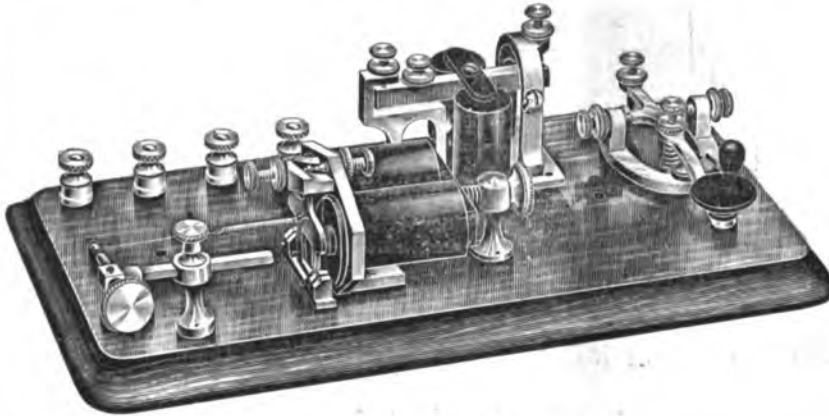
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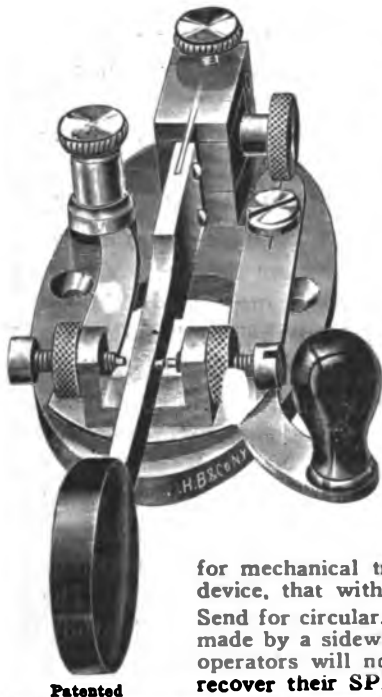


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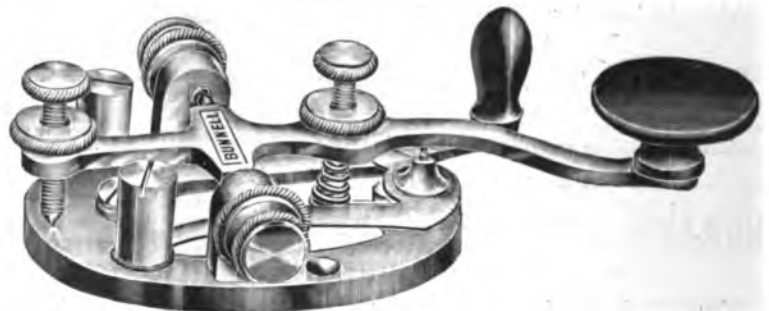
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TELEGRAPH AGE

No. 19.

NEW YORK, OCTOBER 1, 1906.

VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

Questions and Answers.

BY WILLIS H. JONES.

(Continued.)

A correspondent asks: Can a dry cell of battery be recharged? If so, how?

If those who ask this question so frequently could first be made to understand that the so-called dry battery is a primary and not a storage or secondary accumulator of electricity, the absurdity of the question would be apparent. All primary batteries furnish current owing to the chemical activity of the material inserted between the electrodes, and only during the period the circuit is closed. When such material has been used up, the only means of renewing its vitality is to substitute new material, in the same manner as one would replace new zinc, copper or solution in a gravity or bluestone battery when the old ones were exhausted.

Secondary, or storage batteries, are of course charged in the first place by a current of electricity from another source, and can likewise be recharged when the original charge has been expended, but as dry cells are never charged, in the sense that is obviously inferred by the author of the inquiry, what would be the object of charging it? It does not operate on that principle. Finally, even were it possible and practical to

"recharge" a dry cell, the operation would not be economical, for the reason that new ones can be purchased for very little, say 15 to 20 cents retail, and much less at wholesale. It would cost more than that to open an old cell, cleanse and substitute new chemical material and put the parts together again, and even then the result would be but a second hand affair.

Another inquiry is: (a) Do small dynamo machines give efficient service in the capacity of intermediate batteries? (b) Is it permissible or advisable to use such machines as auxiliaries in connection with 4-ohm sounder circuits, such as our duplex or grounded loops on multiple circuits? (c) Which method of running these machines is best or preferable, the belt or the motor geared?

(a) Yes, small dynamos such as our standard manufacturers construct make very efficient intermediate batteries and are fast replacing the old, or chemical jars, in all the principal telegraph centers.

(b). It is permissible during emergencies for short periods only, but is not advisable as a rule. Small machines generating an electromotive force of from 60 to 140 volts are necessarily wound with comparatively small gauge wire, and for that reason cannot safely carry so great a volume of current as the 4-ohm sounder circuit requires without becoming unduly overheated and thereby endangering the insulating material. Small machines, as a rule, are normally constructed to carry small volumes of current only, such as flow through single line, or "relay" circuits, and when used as intermediate battery in the latter only are all that could be desired if kept in proper order.

(c). So far as the efficiency of the machine is concerned one arrangement is as good as the other. As a matter of choice, however, the motor geared method is preferable for several reasons. In the first place, on account of the belt and pulley necessary for its operation, that outfit requires more space than the other machine and is also more liable to accidents due to the stretching or breaking of the belt. The latest practice is to place three or four small motor geared machines compactly behind each main wire switchboard for intermediate battery purposes, to be used when a demand is made for additional current only. The motor coil receives current from the 110-volt electric light circuit, and is shut off as soon as the services of the machine are no longer required. By this rule not only is the total amount of electric power consumed in running the machine minimized, but the latter's life is prolonged through being inoperative during the many intervals it is idle.

What is meant by the term "Electric Osmosis?"

Electric osmosis is a term used in connection with the transfer of liquids from one point to another when the movement is due to the action of an electric current. It has been noticed that if a current of electricity is passed through a liquid, the latter tends to move bodily towards the negative pole of the battery, but the movement must not be confounded with that of liquids under the influence of electrolysis. In the latter case the motion is due to the particles set free and which flow toward and collect around the two electrodes. In the case of electric osmosis the liquid tends to move bodily. If an electric current is passed through moist earth, in a short time it will be found that water collects in the vicinity of the current's path. For this reason it has been suggested that in cases of extreme drought the roots of plants and small trees might be watered by that method, but for economical reasons it would hardly be practical. In fact, up to the present time the phenomenon has not suggested any practical application thereof in the way of commercial employment.

Is $3\frac{1}{2}$ watts per candle power for ordinary incandescent lamps the minimum expenditure of electric energy that is necessary for their operation?

Until within the past year $3\frac{1}{2}$ watts per candle power has been required, although various manufacturers claim that their products demand but three watts. When new and properly made nearly all standard incandescent types may not really require more than the latter watt power, but with age they require more to maintain their initial efficiency. As previously stated, within less than a year a metalized filament has been produced which enables the manufacturers thereof to place on the market a lamp that will give the same illuminating power for one watt per candle power less than has heretofore been possible, or two and one-half watts per candle power, while at the same time possessing an equal or greater length of life. The filament is particularly available for street lamps owing to the larger sizes of lamps usually employed for that purpose and which offer better facilities for the construction of the new filament. The decrease in watt energy expended is said to be due to the comparatively smaller amount of resistance the metalized filament offers.

(To be continued.)

Recent Telegraph Patents.

A patent, No. 830,253, for a telegraph key, has been granted to Jesse T. Sheets of Covington, Ky. The button at the end of the key is swiveled and has a pin to engage the usual circuit opening switch and keep it in open relation while the key is being actuated. The switch automatically returns to circuit closing relation when the key is released.

A patent, No. 830,921, for a means for transmitting electrical impulses, has been awarded to Francis L. Orr of Thurman, Iowa. A device for sending intermittent charges of electricity comprises an electromagnet, a rotating member turned by the electromagnet and a circuit-breaker having one of its terminals mounted on the rotating member and organized as a centrifugal governor to close the circuit only below a definite speed.

The following patent has expired: Patent No. 411,198, for a telegraph key, held by A. E. Johnson, of Carson City, Nev.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Among recent executive office visitors were Jacob Levin, general superintendent, Atlanta, Ga.; Theodore P. Cook, general superintendent, and Morris T. Cook, his private secretary, Chicago, and J. P. Spanier, the company's southern European representative, whose headquarters are at Naples, Italy. Mr. Spanier will remain in this country two months. Others were S. R. Crowder, electrician of the southern division, Atlanta, Ga., and C. F. Annett, manager at New Haven, Conn.

Storage battery plants have been installed at Knoxville, Tenn., and Wilmington, N. C. Motor generator plants have been installed at Jacksonville, Fla.; Savannah, Ga., and Roanoke, Va. Motor generator plants will also soon be installed at Nashville, Tenn., and Richmond, Va.

The fifteenth anniversary of the marriage of Mr. F. J. Scherrer, secretary to Col. Clowry, president and general manager of the company, was quietly celebrated at his home in Roseville, Newark, N. J., on Saturday evening, September 22. A few of his intimate friends were present to congratulate Mr. and Mrs. Scherrer, and their daughter Miss Edith, on the auspicious occasion. Among those present were Mr. and Mrs. C. H. Bristol; Mr. and Mrs. E. M. Mulford; Mr. and Mrs. A. G. Saylor; Mr. and Mrs. Geo. F. Swortfiger; Mrs. J. H. Drakeford; Jacob Levin, of Atlanta, Ga.; M. T. Cook, of Chicago; Miss Ida Hecht; Charles E. Swortfiger; Mr. and Mrs. C. H. Murphy and Mr. and Mrs. J. B. Taltavall. Mr. and Mrs. R. E. Bristol, Mr. and Mrs. M. W. Hamblin and Mr. J. H. Drakeford, on account of either absence from the city or because of sickness, sent regrets.

Postal Telegraph-Cable Company.

EXECUTIVE OFFICES.

At a meeting of the Board of Directors held September 18, Charles P. Bruch was elected a director, vice E. C. Bradley, resigned. The number of vice-presidents was increased to five and Edward J. Nally, general superintendent at Chicago, Ill., was elected a vice-president and di-

rector of the company, with headquarters at New York.

The following appointments were also made, to take effect October 1: W. I. Capen, superintendent, was promoted to be general superintendent of the western division, vice Edward J. Nally; T. W. Carroll, assistant electrical engineer, was advanced to the position of superintendent of the first district, western division, vice W. I. Capen; J. F. Looney was appointed assistant electrical engineer, western division, vice T. W. Carroll.

Mr. Harman D. Jones, until recently chief clerk in the office of Superintendent C. Corbett, of the Western Union Telegraph Company, Cleveland, Ohio, has accepted a position in the complaint and claim department of this company, which is presided over by John Doran, superintendent.

The Cable.

A new submarine cable has been laid between Germany and Norway.

Cables interrupted September 26:	
Venezuela	Jan. 12, 1906
Messages may be mailed from	
Curacao or Trinidad.	
Pinheiro "via Cayenne"	Aug. 13, 1902
Santa Cruz de la Palma (Canaries)	July 12, 1906
Island of Lanzarote	Sept. 18, 1906
Steamer from Las Palmas (Canaries).	

The Commercial Cable Company has opened a new route to South America. The new line affords accelerated service and the most direct line to Pernambuco, Para, Bahia, Rio de Janeiro, Santos, Montevideo, Buenos Ayres, and other places in South America. The new line is laid between the Azores and the Cape Verde Islands and was placed in operation September 15. Formerly cablegrams from this country were sent by this company to South America through the Azores station to Lisbon and from there to the Cape Verde Islands, from which station they were transmitted direct to South American points. Traffic to South Africa also goes from Lisbon through the Cape Verde Islands, and cablegrams to South American points were often delayed through congestion at this central station. Now, however, the new line cuts out the Lisbon station for the South American service, avoiding much delay and affording an almost direct line for South American cablegrams.

The Commercial Cable Company of Cuba, as noticed in our issue of September 16, is being organized by the Mackay Companies for the purpose of laying two cables connecting the United States with Cuba. Forty years ago the Spanish government granted to the Western Union Telegraph Company the exclusive right to land a cable in Cuba. This privilege expires by limitation on December 6 of this year, and it is the purpose of the competing company to have their new connecting cables in working order on December 7. The line will extend from Havana to Key West, and thence to the Flor-

ida mainland, from which point to New York special lines will be provided. The new line will be operated in connection with the Postal Telegraph and Commercial cables. Mr. Clarence H. Mackay, president of the company, with some of his legal advisers, called at the State and Navy Departments, Washington, D. C., recently and made formal application for permission to land the Cuban cable from Havana on the naval reservation at Key West, as well as to carry a land wire across the reservation connecting with the land lines of the company. The acting secretary of the navy referred the application to the legal officers of the department in order to make sure that the government secures the usual privileges in the matter of rates and precedence in the transmission of messages as a condition of the grant.

Death of Alfred S. Brown.

Alfred S. Brown, aged sixty-nine years, who, on account of failing health, resigned the position of electrical engineer of the Western Union Telegraph Company, New York, in March, 1892, died in New York September 25, after a lingering illness. Mr. Brown was one of the best known telegraph figures in the service in the metropolis during the past forty years. He first entered the telegraph service at 21-2 Wall street in 1855 for the New York, Albany and Buffalo Telegraph Company. From 1856 to 1859 he was an operator in the Oswego, N. Y., office. In 1859 he returned to the New York office of the same company, and in 1864 was appointed manager. In 1875 Mr. Brown was appointed superintendent of the Metropolitan District of the Western Union Telegraph Company, and in 1881 he accepted the appointment to the general superintendency of the Mutual Union Telegraph Company, with headquarters in New York City. He was made electrical engineer of the Western Union Telegraph Company in 1889.

OBITUARY NOTES.

James H. F. Walker, aged thirty-seven years, an operator at Atlanta, Ga., died September 22.

P. D. Givens, seventy-seven years of age, an old-time telegrapher, died at Yemassee, S. C., September 23.

Harry D. May, aged twenty-nine years, a Western Union telegraph operator at Worcester, Mass., died in that city September 20. The interment was at Carmel, N. Y., his native place.

John H. Hood, of the quartermaster general's office, Washington, D. C., an old-time operator well known at the capital, died in that city September 14. Mr. Hood was born at Philadelphia February 2, 1828.

George W. Flower, aged forty-six years, an operator well known in Kansas City, Mo., and in St. Louis, Mo., having worked in the Western Union office at the latter point for several years, died on September 14.

Mr. Nally Becomes a Vice-President and Director of the Postal Company.

The advancement of Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company, Chicago, to be a vice-president and director of the company, and his consequent re-



EDWARD J. NALLY.

Who has been made a vice-president and director of the Postal Telegraph-Cable Company.

moval to New York, marks an important change in official placement. For the promotion of Mr. Nally means the bringing of one of the ablest individual forces of the system with which he has so long been associated into more intimate relations with executive management, a post for which he is eminently fitted both by long training and judicial temperament. This action on the part of the company shows clearly the following out of a policy to gather power and strengthen administrative ability at headquarters.

Mr. Nally is a native of Philadelphia, where he was born April 11, 1860. 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 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, from whom he derived a valuable training. 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 Northwestern Telegraph Company, now the North American Telegraph Company. 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. Mr. Nally has always been a hard worker, a close observer and student, and is probably one of the best read men in the service.

W. I. Capen Made General Superintendent of the Postal at Chicago.

Mr. Welcome I. Capen, superintendent at Chicago of the Postal Telegraph-Cable Company, has been promoted to the general superintendency vice E. J. Nally by reason of the latter's removal to New York to become a vice-president of the company. Mr. Capen is a New Englander, having been born at Brattleboro, Vt. Like Mr. Nally, whom he succeeds, the early days of his telegraphic career were passed as a messenger in his native town in the employ of the Vermont, Boston and Montreal Telegraph Company. When he became an operator, it was through the use of the old Bain alphabet. Acquiring the Morse system, he found employment with the Western Union Telegraph Company. When the Atlantic and Pacific Telegraph Company took over the lines of the Automatic Telegraph Company Mr. Capen was then acting as manager for the latter at Baltimore, Md. Subsequently locating in Cincinnati, he returned to the service of the Western Un-



WELCOME I. CAPEN.

The new general superintendent of the Postal Company at Chicago.

ion, becoming wire chief, a position he held for several years, when he resigned to accept the management of the Cincinnati, Baltimore and Ohio Telegraph Company. Later he was appointed manager at Cincinnati of the local office of the Postal Telegraph-Cable Company, where he remained until promoted to be superintendent at Indianapolis, Ind.

From this point he was transferred to Chicago in a like capacity, and now comes this further advancement to higher office. Mr. Capen stands exceedingly well in the estimate of his company and commands the respect and confidence of those of whom he is the official superior. He is a thoughtful, well poised and well informed man, fully conversant with the requirements of the important interests over which he is called to preside, and should make an efficient general superintendent.

Wireless Telegraphy.

A patent No. 829,787 for wireless telegraphy, has been obtained by William S. Hogg, of Washington, D. C.

The Chesapeake Steamship Company has closed negotiations with the Atlantic DeForest Wireless Company for wireless equipment on its fleet of steamers plying between Baltimore and Norfolk.

During the recent visit of Mr. Marconi to Sydney, N. S., the distinguished inventor stated that he was now engaged in considering the extension of the wireless way overland from the Glace Bay station to Vancouver, hence across the ocean to Yokohama thence to Australia, making connections eventually with the chief Asiatic centers.

The military instruction camp for the Department of the East at Mt. Gretna, Pa., has proved a success, and has witnessed much work of interest. For the first time wireless telegraphy was successfully used by the signal corps. Messages were sent and received at distances of from five to 100 miles. This success was largely due to a new receiver invented by Major Edgar Russel of the Signal Corps at Washington. The main station was at the camp proper, where the "harp" was stretched between two giant chestnut trees. The other station was portable, and was operated in the field wherever the troops were engaged in a sham battle. To elevate wire which catches the sound wave a kite was used. Wherever the kite was sent up the portable instrument was put in operation and communication readily established between the troops in the field and the camp headquarters, five or six miles away. These messages were also sent as far as Philadelphia, about 100 miles.

An interesting and compact wireless telegraphic plant of the portable type has been constructed by Sir Oliver Lodge and Dr. Alexander Muirhead, the system employed being that evolved jointly by them. The installation, which is self-contained, says the Scientific American, is especially intended for military operations, and for facilitating transport particularly over difficult country it has been made as compact and light as possible, so that it can be easily stowed away for carriage by mule. It is of sufficient capacity to enable communication to be established over distances up to 50 miles across land, or 150 miles over sea. The antennae are carried by bamboo poles, of short, convenient lengths for transport, which poles, when fitted together, form a somewhat cubical structure 40 feet in height. No earth capacity is necessitated, and indeed any such connec-

tion must be avoided when it is desired to insure the greatest degree of efficiency over long distances. The transmitting and receiving installations are carried in a small cabinet and occupy the minimum of space. When in use this cabinet is supported upon a folding trestle. The necessary current is generated by means of a small continuous-current dynamo carried in a frame resembling that of a bicycle, the power being supplied by bicycle pedal action, with the electric valve system devised by Sir Oliver Lodge to accumulate the impulses. For receiving messages the Lodge vibrating needlepoint-oil-mercury coherer with telephone receiver is fitted.

Resignations and Appointments.

Mr. B. S. Round, assistant wire chief of the American Telephone and Telegraph Company, St. Louis, has resigned, and returned to Tennessee, the vacancy thus created being filled by the appointment of Arthur Koch, lately with the Burlington railway, St. Louis.

Mr. C. M. Oliver has resigned from the Canadian Pacific Railroad telegraph service at Rossland, B. C., and has established himself in the stock brokerage business at Spokane, Wash., under the firm name of C. M. Oliver and Company. Mr. Oliver was formerly well known in New York city, Rochester, N. Y., and elsewhere during a long connection with The Associated Press.

Recent New York Visitors.

Mr. Stephen D. Field, the well known electrical engineer and old-timer, Stockbridge, Mass.

Mr. F. G. Boyer, superintendent of the telegraph department, Standard Oil Company, Oil City, Pa.

Mr. R. L. Fulton, a well known business man of San Francisco, at one time a telegrapher in that city.

Mr. J. Schanher, manager, and F. S. Schanher, operator, Western Union Telegraph Company, Mount Clemens, Mich.

Mr. J. C. Cooney, manager Canadian Pacific Telegraph Company, Ottawa, Ont. Mr. Cooney was in New York to attend the funeral of his brother-in-law, Mr. Wm. Burns, who died on September 23.

Mr. George L. Lang, formerly superintendent of telegraph of the Queen and Crescent Route, Chattanooga, Tenn. After spending a few weeks visiting relatives and friends in the East he returned on September 24 to Chattanooga.

The Railroad.

The Railway Signal Association held its regular September meeting at Chicago on the 11th ult., Vice-President J. A. Peabody, Chicago and Northwestern Railway, in the chair. The attendance was very small.

Mr. I. T. Dyer, superintendent of telegraph of the San Pedro, Los Angeles and Salt Lake Railway, Los Angeles, Cal., has returned from a two weeks' visit to his old home at St. Joseph, Mo., where he spent his vacation.

Municipal Electricians.

Mr. Jerry Murphy, superintendent of fire and police telegraphs, Cleveland, O., and president of the International Association of Municipal Electricians, in his paper entitled "Advisability of Protecting Municipal Electricians by Civil Service", read before the New Haven convention of his association in August, introduces his subject, which was fully discussed, as follows:

Few questions have made such steady progress against a hard, widespread and stubborn resistance and few questions affecting Federal and civic governmental affairs have aroused more public spirit, than the merit system. From its inception it has been fought by office-holders, both by the high executives and the subordinates. Any system that affects the manner of appointment to office and places merit as the basis for securing such position is, in human nature, bound to meet with a sturdy opposition. For in public life, especially in its earlier phases, it goes hard with the professional office-seeker to have to compete, to exercise his brains, to fit himself for competency. It is so much easier to win by political affiliations than it is to establish your right through fitness for any position, and that is why the merit system at first, and even to-day in some municipalities, is vigorously opposed whenever any reform movement makes an effort to bring it about.

But leaving aside altogether the goodness it has worked from the purely political viewpoint, it has proved to all right-minded thinking men interested in the welfare of civic life beyond dispute that as a general proposition it is a splendid thing. Of course, there still remains open to honest controversy the point whether it ought to be applied to every branch of public service and particularly whether it ought to be rigid in its application to certain positions that require executive ability almost purely; that require sound and quick judgment, qualities that cannot be acquired through any special course of training. It will be generally agreed that it has served as a means of raising the standard of character and service in the diverse and manifold branches of public employment. A better class of young men has been brought into service, the general efficiency has reached a higher mark and the interests of city and federal government are looked after more closely, more faithfully and more effectively.

One reason why the merit system has brought about these conditions is simply because permanency of office depends absolutely upon fitness, upon good conscientious work. There is no room for the sluggard and the slothful, the careless, shiftless and neglectful subordinate. Work can no longer be slighted or disregarded. It must be well done. Then again the merit system tends to bring into active service, men of a better type; men with brains trained beforehand; especially to the tasks which they will be called upon to

perform if they succeed in their examinations and receive appointments. Capability and all round efficiency are brought to a better standard and interest in work has been increased.

It also tends to create a lasting ambition in the work of men who are brought under its requirements. They realize that their appointments are secured by superior ability and they therefore make special efforts to live up to the standard upon which they know high expectations will be required. Then, too, it must be borne in mind, knowing that their positions are secure for life so long as they do their work well and conscientiously, they naturally seek to further improve themselves and try for promotion. In nearly every office under the civil service system opportunities are fruitful for promotions, and these opportunities are not filled through influence or favor, but by straight, honest examinations that fully test the ability of the applicants.

Under the purely appointive system, where men are thrown out of office and work through mere changes of administration, conditions are not so favorable for good results. Knowing that a reverse to the party under which they owe their appointments means loss of position for a large number of them it must tend to bring about poor work. At least, it cannot create any lively, steady enthusiasm, a factor quite essential to efficient work. Enthusiasm in one's employment brings out the best in him. When your enthusiasm dies or begins to dwindle, then you are going to begin to get disinterested and neglectful. You will become a mere slipshod worker. You will not do, at least, anything more than is actually required of you and frequently you won't even do that much. And finally you get so that what little you do do you perform in as poor and indifferent a manner as you can. That is human nature.

The vocation of the municipal electrician is certainly a technical one. It requires years of study and application to attain even an ordinary degree of proficiency in electrical work. This study and application must be supplemented by the practical man with several more years of actual work and experience. In short, the requirements of his profession preclude, almost, the idea that the electrician can become much of a politician. If he devotes his attention to one profession—and in this day and age politics has become a profession of more or less honor—he must neglect the other. There does not seem to be a middle road in this matter. The demands on the public electrician to-day are so heavy that to meet them squarely and honestly his undivided attention, his whole energy, his entire time must be given to his calling.

For more than twenty-six years the efficiency of civil service and the merit system have been before the people of the United States; not

only in governmental affairs but in commercial business. And are we not the greatest commercial people on the face of the earth? Notwithstanding, however, from my own personal knowledge, I would say that in municipal electrical work not more than fifty per cent. of the police and fire alarm superintendents in the United States are performing their duties under the protection of the civil service plan. Not more than sixty per cent. of the municipal electrical inspectors—that official who has become, in the last ten years, such an important factor in all matters pertaining to public service, enjoy the benefits of civil service and the merit system.

W. J. Armstrong, Assistant Superintendent at Cleveland.

Mr. W. J. Armstrong, whose promotion to be assistant superintendent of the Western Union Telegraph Company, with headquarters at Cleveland, O., was mentioned in our issue of August 16, is a native of Mound City, Ill., where he was born October 8, 1865. Graduating from the high school at St. Louis, he began his career in



W. J. ARMSTRONG,
Assistant Superintendent, Western Union Telegraph Company,
Cleveland, Ohio.

the service of the telegraph as a messenger in 1880. Learning telegraphy, he became an operator in 1881, a position he retained about a year. Realizing the importance of acquiring a further education, he temporarily quit telegraph work for school and college. Re-entering the service in the Western Union Telegraph Company's employ at St. Louis, after an absence of three years, as an operator, he worked severally the Galveston cable wire, the Chicago circuits, and the New York race and stock wires. He also became assistant division chief, assistant wire chief, loop chief and timekeeper in the operating department. Later he was made chief clerk in the office of Superintendent G. J. Frankel at St. Louis, from which

position his present appointment still further advances him.

Mr. Armstrong was an efficient operator, and in the Columbian telegraph tournament, held in St. Louis in 1892, won the first prize in the "Pen and Ink Receiving Contest." He has been painstaking in every position he has been called upon to fill, and his upward progress in the service has been due to merit alone.

Determining Boundary by Telegraph.

By the flashing of telegraphic signals from Fort Egbert, Alaska, and from Vancouver, Can., the exact boundary line between the United States and Canada at the Yukon river has just been determined. A shaft of granite will be reared at the point agreed upon by the observers, and with this as a basis the long boundary stretch on the 141st meridian in the wild and unexplored country from the Arctic ocean southward to the St. Elias mountains will be marked out at some future time.

The signaling at the boundary line was done within the last few days and has just been reported to the United States coast and geodetic survey in Washington by Prof. Edwin Smith, the American agent designated by the joint boundary commission to represent the United States. Fort Egbert and Vancouver were selected as the two points from which to send the messages because their longitude is known accurately and Fort Egbert is the nearest telegraph station to the Yukon boundary line, which is about six miles distant. A telegraph wire was run to the approximate boundary station and an agent stationed there. The three commissioners waited until there was clear weather at all three stations.

The problem involved was to determine the exact point at which the 141st meridian crosses the Yukon, and the scientific method of doing this is to estimate the precise time at which a certain star crosses the meridian. On the night agreed upon the observer at Vancouver flashed to the man waiting at the boundary line the time at which he observed the star, and the agent at Fort Egbert did likewise. The boundary line man therefore got messages from both sides and was able to use these as the basis of calculation.

Thrilling adventures are being experienced by the surveyors engaged in marking the boundary line on the coast of the gulf of Alaska, about 200 miles above Sitka, according to reports to the coast and geodetic survey. Frederick Morse, chief of the party at Yakutat, has informed the survey that three of the four sub-parties under his charge will finish their work by the end of this month, but that the party working in the Alsek valley is experiencing unusual difficulties, and the men are often in peril of their lives.

TELEGRAPH AGE has helped many a telegrapher in his career. It will help you. Send for a free sample copy.

The Measurement of the Capacity and Inductance of Telegraph Lines.*

BY M. DEVAUX-CHARBONNEL.

The accurate knowledge of the capacity and inductance of telegraph lines is indispensable for the study of the propagation of the current. These two elements play, indeed, a predominant part in the modern transmission processes, where the signals succeed each other with such rapidity that the continuous current conditions are never attained. Their value has hitherto remained uncertain on account of the difficulties presented by their determination. We have to do with single-wire lines earthed at both ends, which take up the currents from industrial establishments, electric tramways or neighboring telegraph offices. Besides, since the aerial arteries are in constant use, neighboring wires interfere with each other. These two circumstances contribute to the creating of parasitic currents which interfere with the measurements.

Still, by taking certain precautions, it is possible to arrive at satisfactory results. Here is a method which was finally adopted after several trials:

Capacity.—The capacity was measured by means of a ballistic galvanometer. The influence of parasitic currents was eliminated by operating with a high E.M.F. of about 100 volts, charging the wires and taking the mean of a large number of measurements.

The imperfections in the insulation had also to be taken into account. The charging current had to be abandoned from the first, for the waste current falsifies the reading, and it is impossible to determine the necessary correction. The discharge current of the line was therefore utilized. A portion of the charge disappears without traversing the ballistic galvanometer, during the time which the discharge key takes to move from the button corresponding to the battery to that corresponding to the galvanometer, and also during the time of the discharge itself. This last time is reduced as much as possible, and is made negligible by operating on short lines. As regards the loss occasioned by working the key, we have already indicated how this can be measured by means of a condenser. The time is about a thousandth of a second, and the corresponding correction is generally below 1 per cent.

The numbers obtained show that:

1. The capacity of aerial wires is greater than their theoretical value. This is due to the fact that the theory does not take into account the presence of neighboring conductors other than the soil.

2. It varies with the moisture of the air, increasing in the wet, which is natural, since a

greater number of surfaces near the wire become conducting.

I quote some figures in microfarads per kilometre:

	4 mm. wire.	5 mm. wire.
Theoretical capacity.	0.0058	0.0060
Actual capacity, wet.	0.0105	0.0120
Actual capacity, dry	0.0087	0.0090

Inductance.—The measurement of inductance is well nigh impossible unless all direct connection with the earth is suppressed. Otherwise strong parasitic currents are superimposed upon the make-and-break currents of the battery and change it entirely.

A satisfactory experimental arrangement is obtained by means of a purely metallic coupling, consisting of two wires of different runs, but with a common termination. A Wheatstone bridge is used, with an adjustable inductance in the fourth branch. For making and breaking the circuit of the battery a rotary switch is used which reverses at every revolution the connections of the poles of the battery and of the galvanometer, so that the make-and-break currents always circulate through the latter in the same direction. The switch may revolve sixty times per second, which gives the arrangement some sensitiveness and greatly reduces the importance of the current induced by neighboring wires.

But care must be taken that the inductance thus measured is not an apparent inductance. The capacity must be taken into account in order to get the true inductance. The correction amounts to $1-3 \frac{K}{R}$ for a homogeneous line earthed at both ends, if K and R are the total capacity and resistance. If the line includes sections of different specifications the correction is

$$\frac{K}{3R} (R_1^3 - R_2^3)$$

for a section of capacity K

and resistance R, with the two ends separated from the earthing device by resistances R_1 and R_2 . How must these corrections be calculated when there is no earthing? The capacity being always measured with respect to the earth, the resistances must be determined with respect to that point of the line whose potential is zero. The position of this point is not known a priori. Preliminary experiments of earthing one point and changing its position have shown that a certain symmetry is established in the circuit, and that the point which equally divides the resistance of the line is that which is at zero potential in the absence of earthing.

Here follow the figures which we have found for copper lines, which are non-magnetic, in henrys per kilometre:

Aerial lines	0.00205
Underground lines insulated with gutta-percha.	0.00243
Underground lines insulated with paper	0.00198

For iron lines the figures are higher, on account of the permeability of the metal. This permea-

* Translated from the Comptes Rendus by the London Electrician.

bility varies with the different specimens tested, and also with the current strength.

The following figures are deduced from the actual inductances of two iron lines:

First line.		Second line.	
Current.	μ.	Current.	μ.
5 milliamperes..	112	10 milliamperes..	140
20 " "	75	" "	91

In practice, the telegraphic currents are comprised between 20 and 30 milliamperes, so that on the average we may ascribe the value 80 to μ, which gives an inductance of 0.0060 henrys per kilometre.

The Annual Meeting of The Associated Press.

The annual meeting of The Associated Press was held Wednesday, September 19, in the Astor Gallery of the Waldorf-Astoria, New York. There was a large attendance but as usual only a minority of the members appeared, most of the publishers being represented by proxies. President Noyes called the meeting to order. After roll-call the report of the board of directors was read. It follows:

The sixth fiscal year of The Associated Press, which ended June 30, 1906, was one of unusual activity.

The Russo-Japanese war was still on when the year began and the news service covering the closing weeks of that conflict was exceptionally excellent and correspondingly expensive. In reporting the peace conference at Portsmouth, N. H., the association achieved a distinct triumph, its reports being admittedly far superior to any others in point of accuracy, completeness and promptness. The disturbances in European Russia, covering a wide area and often developing at very remote and almost inaccessible points, tested the capacity of the organization in an unusual fashion, but, happily, the requirements of the service were met in every case and the despatches presented such a view of the situation as, for comprehensiveness and truthfulness, has rarely been surpassed.

Great care was observed in reporting the conference at Algiciras and the results were most satisfactory. High-water mark in the business of newspaper reporting was reached in the case of the San Francisco disaster and the notable eruption of Mount Vesuvius.

The administration of the finances of the association has been equally satisfactory. At the last annual meeting your directors were able to give an assurance that no increase of assessments was necessary by reason of the Russo-Japanese war. It is doubly gratifying now to be in a position to report that not only was the assurance fully justified, but that within the fiscal year which closed on June 30, 1906, all of the existing deficit was wiped out and the new year begun with a larger invested surplus than the association has ever had and with a small actual balance over all liabilities.

The five directors whose terms expire this year are A. P. Langtry, of the Springfield, (Mass.), Union, Harvey W. Scott, of the Portland Oregonian, Thomas G. Rapier, of the New Orleans Picayune, Victor F. Lawson, of the Chicago News, and Herman Ridder, of the New York Staats-Zeitung, all were re-elected with the exception of A. P. Langtry, who announced that he could not serve, and his place was filled by Gen. Charles H. Taylor, of the Boston Globe.

Late reports show that The Associated Press has 760 members, who are served by 14,473 miles

of leased wire by day and 19,844 miles by night. The annual revenues, derived from assessments on the members exceed \$2,200,000 and the daily number of words sent to the principal newspapers is over 50,000, equal to about thirty-five ordinary newspaper columns.

The directors who were elected for a term of three years were: Victor F. Lawson, of the Chicago Daily News; Herman Ridder, of the New Yorker Staats-Zeitung; Thomas G. Rapier, of the New Orleans Picayune; Harvey W. Scott, of the Portland Oregonian, and General Charles H. Taylor, of the Boston Globe. The new board of directors organized by electing Frank B. Noyes, of the Chicago Record-Herald, president; Charles Hopkins, of the Hartford Courant, vice-president; Rufus N. Rhodes, of the Birmingham News, second vice-president; Melville E. Stone, secretary, and Charles S. Diehl, assistant secretary.

Melville E. Stone was again chosen general manager at New York, and Col. Charles S. Diehl as assistant general manager, with headquarters at Chicago.

The Final Postal Test of Transmitting Instruments.

The second and final test of telegraph transmitting devices instituted by the Postal Telegraph-Cable Company, took place in the general operating room of that company at 253 Broadway, New York, on Sunday afternoon, September 23. The tests were conducted under the auspices of Jesse Hargrave, assistant electrical engineer, and F. E. d'Humy, electrician of the Eastern division. Traffic Manager Minor M. Davis was also present. Among those present who were interested in the test were W. O. Coffe, of Cleveland, O., the inventor of the Meco-graph, who did the transmitting, and C. P. West and D. A. Mahoney, of New York; George W. Conkling and his brother, H. C. Conkling, represented the Auto-Dot interests; Horace G. Martin championed his own instruments, the Vibroplex and Autoplex; W. S. Clark, of Chicago, operated the Simplex. O. T. Anderson, of Chicago, the selling agent, being also on hand, while James Uncles handled the Yetman transmitter. The hand transmitting on the part of the Postal Company was executed by Mr. F. Lass. The machines were skillfully handled and the signals appeared to compare favorably with hand signals, but examination of the recorder tape, which will clearly show the differences, has not yet been completed.

This test was made over a wire extending from New York to Chicago and return, a distance of 2,010 miles. The circuit was repeated at Meadville, Pa., both going and returning, and also at Chicago. The five messages that were transmitted as the test by each interest were selected on account of their difficult cipher words.

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.

The New Western Union Chief Operator at Denver.

Mr. G. Frank Coit, until recently assistant chief operator of the Western Union Telegraph Company at Indianapolis, Ind., has been promoted to be chief operator of the same interests at Denver, Colo. Mr. Coit was born at Columbus, O., in 1864, at which point he entered the employ of the telegraph in 1877. Becoming an operator he continued at Columbus for a number of years, thence going to Toledo in 1886 where



G. F. COIT.

Chief operator, Western Union Telegraph Company, Denver, Colo.

he served The United Press as an operator for a year. His next move was to Indianapolis, Ind., there entering the employ of the Western Union Telegraph Company. From the position of operator he soon attained that of traffic chief, then wire chief, in 1900 being appointed assistant chief operator, the place he has just left to accept his present appointment at Denver, Mr. Coit, who is an accomplished electrician, was always regarded as a first class operator. He is a close observer and student, and his advancement has been fairly earned.

To Romanize Chinese Names.

The Western Union Telegraph Company has received a communication from Chow Wan-Pang, director of the Imperial Chinese Telegraphs, dated Shanghai, Aug. 1. It says: "The development of telegraphs and posts in the Empire of China has necessitated that a uniform system of romanization of Chinese city names should be adopted, and for this purpose a special committee was appointed. This committee consisted of Toatai Chow Wan-Pang and Mr. F. N. Dresing of the Imperial Telegraphs, Messrs. H. B. Morse and W. Bright of the Imperial Customs, Count de Galembert and Mr. H. W. Brazier of the Imperial Posts, and Mr. W. F. Tyler, Imperial Chinese Coast Inspector."

As a result of the work of the committee, it is stated, a uniform spelling system has been adopt-

ed, and will in future be applied to all Chinese names. The names of several Chinese telegraph stations have already been altered. The uniform romanization of the names of Chinese towns will be a great convenience to Americans and other foreigners who have business relations with the Celestial Empire. The Chinese Government adopted the telegraph system before it allowed the building of railroads because the officials recognized in it an important factor for the maintenance of order in the interior of the country. To-day there are about 4,000 miles of railroad and 15,000 miles of telegraphs in the 4,277,170 square miles of territory which comprise the Chinese Empire. All telegraph forms are inscribed in Chinese and English.

The Chinese officials are as particular in their telegrams as they are in every other line of their business. Foreigners make mistakes in the names of towns and provinces and then throw the blame, if the message goes astray, upon the officials. Owing to the similarity of names it is easy for anyone but a Chinese to make an error which may send a telegram chasing all over the country before it arrives at its proper destination. It is, however, certain to arrive finally, even if a year is occupied in the journey. The Chinese are very painstaking and methodical, and time with them is usually no object. Names of towns like Chang-Lo, Chang-Loh, Ho-Chow, Hoh-Chow, Ngan-Tin, Ngan-Ting, Ning-Yang and Ning-Yuan are specimens of what has to be contended with in China. Hong Kong business men who have an extensive correspondence with merchants in the interior frequently sit for hours in the billiard room of the Hong Kong Hotel trying to think out whether the name of a town to which they wish to wire should read "Ling-tin-Ling" or "Ting-yin-Ting."

Meeting of the Units Standardization Commission Postponed.

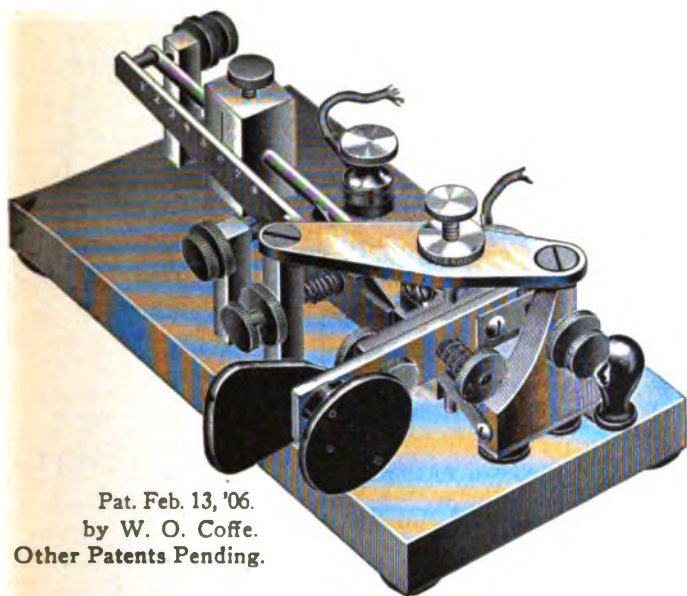
The meeting of the international commission on Electrical Units and Standards, which was to have been held in London in October, has been postponed for one year. This delay will permit of more leisurely and thorough investigation of the questions in relation to which the commission must have very definite information, such as the adoption of specifications for the silver coulometer and the Weston normal cell. By October, 1907, the international gathering should be reasonably sure of having satisfactory data before it. Prof. H. S. Carhart of the University of Michigan, the official delegate from the United States to the forthcoming conference, with his colleague at the university, Professor Patterson, is engaged at present in making a determination of the electromotive force of the Weston cell by means of his absolute electro-dynamometer.—Western Electrician.

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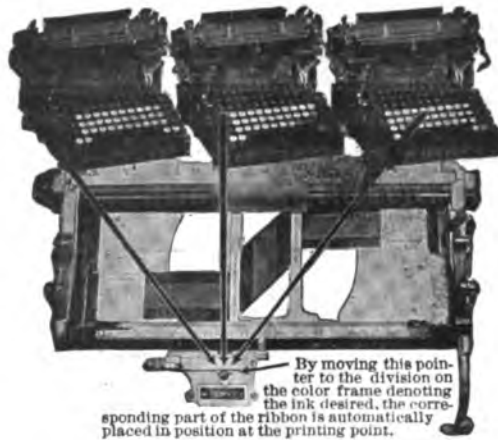
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NEW YORK, OCTOBER 1, 1906.

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

The Old Timers and Military Telegraphers at Washington.

It is pleasant to contemplate the coming together in social reunion of the Old Time Telegraphers' and Historical Association and of the United States Military Telegraph Corps, at Washington on the 9, 10 and 11 of this month, for it assembles a band of telegraphic brethren closely cemented in bonds of long time unity and sympathy. Nowhere else in the world does the spirit of telegraph fraternity prevail to the same extent as in America, and these annual meetings serve to keep alive and strengthen this delightfully distinctive feeling. Here will meet telegraphers who have served commercial or railroad interests, one or the other, or both, together with the devoted band, whose numbers

are now rapidly lessening, who with heroic fortitude went to the support of the government to work its telegraph wires, at the time of the Civil War. Included in the membership of these two organizations are many who no longer send the dots and dashes, and to whom the sounder is but a memory. Abandoning the key they have gone into other lines of business, and many are classed among the successful men of the day. Their loyalty to and affection for the avocation that first claimed their attention is sufficiently attested by their continued connection with the associations named, both in spirit and in fact, and by their frequent presence at these annual gatherings. It matters not what may be the particular form of employment one has encountered in the telegraphic field, the word "telegraph" is talismanic in its meaning, the "open sesame" that admits each comer to the fraternal heart.

The story of the reunion printed elsewhere in this issue, particularly that portion embraced within the illustrated sketches of both active and former telegraphers, which appear in great numbers, presents in graphic measure the history of the lives of many, all of whom, scarcely without exception, are members of the two allied organizations named. The perusal will be followed with interest and the lesson to be adduced therefrom shows that success in life is vouchsafed to the intelligent, honest, studious and ambitious man possessed with capacity and progressive ideas. It is especially gratifying to note that so many former telegraphers have achieved large and distinguished success in other fields of business endeavor.

TELEGRAPH AGE bids the telegraphers welcome to Washington, and congratulates President Young and his host of zealous co-workers in preparing for the reception of these guests; in the vast amount of intelligent and well directed efforts that have been made to insure a successful outcome of the twenty-sixth annual convention.

Even Our Advertisements Are Quoted.

A telegram from Guthrie, Okla., published in the Wichita, Kansas, Eagle, expresses the evident good feeling the people of Oklahoma entertain for the Postal Telegraph-Cable Company of Texas, which is doing so much to call attention to the desirability of the new state as a place of residence and for business enterprise:

"The Postal Telegraph-Cable Company of Texas is carrying a quarter-page advertisement in TELEGRAPH AGE that will be appreciated by the residents of this state. So unusual is this for a public service corporation that it is deemed worthy of special commendatory mention in these columns. It is a genuine 'boost,' as will be observed in the reproduction following:

"In casting about for a place to make your future home, do not overlook the Oklahoma Territory, but come and see for yourself that it offers

more to the home-seeker than any other part of the United States. Seeing is believing. The climate of Oklahoma is fine, the prevailing breeze from the southwest in summer making even the warmest August days pleasant. The rainfall over this territory is well distributed, making agriculture the principal occupation of the people, the most satisfactory and lucrative. Corn and wheat are more widely grown than anything else, though cotton, a very fine staple of which can be grown there, is gaining in favor. Fruits of all kinds grow in abundance, a failure of the peach crop being unknown. Railroads, telegraph and telephone lines are all to be found well equipped to accommodate the people in disposing of their products, the Postal Telegraph-Cable Company of Texas having up-to-date offices in all the principal towns."

The Work Accomplished by The Associated Press.

The Associated Press is to be congratulated on the handsome showing of the condition of their organization made evident by the statement submitted at its late meeting held in New York. The deficit entailed by the extraordinary expenses incidental to the Russo-Japanese War, has not only been overcome, but the earnings show a commendable balance to the credit of the association.

The eruption of Vesuvius was handled with skill, courage and success. In Russia, just now the storm-center of the world, Associated Press correspondents are doing efficient and heroic work.

Too much praise cannot be bestowed upon the skilful guidance of Melville E. Stone, the general manager of The Associated Press, for this encouraging state of affairs.

The Postal Company at Chicago and Its Operators.

The telegraph operators in Chicago, employed by the Postal Telegraph-Cable Company in that city, presented to the company on August 10, through E. J. Nally, its general superintendent, a list of requests, made up of thirty-two separate paragraphs, covering a wide range of subjects and affecting almost every detail of the telegraph service. Mr. Nally personally presented the requests to the executive officers in New York. The matter received due consideration, and a reply, dated September 10, was recently returned to Mr. Nally. This says in part:

Referring to the communication of August 10 from certain of our employees, we have to say to those who have signed it, and to all those interested in the subject, that our company has not heretofore thought it wise to formulate a fixed set of rules and regulations governing every detail of the conduct of its business, chiefly for the reason that the conditions affecting our service are so different in different localities, that entire uniformity of action is deemed impracticable. Many of the

suggestions made in the communication are in accordance with the practice already prevailing, and we may be glad to adopt others of them as circumstances may develop to render it just and wise to do so.

The Postal company has diligently sought, from its earliest organization, to deal equitably in every way with its employees of every class, and has received hearty commendation from many of them for its considerate treatment, in the matter of promotions in place and pay; of its recognition of individual opinion and action and in caring for their comfort and well-being in many ways. Its managers have not expected that such consideration could result so unjustly as to foster the building up of an organization designed, through combination, to compel the company to practically turn over the management of its business and affairs to its employees, and yet that is practically what the communication in question aims to do. Of course, nothing of that kind can be submitted to, whatever the result may be to the company.

Here follows the articles of complaint, with the answers of the company attached thereto.

The communication to Mr. Nally, which is signed by William H. Baker, vice-president and general manager of the Postal Telegraph-Cable Company, concludes as follows:

Turning now to the general request to fix minimum salaries for stated classes of service, and to increase a large number of them, as set forth in articles xxix and xxx, those requests cannot be granted. Already salaries have been increased in a great number of cases from time to time and many others will be increased as individual merit may justify. Individual merit is sure to be recognized, and every effort will be made to do full justice to employees, while at the same time protecting the company from undertaking to bear burdens which would be unjust to its owners, whose success in the maintenance of our business is essential to the continued welfare of all employees.

The Postal company has succeeded in building up, during the past twenty-one years, a physical property and a well-ordered system, which have been a great benefit to the general public, to the commerce of this country, and especially to all classes of telegraph employees. It has striven to act upon business-like principles, in every feature of its relations with the public, and its own officers and employees of every class. Its management has been ever ready to correct any injustice or mistaken action that has been shown or discovered, and will continue to do so, but full compliance with the requests now submitted would be so subversive of good order, discipline and equity, that we have no recourse but to assure you that it cannot be consented to.

This reply did not prove to be acceptable to the complainants, and steps were immediately taken to call a meeting of the operators to consider the situation. The meeting occurred on Sunday, September 23, with the result that the entire subject was referred to the general executive board.

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.

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

The Social Atmosphere of the Wires.

L. C. Hall; a well-known telegrapher of Norfolk, Va., in a magazine article, has this to say in the introduction of his interesting subject:

"Fancy an atmosphere wherein names and faces count for nothing in the making of friendships—wherein people are known to each other only by their manner of stringing together their dots and dashes; wherein personality is insensibly communicated by the feel of the wire; fancy missing a dead friend's 'Morse' as you would a dead friend's voice, being distressed by the absence of a metallic clicking made in a certain fashion as you would be by the absence of a recognized personal manner.

"Indeed, there is something so strange as to seem almost uncanny about the relations that spring up in the atmosphere of the wires. By such relations I do not mean the ties formed between persons working together in a given office. I refer rather to the intercourse that goes on over the wires between people who, though widely separated in a physical sense, are yet brought into closest touch and sympathy by the pulsations of an electric current.

"In a great telegraph office two men may work side by side for years and never become more than passing acquaintances. In much the same way that people living in flats are ignorant of the lives and characters, even the names, it may be, of those living above and below them, one operator might work alongside another for months and still have no idea of the kind of man his co-worker is.

"But it is not so with the men and women on his 'circuit'—the wire connecting two cities with perhaps many intervening stations, which he operates daily. He may not know the names of his wire-associates, it is true; still, from their manner of working—their 'Morse'—their transmission—as it is variously termed, he soon forms very distinct impressions of their personalities.

"One's 'Morse,' as is well known, is as individual as his face, or voice, or personal manner. Ordinarily it is no less difficult to mimic a sender's dots and dashes than it would be to assume temporarily his facial likeness. As a matter of fact, his manner of stringing together his dots and dashes is to a telegrapher a medium of expression than which there is none more subtle and convincing. Just how the individuality of a sender can be imparted to signals so simple is not easy to make clear to the uninitiated. The secret lies perhaps in the slight variations in the length of the elements of the signals, and in the quick or dwelling touch given certain combinations of letters. At any rate, 'expression' in the telegraphese is as well recognized a quality as expression in music; and individuality in the 'Morse' is fully as pronounced.

"All this once understood, it can readily be judged that a man puts more of his real self into his telegraphese than into any other form of character expression. In his speech, for exam-

ple, or his personal manner toward another, he unconsciously conforms to certain conventions, it matters not what his real feelings may be. But over the wire there is no pretending to what one does not feel. If the sender be in good spirits his 'Morse' is apt to be buoyant and snappy; if he be depressed the dots and dashes flow sluggishly; if all be serene with him the signals ripple along in rhythmic cadences that tell the truth in a way not to be mistaken.

"Naturally, then, in working together, day after day, telegraphers become much more closely interested in each other by wire than if they simply worked side by side in a busy office where unnecessary talk is always discouraged. And, insensibly, this interest begets social ties, unlike anything else in the range of community of feeling; ties that are often as binding as those that spring from personal association."

How Editors Learn From Their Readers.

Newspaper men are educated in no small degree by the thousands of minds which react upon the facts alleged and the opinions put forward to the world. Criticisms, whether wise or foolish, teach us at least much about the constitution of the general mind. Many of them are corrective and intelligent, some remarkable for their naiveté. Among the simpler ones the type recurs.

Every time, for example, that a book is praised a crop of responses arrive, asking where it can be procured, or requesting us to purchase it and mail it to the inquirer. Sometimes fifty cents is enclosed, with a promise of more if needed. Such requests come, as often as not, from places large enough to contain book-shops. Another favorite device is to cite an opinion or statement of ours, without giving the date or context, and ask for some special information about it.

Such bits of ingenuousness, however, vanish in an editor's general impression of his correspondence, which stands to him for one of the most fertile channels of instruction, of first-hand and varied experience, that have ever enriched his passage through this vale.—Collier's Weekly.

Patent Office Delays.

It is alleged, remarks the Electrical World, that although making a handsome surplus the United States Patent Office is far behind in its work, because of the inadequate staff. In January last there were 17,353 cases awaiting action. The number has been steadily growing, and a month ago reached 23,523. In January the average time for getting a patent through was three months. The time now is eleven months. At the present ratio of falling behind, unless an increase be made in the staff of the Patent Office, it will require years to get a patent issued.

Sample copies of TELEGRAPH AGE will be sent free to all intending subscribers.

Forty-Niners of the Telegraph.

The following list embraces the names of the oldest living members of the telegraph profession; they include so far as known those who entered the service during the forties:

Name	When entered the service.	Where entered the service.
Adams, Frank.....	1849..	Akron, O.
Allen, George E.....	1847..	Utica, N. Y.
Ayres, George B.....	1846..	Harrisburg, Pa.
Balch, G. W.....	1848..	Detroit.
Barr, M. W.....	1847..	Wheeling, W. Va.
Benedict, G. G.....	1849..	New York.
Berry, Stephen.....	1846..	Boston
Bethune, N. W.....	1847..	Montreal
Booth, N. M.....	1849..	Louisville, Ky.
Brenner, J. A.....	1849..	Washington
Brigham, George F....	1848..	Fredonia, N. Y.
Brigham, Henry H....	1849..	Warren. Pa.
Bright, Louis A.....	1849..	Pottsville, Pa.
Brownson, W. G.....	1849..	Poughkeepsie, N.Y.
Buell, Madison.....	1847..	Buffalo, N. Y.
Carnegie, Andrew.....	1848..	Pittsburg, Pa.
Clark, James J.....	1845..	Philadelphia
Clark, William H....	1849..	Frankfort, Ky.
Cleveland, Uriah.....	1847..	Toledo, O.
Cobb, Emory.....	1848..	Fredonia, N. Y.
Compton, J.....	1848..	Wheeling, W. Va.
Cutler, Charles S.....	1849..	Buffalo, N. Y.
David, T. B. A.....	1849..	Pittsburg, Pa.
Daugherty, A. D.....	1848..	Coldwater, Mich.
Davis, A. G.....	1849..	Poughkeepsie, N.Y.
Dodge, L. C.....	1847..	Burlington, Vt.
Dunham, James.....	1847..	Poughkeepsie, N.Y.
Dwight, H. P.....	1847..	Montreal
Easson, R. F.....	1849..	Toronto, Ont.
Eckert, Gen. Thos. T..	1848..	St. Clairsville, O.
Farnsworth, George...	1849..	Boston
Frey, George H., Sr...	1849..	Springfield, O.
Gentry, W. D., Dr....	1848..	Hopkinsville, Ky.
Greene, Joseph S.....	1846..	Philadelphia
Guthridge, J. F.....	1849..	Attica, Ind.
Haskins, Charles H...	1846..	Buffalo, N. Y.
Haviland, James D....	1847..	Detroit
Hepburn, H. C.....	1845..	Philadelphia
Homans, Benjamin....	1848..	Baltimore
Hoyt, Samuel.....	1848..	Milan, O.
Hucker, Nathaniel...	1847..	Buffalo, N. Y.
Hunt, Thomas.....	1849..	Morrow, O.
Kissock, David.....	1847..	St. Catharines, Ont.
Larcombe, J. H.....	1847..	Philadelphia
Lasscell, W. B.....	1849..	
Louis, L. A.....	1848..	Louisville, Ky.
Lumbard, Julius G....	1847..	Ashtabula, O.
Matthews, Charles P..	1849..	Columbus, O.
Melbourne, W. A.....	1848..	Bardstown, Ky.
Merrilow, James.....	1849..	Wilmington, Del.
Pitcairn, Robert.....	1849..	Pittsburg, Pa.
Porter, E. P.....	1846..	Geneva, N. Y.
Reed, Henry A.....	1849..	Carmel, N. Y.
Reed, Douglas.....	1847..	Sandusky, O.
Ryan, Reuben H.....	1848..	Milan, O.

Stone, John D.....	1846..	Rochester, N. Y.
Sutherland, John A....	1849..	Buffalo, N. Y.
Talcott, A. B.....	1849..	Boston
Titcomb, H. B.....	1848..	Memphis, Tenn.
Tomlinson, E. M.....	1846..	Hartford, Conn.
Townsend, John A....	1849..	Akron, O.
Tree, J. B.....	1847..	Washington
Tubbs, F. H.....	1848..	Milan, O.
Tyler, Artemus E....	1848..	Erie, Pa.
Van Duzer, A. M.....	1849..	Fredonia, N. Y.
Ward, Henry H.....	1848..	Springfield, Mass.
Weller, Alfred.....	1847..	Marshall, Mich.
Williams, George T...	1849..	Sinclairville, N. Y.
Wood, Orrin S.....	1844..	Washington
Wood, Otis E.....	1846..	Buffalo, N. Y.
Worl, James N.....	1848..	Philadelphia
Worl, W. S.....	1849..	Philadelphia
Wright, E. P.....	1849..	Geneva, N. Y.

Among the Forty-Niners of the Telegraph who died during the year were: Martin Barth, William B. Clum, Benjamin H. Dewey, S. H. Kauffman and Robert Newell.

Mr. Hill's Pessimism.

Mr. James J. Hill, whose great executive ability is shown in the operation of one of the trans-continental railways, and who is looked upon as a power in the transportation world, devotes some study to other things, says an exchange, and not only does he discuss economics of the present, but he forecasts dire results in the future, when we become a nation overrun with people, so crowded that the fruits of the earth, the minerals and the forests will cease to be produced in sufficient quantity to satisfy those who must needs live, labor and enjoy comforts. Mr. Hill says:

Within forty-four years we shall have to meet the wants of more than 200,000,000 people. In less than twenty years from this moment the United States will have 130,000,000 people. Where are these people, not of some dim, distant age, but of this very generation now growing to manhood, to be employed and how supported? Our coal, which is substantially our only fuel, will be surely exhausted in 100 years, and in fifty years, when our population shall have reached the 200,000,000 mark, our best and most convenient coal will have been so far consumed that the remainder can only be applied to present uses at an enhanced cost, which will probably compel the entire rearrangement of industries and revolutionize the common lot and common life.

"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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Military Telegraphers.

The following is a complete list of the living United States Military Telegraphers so far as known:

Anderson, Joseph	Maize, I. D.	Furr, Robert	Sheldon, W. A.
Armstrong, E. L.	Martin, H. S.	Gard, D. H.	Sheldon, T. B.
Armstrong, S. T.	Martin, R. W.	Geiger, J. M.	Shepard, O. M.
Arnott, Thomas	Mason, J. Q.	Gentry, W. D.	Sherman, H. C.
Ash, William M.	Matlock, H. H.	Gilmore, Col. J. R.	Sholes, C. G.
Atwell, J. W.	Maynard, George C.	Glascott, W. H.	Showerman, I. C.
Barton, S. E.	McCleverty, J. D.	Goalding, George J.	Shuman, W. A.
Barwick, Thomas	McClure, James P.	Greene, E. C.	Smith, J. Elliott
Bates, D. H.	McGrain, J. P.	Griswold, M. E.	Snow, H. N.
Baxter, George W.	McKelvey, A. T.	Gross, Col. W. L.	Spencer, H. B.
Bender, R. W.	McKenna, J. A.	Gulick, C. W.	Spencer, J. M.
Benedict, C. H.	McMichael, I.	Guthridge, J. F.	Sprague, H. C.
Bliss, A. H.	McMurtry, B.	Hallam, Isaac W.	Stillman, George
Bohle, R. H.	McReynolds, C. W.	Hallam, Isaac W.	Strubbe, W. G.
Boyd, J. W.	Meagher, J. R.	Hammond, C. D.	Stumm, F. A.
Boyle, E. C.	Mixer, Charles H.	Hammond, C. W.	Talbot, R. M.
Brennaman, A. T.	Montayne, C. D.	Hancock, A. G.	Thode, C. F.
Bowerman, H.	Moore, C. W.	Hansen, Joseph	Tinker, Charles A.
Brooks, J. N.	Moreland, T. E.	Hatton, O. C.	Torrance, J. A.
Bruch, Adam	Morgan, J. B.	Henderson, George	Townsend, N. S.
Bruner, P.	Morrison, Thomas	Homan, Charles A.	Trowbridge, H. R.
Brush, Samuel T.	Murray, P. J.	Hoover, R. B.	Vincent, H. C.
Buell, Madison	Naile, G. W.	Hotchkiss, Z. P.	Voltz, J. D.
Burch, C. B.	Newton, E. C.	Hull, A. K. V.	Von Eve, E.
Burnett, George A.	Nichols, A. M.	Hull, H. P.	Ward, Edward T.
Bush, E. F.	Nichols, J. H.	Humes, W. S.	Warner, O. L.
Chandler, Col. A. B.	Nohe, A. W.	Huyck, Maynard	Weir, Col. L. C.
Chandler, C. E.	Norris, J. B.	Ingram, S. E.	Webb, J. G.
Childs, A. F.	Nunan, P. H.	Ives, W. L.	Whelpley, C. L.
Clark, J. B.	Nye, J. M.	Jaques, C. W.	White, W. N.
Clowry, Col. R. C.	O'Brien, Dr. J. E.	Kanode, A. H.	Williams, D. A.
Cochran, C. P.	O'Brien, Richard	Kerner, M. H.	Williams, J. S.
Cole, George	Orton, A. W.	King, Thomas M.	Wilson, Col. Wm B.
Cruise, J. D.	Palmer, C. H.	Kettles, William E.	Wilson, Ellis J.
Culbertson, C.	Parsons, James K.	Knapp, S. B.	Winder, A.
Darlington, H. P.	Parsons, J. W.	Knittle, Joseph	Wintrup, J.
David, Capt. T. B. A.	Peel, E.	Korty, L. H.	Wolff, C. C.
Davis, Samuel	Perdue, L. Ford	Laird, T. A.	Woodring, W. H.
Dealv, W. J.	Pettit, J. E.	Lewis, W. T.	Woodward, B. F.
De Bree, N.	Phelps, Ransom	Lonergan, John	Woodward, W. R.
Dennis, L. B.	Plum, H. W.	Long, F. C.	Wood, William
Dixon, J. R.	Plum, W. R.	Ludwig, D. I.	
Dougherty, C.	Pond, Chester H.	Ludwig, J. F.	
Dougherty, A. D.	Powers, Richard		
Douglass, Charles	Richard, A. Pinkerton		
Doyle, P. C.	Railton, G. W.		
Duncan, F. H.	Rawlins, T. E.		
Eckert, Gen. T. T.	Reese, Samuel		
Eitemiller, George M.	Robinson, B. L.		
Elliot, R. H.	Robinson, J. H.		
Evans, Frank H.	Robinson, Merritt F.		
Farnham, G. M.	Robinson, S. L.		
Ferris, D. V.	Rose, L. A.		
Fish, E. G.	Rumsey, S. B.		
Fitch, D. H.	Ryan, Crosby J.		
Flagg, J. A.	Sanburn, F. A. H.		
Freeland, J. W.	Safford, A. G.		
Fonda, T. H.	Schnell, Joseph, Jr.		
Fuller, J. A.	Schnell, Thaddeus		

Among the members of the United States Military Telegraph Corps who died during the year past were: Martin Barth, Cornelius Dwyer, J. D. Flynn, Matthew Gordon, W. S. Logue, E. Rosewater and L. A. Somers.

United States Circuit Judge F. E. Baker, at Goshen, Indiana, on August 31, rendered his decision in the Western Union Telegraph Company vs. the State Board of Tax Commissioners, denying the temporary injunction. At its recent sitting the tax commissioners fixed the assessment against the telegraph company at \$69 a mile. The company objected to this amount, contending that this was an excessive assessment. Suit was brought for an injunction, insisting that \$32 a mile would be ample valuation of the company's property per mile in Indiana.

Reunion of the Old Time Telegraphers' and Historical Association and the Society of the United States Military Telegraph Corps.

The Old Time Telegraphers' and Historical Association, jointly, as is the custom, with the Society of the United States Military Telegraph Corps, will meet in Washington, D. C., for their twenty-sixth annual reunion on the days of Tuesday, Wednesday and Thursday, October 9, 10 and 11. The twentyfifth (or silver anniversary, was celebrated last year in New York, and now that the days of youthfulness having past these closely allied associations, in which long memories are gathering, are pursuing their way with the dignity and wholesoulness becoming to more mature years.

It is particularly appropriate that the coming meeting should be held in Washington, the home of the wonderful art which has done so much to civilize the world and bring nations within closer touch. Washington was the scene of the operations of the first practical telegraph ever built and operated, and where Professor Morse planned and worked and experimented, until at last the wonderful achievement was recorded in the simple message, "What hath God wrought."

The headquarters of the two associations will be at the Arlington Hotel, Lafayette Square, near the White House, and this hostelry will be the scene of more reunions than are contemplated in the programme when those who have worked over miles of wire come together face to face, many old time wire friends meeting for the first time in person though familiar and well acquainted with each other while separated by immense distances.

No place in the United States is so close to the telegraph as the city of Washington. It is the right arm of the government in peace as it was in war, and it would be a difficult matter to carry on the government without its aid. Indeed, when the telegraph fails, for any reason, business of all kinds is practically at a standstill.

The local committees in anticipation of the coming of the telegraphers, have been indefatigable in making arrangements providing for the reception, entertainment and pleasure of their visitors. A splendid programme has been worked out. This is as follows:

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

A most enjoyable feature will be the reception to the telegraphers to be accorded by President Roosevelt at the White House. This will occur

at twelve o'clock, noon, on Wednesday, October 10, guests assembling at eleven o'clock. At one o'clock a trip to Mount Vernon will be made. In the evening a visit is planned to the Congressional Library.

On Thursday, October 11, the purpose is to begin the day at ten o'clock by a sight-seeing trip about the city in automobiles, while the afternoon will be devoted to inspecting the Corcoran Art Gallery, the Washington Monument, the National Museum, and possibly the Capitol. In the evening the concluding feature of the reunion will occur, namely, that of the banquet at the Arlington Hotel. This will be a subscription dinner and a charge of \$2 will be made for each person attending the affair. At this function a patriotic song will, it is expected, be sung, the words and music of which were written especially for the occasion, by Marion H. Kerner, of New York, and entitled "Twas a Boy That Swung the Key. Here are the words:

'Twas a Boy, That Swung the Key.

When our country was in danger of destruction,
And Fathers, Sons and Brothers stood as foes,
When North and South were threatened with
disruption,

And war clouds thickened fast as they arose,
A speedy call "To Arms" aroused the nation,
Whose loyal sons would save her unity,
When our President sent forth his proclamation,
'Twas a Boy, a loyal Boy, that swung the key.

Chorus.

'Twas a Boy, a loyal Boy, that swung the key,
That led a nation safe to victory,
Let his mem'ry never perish,
May a grateful country cherish,
The Boy, the loyal Boy that swung the key.

While Statesmen gathered close in contemplation,
Our Soldiers in their tented camps prepared,
To sacrifice their lives to save the Nation,

If foes its dissolution ever dared,
But when, from Sumter came the declaration.

That war alone shall solve our destiny,
The thrilling news was flashed to all the Nation,
By a Boy, a loyal Boy, that swung the key.

From Appomattox came another declaration,
"Secession shall forever be buried be,"

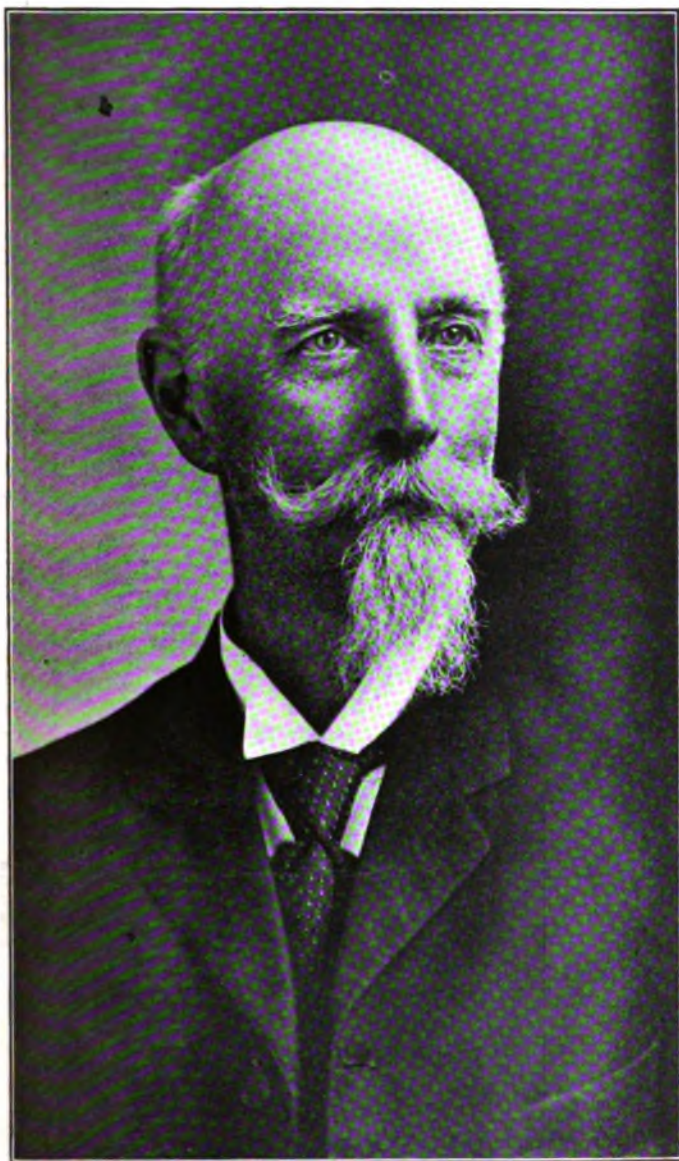
The Union is cemented as a Nation,
The hand of Grant is nobly grasped by Lee.
Thank God! the struggle's over and "Old Glory"
Waves proudly over land and o'er the sea,
'Twas a Boy that gave the world the joyful story,
'Twas a Boy, a loyal Boy, that swung the key.

While the societies named carry on their lists of membership many who are active still in the telegraph service, there are also many who have gone out therefrom but who retain their places on the roll, held thereto because of love of old associations. For a peculiarity of the telegraph business is that throughout life despite all changes of occupation, it successfully hold the affections of its one time followers. To these societies be-

long many prominent men of this country, embracing such names as Andrew Carnegie, Thomas A. Edison, Col. R. C. Clowry, president and general manager of the Western Union Telegraph Company; General Thomas T. Eckert, who was Assistant Secretary of War in the days of President Lincoln and who had much to do with perfecting the military telegraph at that time; Clarence H. Mackay, president of the Postal Tele-

water, editor of the Omaha "Bee", a member of the Military Telegraph Corps, and chairman of the executive committee of the society.

Mr. William H. Young, of Washington, president of the Old Timers, will probably bring up for consideration at the business meeting of the association a proposition providing that the officers and executive committee be elected to serve for three years instead of one as now. He be-



WILLIAM H. YOUNG, WASHINGTON, D. C.
President Old Time Telegraphers' and Historical Association.

graph-Cable Company; D. H. Bates, former president of the Baltimore and Ohio Telegraph Company; L. C. Weir, president of the Adams Express Company and an innumerable host of others.

A number of deaths have occurred since the meeting of a year ago, one of the most distinguished to pass away being Edward Rose-



CHARLES P. ADAMS, WASHINGTON, D. C.
Vice-Pres. Old Time Telegraphers' and Historical Association.



G. W. RIBBLE, WASHINGTON, D. C.
Vice-Pres. Old Time Telegraphers' and Historical Association.

believes that such an arrangement would confer a greater degree of solidarity upon the association itself, and that its influence would be felt in making it stronger historically and fraternally, and at the same time be the means of securing the diversion of some portion of the funds now spent yearly toward the establishment of a permanent headquarters.

The various committees are made up as follows:

Committee on Finance—Wm. H. McKeldin, chairman; J. J. Mooney, secretary; T. T. Moore, J. B. Austin, J. T. Bresnahan, P. A. Simpson, F. P. Oliver, R. R. Gibbs, W. J. Lee, R. B. Dickey, George L. Diven, C. C. Mothersead, J. R. Brown, Charles H. Mixer, J. B. Mulloy and M. DuPerow.

Committee on Entertainment—J. T. Bresnahan, chairman; T. T. Moore, E. W. Emery, J. W. Collins, R. B. Dickey, H. W. Dowling, J. C. Simpson,

M. DuPerow, J. F. Hahn, P. A. Simpson and Joseph G. Trunnell.

Reception Committee—Hon. P. V. DeGraw, chairman; General James Allen, General H. H. C. Dunwoody, F. A. Munsey, Charles E. Kern, W. B. Wilson, Charles A. Boynton, Colonel B. F. Montgomery, W. T. Bingham, E. L. Keen, Wal-



JAMES B. YEAKLE, BALTIMORE,
Vice-President Old Time Telegraphers' and Historical Association.



JOHN C. BARCLAY, NEW YORK,
Member of Executive Committee.

J. H. Anderson, Robert H. Prender, John LaGorce, C. O. Pierson, W. H. Rowland, George Coombs, J. P. Gooch, C. E. Ingling, J. A. Rodier, W. H. Potter, J. R. Brown, W. W. Trail, Martin Kain, W. J. Hughes and R. R. Gibbs.

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ter C. Allen, Commander E. E. Hayden, U. S. N., A. N. Breckenridge, J. A. Kemp, E. M. Hood, A. G. Davis, M. W. Barr, Joseph B. Tree, Charles Selden, George E. Gilliland, A. H. Kanode, R. W. Bender, E. C. Stewart, Dr. Z. I. Nutt, J. J. Vowles, A. J. Henry, Charles E. Daly, J. F. Riley, William H. Allen, D. F. Brown, N. R. Young, Dr.



JOHN BRANT, NEW YORK,
Secretary and Treasurer Old Time Telegraphers' and Historical Association.



CHARLES C. ADAMS, NEW YORK,
Member of Executive Committee.

E. W. Emery, J. W. Collins, T. T. Moore, Martin Kain and Charles Mothersead.

Committee on Badges—P. E. Brown, chairman;

J. J. Clark, Charles H. Mixer, Wm. E. Peirce, Samuel Perrin, J. F. Connor, A. B. Talcott, Frank G. Adams, D. D. Kennedy, Charles S. King, D. W. Daly, Wm. B. Harvey cutter, A. J. Lombard,

E. F. Marean, P. L. Parker, Jules Guthridge, E. Cadmus, M. Brick, J. C. Noyes, J. J. Howley, Edward Bradshaw, J. D. Prosser, Martin Kain, J. B. Mulloy, J. R. Hewitt, W. H. Rowland, J. P.

chairman; Mrs. R. G. Callum, Mrs. H. F. Taff, Mrs. J. C. Noyes, Mrs. J. F. Connor, Mrs. E. W. Emery, Mrs. P. E. Brown, Mrs. E. C. LaGorce, Mrs. C. C. Mothersead, Mrs. J. T. Bresnahan,



URIAS J. FRY, MILWAUKEE.
Member of Executive Committee.



HENRY F. TAFF, WASHINGTON, D. C.
Member of Executive Committee.

Gooch and J. G. Trunnell.

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Committee on Press and Printing—J. B. Austin, chairman; H. H. Fry, C. S. Albert, J. D.

Mrs. J. D. Prosser, Mrs. J. P. Gooch, Miss E. M. Hall, Miss A. E. Forrester, Miss N. G. Strong, Miss V. G. Merks, Miss K. L. Tucker, Mrs. R. M. Johnson, Mrs. A. G. Guthridge, Miss C. F. Marean, Mrs. J. J. Mooney, Mrs. C. P. Adams, Miss Mamie Young, Miss Blanche Young, Mrs.



G. H. CORSE, OGDEN, UTAH.
Member of Executive Committee.



HON. P. V. DE GRAY, WASHINGTON, D. C.
Member of Executive Committee.

Thompson, J. R. Brown, W. M. Patton, W. J. Costello, T. J. Luckett and Hugh J. Senter.

Ladies' Reception Committee—Mrs. P. V. DeGraw, chairman; Mrs. W. H. McKeldin, vice-

H. W. Dowling, Mrs. C. E. Ingling, Mrs. J. A. Rodier, Mrs. E. W. Smithers, Mrs. J. H. Anderson, Mrs. W. H. Rowland, Mrs. D. W. Daly, Mrs. Maurice Brick, Mrs. N. B. Kelsner, Miss K. E. Clopp, Mrs. M. G. Milburn, Miss G. Fitzsimmons, Miss B. M. Barrett, Miss Rose Callan, Mrs.

F. C. Duffy, Miss A. V. Tenly, Miss S. McDuffie, Miss Anita Grosscup and Mrs. J. F. Riley.

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lves, vice-president, New York; J. E. Pettit, secretary and treasurer, Chicago. Executive Committee—A. H. Bliss, W. R. Plum, Chicago; Col. A. B. Chandler, R. B. Hoover, M. H. Kerner,



GEORGE C. MAYNARD, WASHINGTON, D. C.
Member of Executive Committee.

dent, Washington; Charles P. Adams, vice-president, Washington; G. W. Ribble, vice-president, Washington; James B. Yeakle, vice-president, Baltimore; John Brant, secretary and treasurer, New York. Executive Committee—John C. Bar-



ERNEST W. EMERY, WASHINGTON, D. C.
Member of Executive Committee.

clay and Charles C. Adams, New York; U. J. Fry, Milwaukee, Wis.; George H. Corse, Ogden, Utah; Henry F. Taff, P. V. DeGraw, George C. Maynard, Ernest W. Emery and Jesse H. Robinson, Washington, D. C.

Officers of the Society of the United States Military Telegraph Corps—Col. Wm. B. Wilson, president, Holmesburg, Philadelphia; Wm. L.



JESSE H. ROBINSON, WASHINGTON, D. C.
Member of Executive Committee.

New York; George C. Maynard, Washington; I. D. Cruise, Kansas City, Kan.; John Wintrup, Philadelphia.



R. G. CALLUM, WASHINGTON, D. C.
Chairman Hotel Committee.

SOMETHING ABOUT WASHINGTON.

Of Washington, the seat of government, much might be written descriptive of its history, of its beauty and of its importance as the capital city of the nation. Space will permit of but a brief reference to a subject that might well fill columns. Those who are not personally familiar with the city, when visiting it for the first time

will be impressed by its broad and splendidly-paved streets, by its magnificent trees that shade perfectly every residential thoroughfare, and by

mile up Pennsylvania avenue from the capitol, and the numerous other public buildings are scattered widely over the city, and afford supe-



W. M. MCKELDIN, WASHINGTON, D. C.
Chairman Finance Committee.



W. L. IVES, NEW YORK,
Vice-President, Society of the United States Military Telegraph Corps.

the refinement that seems to pervade the very atmosphere. Then the magnificent public buildings will engage the attention of the visitor, the capitol, of course, with its vast dome, towering aloft over 300 feet to the top of the statue of Liberty, easily coming first, for this great struc-

rior examples of architectural construction, many of which may be considered as of individual types. Washington is the home of a large leisure class, of artists and literati. It is also cosmopolitan to a high degree, for its population is not only drawn from all points of the United States, but



COL. W. B. WILSON, PHILADELPHIA,
President, Society of the United States Military Telegraph Corps.



J. E. PETTIT, CHICAGO,
Secretary and Treasurer, Society of the United States Military Telegraph Corps.

ture, 721 feet long, is not surpassed in grandeur of architectural beauty and strength of character by any building in the world. The White House, the home of the President, is distant about a

from every civilized nation as well, for all have their numerous representatives here.

Washington was selected as the site for the federal capital in 1790, the ten miles square orig-

inally contained in the District of Columbia being ceded by the states of Maryland and Virginia. The portion contributed by the latter was in late years retroceded to the state which gave it. The plan of the city is regular and symmetrical and was designed by Major l'Enfant, a Frenchman, and in the recent improvements inaugurated in the city the ideas of its originator have been closely adhered to. It was a wise conception, for in the provision for its future development the element of beauty and attractiveness of detail was carefully thought out. Not only this, but the laying out of the city followed closely a plan that would permit of its easy defense. Radiating from the capitol are three streets, running north, south and east, and known, respectively as North, South and East Capitol. These, together with a line of public parks running west from the capitol, divide the city into quarters known as northwest, northeast, southeast and southwest. The intersection of the streets and avenues have given opportunity for the construction of many small parks of odd shapes and sizes, all contributing to the picturesque charm and healthfulness of the city. While the older portion of the city is built on comparatively low ground, the newer outlying parts and the immediate suburbs, particularly to the northward, are situated delightfully on high grounds.

The location of Washington on the Potomac river, at the head of navigation, is distant 106 miles from Chesapeake Bay. The city is under the immediate control of the United States government, its management being invested in the hands of three commissioners appointed by the President, two resident civilians and one army officer of the corps of engineers. The population of Washington in 1900 was 278,718, since which time its growth has been rapid.

SKETCHES OF SOME OF THE MEMBERS OF THE OLD TIME TELEGRAPHERS' AND HISTORICAL ASSOCIATION AND OF THE SOCIETY OF THE UNITED STATES MILITARY TELEGRAPH CORPS.

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 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, its 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 foreign or allied thereto.

GEORGE J. GOULD.

George J. Gould of New York, a vice-president, director and member of the executive committee of the Western Union Telegraph Company, the former position of which he has held since September 10, 1884, is a son of the late Jay Gould,



GEORGE J. GOULD.
New York.

and the largest owner of the company's stock, was born in New York, February 6, 1864. It will doubtless surprise many to know that Mr. Gould is a practical telegrapher, yet such is the fact. Although a man interested in vast enterprises, pre-eminently a man of business, he nevertheless possesses a genial nature, is kindly in his manner and characteristically just.

COL. ROBERT C. CLOWRY.

Col. Robert C. Clowry, president and general manager of the Western Union Telegraph Company, New York, is a commanding figure in the telegraphic world. Having risen through all grades of the service from the humble position of messenger in 1852, out at Joliet, Ill., of the Illinois and Mississippi Telegraph Company, to the presidency of the great company he has served for half a century, it would be strange indeed, viewed from the record he has made for conscientious work, if he did not possess a knowledge at once profound and extensive of the property he has been called upon to manage. Since he has attained the presidency of the company

the reserve strength of the man has been made more clearly apparent, for he has shown himself to be a person of keen perceptions, of wide information, and holding a grasp of the detailed affairs of his company of a character not often attained by a chief executive officer of any great corporation. His record in the military telegraph service in the west during the Civil War was highly meritorious, and there it was that he earned his title of colonel. His record of service in the Western Union Telegraph Company shows a swift upward climb, which began in 1866, practically co-equal with the establishment of the company itself, with his appointment as district superintendent of the company's lines in the southwest, with headquarters at St. Louis. His familiarity with all sections of the company's



COL. ROBERT C. CLOWRY.
New York.

property, acquired through years of personal inspection, together with an extensive speaking acquaintance among the vast working forces of the corporation, are advantages manifest in his administration and of great practical value.

CLARENCE H. MACKAY.

Clarence H. Mackay, New York, president of the Postal Telegraph-Cable Company, as well as of the several Commercial cable interests, 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.



CLARENCE H. MACKAY.
New York.

WILLIAM H. BAKER.

William Henry Baker, vice-president and general manager of the Postal Telegraph-Cable Company, New York, has demonstrated successfully his capacity to preside over the destinies of a great telegraph company. This fact shows an inherent ability, a power of adaptation vouchsafed to but few men who have not grown up and developed in a given business, but which nevertheless has been a conspicuous feature in Mr.



WILLIAM H. BAKER.
New York.

Baker's career. Yet it should be said that under an early tutelage of such men as Col. A. B. Chandler and Gen. Thomas T. Eckert as telegraphers, and the late Edward C. Cockey, as an accountant, who were instrumental in the initial

shaping and development of the youth Baker, much depends. Such associations naturally led him into telegraphy, and thus it was in early life he served both the Western Union and the Atlantic and Pacific telegraph companies, becoming secretary of the latter. Nevertheless, he quit the telegraph field for other occupations, at one time, indeed, holding a seat on the New York Stock Exchange. His eventual return to telegraphic work, however, was accomplished by the personal solicitation of Col. Chandler, his employer of former years, and then president of the Postal Telegraph-Cable Company, who secured Mr. Baker's services by tendering him a vice-presidency in the company, and who recognized in the new incumbent a man whom he believed to be eminently well fitted to discharge the duties of such a position. This was in 1889. How accurately Col. Chandler passed judgment is abundantly verified in the fact that Mr. Baker has since become ranking vice-president and general manager of the company. Mr. Baker's engaging personality, his close acquaintance with the details of the telegraph business, coupled with excellent judgment, enabling him to pass quickly upon questions coming before him for decision, together with a personal friendliness for the rank and file of the service, combine to give him an enviable standing in telegraph circles.

COL. A. B. CHANDLER.

Col. Albert B. Chandler, chairman of the Board of Directors of the Postal Telegraph-Cable Com-



COL. A. B. CHANDLER.
New York.

pany, New York, has made a distinct impress on telegraph life in America and in its upbuilding he has been a largely responsible factor. He was born at West Randolph, Vermont, August 20, 1840, and has been in the telegraph harness from his boyhood days in the fifties. A man of acumen, well born of broad and varied ex-

perience, cultivated tastes and intellectual charm, the education of his life has been such as to fit him for the conduct of large enterprises. To these he has brought a practical mind and ripe judgment. As a cipher operator when a young man in the service of the United States Military Telegraph in the War Department at Washington during the Civil War, Mr. Chandler naturally came in contact with prominent, forceful and authoritative men of affairs. The influences by which he was surrounded contributed to strengthen self-confidence and faith in his own inherent abilities, so that when later he took his place in the world he was in a measure well equipped to fight its battles and earn for himself a rightful place therein. He found his destined place in the telegraph. His extensive acquaintance with telegraph men and the telegraph business caused him to be looked upon as an authority and led him to be consulted and employed frequently by telegraph owners in matters pertaining to the development of telegraph property. His introduction into the Postal service need not be dwelt upon at this time. It followed in natural sequence to his relations with the late John W. Mackay.

PETER WEITZ.

Peter Weitz, who is the agent for the United States Express Company at Johnstown, Pa., is a native of that state having been born at Mahoningtown, July 10, 1857. When not quite fifteen years of age, May 2, 1872, he became connected with the telegraph at Penn Station, Pa., soon thereafter being advanced to the post of that of an operator in the service of the Pennsylvania Railroad, a position he held until 1877. He served as agent and operator for the Allegheny Valley Rail-



PETER WEITZ.
Johnstown, Pa.

road until 1880, quitting which to become for the next few years a train despatcher for the Baltimore and Ohio Railroad. After this he was located at Johnstown where for eleven years he was agent, accepting his present position when the United States Express Company took over the express business of the Baltimore and Ohio road.

ANDREW CARNEGIE.

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



ANDREW CARNEGIE,
New York

the Old Time Telegraphers' Association. 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.

THOMAS A. EDISON.

Thomas A. Edison is another brilliant telegrapher who, having graduated long since from the key, still retains not only his old love for telegraphy, but his old regard for telegraphers as well. It would be superfluous at this time and under these circumstances to recount the nature, extent

and value of Mr. Edison's inventions. It is sufficient to say that they have accomplished vast results in the promotion of telegraphy and in the



THOMAS A. EDISON,
Orange, N. J.

advancement of electrical science. Not yet sixty years of age, for he was born at Milan, O., February 11, 1847, it is to be hoped that he may be spared yet many years, and that the future may add not alone to the number of his inventions, for all that he discovers is valuable to human want and progress, but also to his well-being and happiness.

ORRIN S. WOOD.

Orrin S. Wood, the oldest living telegrapher, the dean of the profession in America, if not in



ORRIN S. WOOD,
New York.

the world, in fact, the first "Old Timer," needs no introduction in the columns of TELEGRAPH

AGE, for his unique and honorable position in telegraphy has secured for him abundant mention, and he enlists the respect and affection of telegraphers everywhere. Mr. Wood was born at Sherburne, N. Y., December 14, 1817, and is, therefore, nearing his eighty-ninth birthday. He entered the telegraph service at Washington, D. C., in August, 1844, and was an operator in the capital for seven months. He built the first telegraph line between New York and Philadelphia and opened the first telegraph office in New York at the corner of Hanover street and Exchange place, in 1845. The same year he built a line between Albany and Buffalo, and in 1847 built and opened lines between Niagara Falls, Toronto, Montreal and Quebec. He was superintendent of the Montreal Telegraph Company from 1847 to 1866, after which date he joined the Hon. Z. G. Simmons, of Kenosha, Wis., and rebuilt all lines northwest of Chicago. Shortly after he turned over all of these reconstructed lines to Jay Gould, which later were included in the system of the Western Union Telegraph Company. He accomplished much in behalf of the telegraph, and retiring at this time from active business, Mr. Wood has since lived a quiet life in New York, spending much of his time in his country home.

DAVID HOMER BATES.

David Homer Bates, who is now connected with the Singer Sewing Machine Company, New York, attained distinction as a telegrapher, an oc-



DAVID HOMER BATES.
New York.

cupation he followed many years. He was born at Steubenville, Ohio, July 3, 1843, and received his education at Pittsburg. He early learned to telegraph, and his entry into the service as an operator was March 11, 1859, in the employ of the Pennsylvania Railroad at Pittsburg. At the outbreak of the Civil War he was in the office of Col. Thomas A. Scott at Altoona, Pa., who ordered him to Washington. Accompanying young Bates was

David Strouse, who was the first superintendent of the United States Military Telegraph Corps; Richard O'Brien, who is now superintendent of the Western Union Telegraph Company at Scranton, Pa., and Samuel M. Brown, all of whom arrived at Washington seven days after Fort Sumter was fired upon, and who formed the nucleus of the United States Military Telegraph Corps. Messrs. Bates and O'Brien are the only survivors of this original quartette. Mr. Bates saw but limited service in the field, his duties in the War Department telegraph office keeping him closely confined to that position, where his record as a cipher operator is well known, and in connection with which many interesting and thrilling incidents might be related. At the close of the war Mr. Bates was appointed manager of the Consolidated American and Western Union Telegraph office at Washington, from which in 1875 he went to the Atlantic and Pacific Telegraph Company, there remaining until 1879. In that year the American Union Telegraph Company was started with Mr. Bates as president, later becoming vice-president when General Eckert took charge of affairs, January 1, 1880. The consolidation of this company with the Western Union Telegraph Company, of which General Eckert was made general manager, gave Mr. Bates the position of assistant general manager and acting vice-president on January 1, 1884. Mr. Bates later became president of the Baltimore and Ohio Telegraph Company, holding this place until October, 1881, when it passed into the control of the Western Union. This terminated Mr. Bates' telegraphic career. Since that period he has been identified with a number of interests, one being the Gamewell Fire Alarm Telegraph Company, of which he was vice-president; another, association with Bradstreet's Mercantile Agency and his present connection with the Singer Sewing Machine Company.

COL. JAMES R. GILMORE.

Col. James Ross Gilmore, U. S. A., retired, of Chambersburg, Pa., where he was born, was a volunteer in the United States service in 1861, and became an assistant in the United States Telegraph Corps. He assisted in building all the telegraph lines that connected the military camps with the capital; had charge of the first outpost office established in the army, and became superintendent of the corps in July, 1861. In the summer of 1862 he volunteered as a private and with the exception of temporary employment in the War Department at Washington, saw continuous active duty in the field in the Virginia campaigns and afterwards in the South. After his appointment as captain of volunteers he served respectively on the staffs of Generals Foster, Q. A. Gillmore and Sherman, with the latter of whom he was at the siege and capture of Savannah. He also took part in the siege and capture of Charleston. Captain Gilmore was mustered out of the

service in November, 1866. with the brevet rank of major and lieutenant colonel. Almost immediately he again entered the army, serving in the engineer department under General Gillmore, in connection with the rebuilding of the fortifications at New York, on the South Atlantic coast and in river and harbor improvements, his connection with Gen. Gillmore lasting from 1866 to 1888. From 1888 to 1902 he was detailed to duty on river and harbor improvements on the eastern shore of Lake Michigan with headquarters at Detroit. Since the latter year Col. Gillmore has been living in retirement. He takes an interested and active part in the local affairs of his town, where he is much respected. He is a member of the



COL. JAMES R. GILMORE,
Chambersburg, Pa.

New York Commandery of the Military Order of the Loyal Legion of the United States, and of George Washington Post, No. 103, G. A. R., New York city. He is also a member of the Army and Navy Club, New York, the Union of the Titans, New York, the United Service Club, Philadelphia, the Society of the Army of the Potomac, as well as of other organizations.

JOHN F. LUDWIG.

John Frederick Ludwig, agent and operator of the Santa Fe, Prescott and Phoenix Railway Company, at Puntenney, Vavapai County, Ariz., is a native of Nepzin, Prussia, where he was born November 3, 1844. He became connected with the telegraph service as a messenger boy at La Porte, Ind., in 1858. Learning telegraphy he became an operator for the Lake Shore and Michigan Southern Railway from 1859 to 1864, and in July of the latter year he joined the United States Military Telegraph Corps, remaining in that service until the close of the Civil War. At Athens, Tenn., in the following October Mr. Ludwig together with J. E. Pettit, now chief operator of the Postal Telegraph-Cable Company, Chicago, and

secretary and treasurer of the Society of the United States Military Telegraph Corps, suffered capture by the rebels, and while so held both men worked what was known as the "Flag of Truce" line. For this service Messrs. Ludwig and Pettit



JOHN F. LUDWIG,
Puntenney, Ariz.

were later given an unconditional release as prisoners of war. Mr. Ludwig saw considerable further service in the South extended as far as Texas from which in the fall of 1866 he returned to his home in Indiana. From 1868 to 1891 Mr. Ludwig was manager of the Western Union office at Burlington, Iowa, and in 1894 had charge of the same interests at Ash Fork, Ariz., and later of the Prescott office, accepting his present position in August, 1896.

JAMES N. WORL.

James Norris Worl, formerly well known in telegraph circles, who resides at Westfield, N. J.,



J. N. WORL,
Westfield, N. J.

was born in Philadelphia April 15, 1833. His first telegraph employment was in May, 1848, when he became a message clerk and placed in

charge of the batteries in the office of the Magnetic Telegraph Company in his native city. He became an operator in the year following. In 1853 he was appointed manager at New Hope, Pa., relieving James Merrihew, who afterward became general superintendent of the Western Union Telegraph Company, at New York. After a brief return to Philadelphia, he was transferred to the New York office at 5 Hanover street; once again going back to Philadelphia, where he remained as an operator until 1859, when he was transferred to the Baltimore office, a position he retained until 1862. At the latter date he was appointed manager and superintendent of the Independent Telegraph Company, a new opposition line extending from Portland, Me., to Washington, D. C. It was at this time that his sensational arrest by the government occurred for alleged complicity in the bogus Presidential proclamation, which was afterwards traced to Joseph Howard, Jr.. He then organized and became the president of the Western Maryland Telegraph Company, extending from Baltimore, westward. In 1865 he constructed and introduced the first private telegraph line to connect business offices, etc., in Baltimore and Philadelphia, the construction of which he continued until the introduction of the telephone. In 1866 he organized and promoted the Baltimore Local Telegraph Company. In 1867, in conjunction with his brother, W. S. Worl, he secured a special grant from Congress giving his company, the American Atlantic Cable Company, the exclusive right for twenty years, to land ocean cables on the Atlantic coast, under which 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. In 1870 Mr. Worl engaged in the business of manufacturing Portland cement, and in 1904 retired permanently from business.

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JOHN M. CARNAHAN.

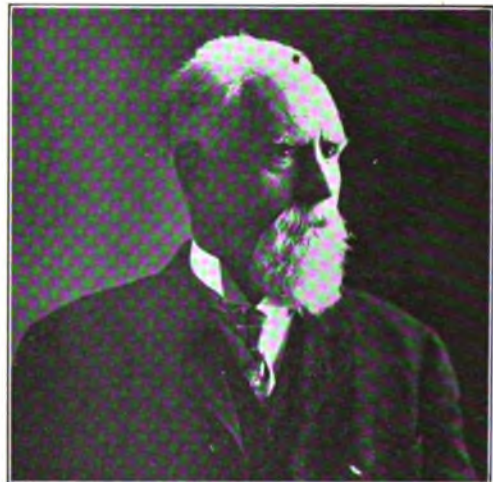
John Mitchell Carnahan, manager of the Western Union Telegraph Company, at Missoula, Mont., a position he has held since 1890, is a native of Ohio in which state he was born at Blanchester, October 1, 1849. His date of entry into the telegraph service was in 1863, at Athens, O. Subsequently he became an operator first in Cincinnati, and afterwards at Nashville, Tenn. From 1868 to 1874 he held the position of manager at La Crosse, Wis., and from 1874 to 1881 he filled a similar post at Bismarck, North Dakota. Then for the following nine years he was engaged in other business, when he accepted his present position. On July 5, 1876, Mr. Carnahan was the first to furnish the news to the world of the Custer massacre, which occurred on June 26, on the Little Big Horn, Mont. Mr. Carnahan is the agent in Montana of the Telegraphers' Mutual Benefit Association of New York.



J. M. CARNAHAN.
Missoula, Mont.

GEORGE F. BROWN.

George Francis Brown, now retired and living at Ogden, Utah, is a type of a thrifty class of telegraphers. He was born at Rumney, N. H., March 1, 1847, and when but thirteen years of age was beginning his telegraphic career at Palmyra, Wis., in 1860, as an operator on the Milwaukee and Prairie du Chien Railway. His subsequent career from 1861 to 1869 saw him an operator for the Western Union Telegraph Company at Milwaukee and Indianapolis, and at Cheyenne and



G. F. BROWN.
Ogden, Utah.

Salt Lake City. Then from 1869 to 1871, he was chief operator for the same interests at Corrinne, Utah. Accepting the management of the Atlantic and Pacific Telegraph Company at Ogden, he retained the same for seven years, and then from 1878 to 1891 he was with the Central Pacific Railroad at the same point, first in the freight department and during the last five of these years as agent for the road. Mr. Brown's investments in real estate at Ogden have proved to be profitable, for they enabled him to retire from all business about ten years ago.

MICHAEL F. MAHER.

Michael F. Maher, the senior partner of the stock brokerage firm of Lithgow, Maher and Company, 16 State street, Boston, affords another example of the successful telegrapher. Born at Quebec, Canada, September 21, 1856, he entered the Western Union Telegraph Company service as a messenger in 1870 at Fall River, Mass. Speedily acquiring a knowledge of the dots and dashes, he became an operator, serving from 1874 to 1883, first at Fall River for the American Union Telegraph Company and afterwards for the Western Union at Boston, where he was manager of the Fish Bureau, Commercial Wharf. The strike of 1883 caused him to enter the brokerage field, and he became an operator for Tower, Giddings and Company, a position he held until 1900, when he embarked in business on his own account. Mr. Maher is a member of the Elks, of the Winthrop Yacht Club, the Dorchester Driv-



MICHAEL F. MAHER,
Boston, Mass.

ing Club, the Riding and Driving Club, and the Metropolitan Driving Club, all of Boston. To none of these societies, however, is he more loyal than to the Old Time Telegraphers' and Historical Association, in whose ranks so many of his telegraphic friends are enrolled.

CHARLES J. GLIDDEN.

Charles J. Glidden, the Boston millionaire, who has made his name famous by his numerous and extended motoring trips, encompassing the globe itself, is a native of Lowell, Mass., in which city, in 1871, he entered the telegraph service as a messenger boy, in the employ of the Franklin Telegraph Company. He afterwards became an operator in Boston for the Atlantic and Pacific Telegraph Company, subsequently becoming manager of the office at Manchester, N. H., for the same interests. Leaving the telegraph for the telephonic field, in which he speedily acquired large wealth, due to his ceaseless activities and rare business judgment, between the years 1877

and 1901, he was treasurer and president of no less than eight subsidiary companies of the American Bell Telephone Company. Of late years

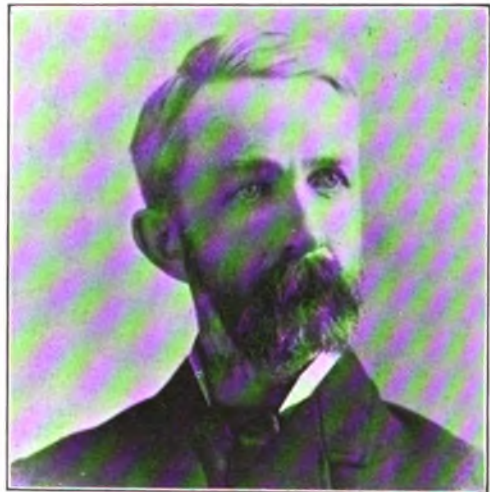


CHARLES J. GLIDDEN,
Boston, Mass.

Mr. Glidden's chief pleasure has been derived from his extensive automobile touring trips. These thus far have been extended to thirty-five countries, and cover a distance traveled of 33,600 miles. His next trip, having Mexico City for its objective point, will be unique in many particulars, inasmuch as after making the run from Boston to Chicago over the ordinary highway, the entire remainder of the journey, including that through Mexico, will be accomplished in his machine on railroad tracks.

SIDNEY B. GIFFORD.

Sidney Brooks Gifford, of Syracuse, N. Y., whilom superintendent of the Western Union



SIDNEY B. GIFFORD,
Syracuse, N. Y.

Telegraph Company, than whom but few have a more extended historical and reminiscent acquaintance with the telegraph, was born in the

city in which he resides September 9, 1836. His first telegraphic employment dates back well on towards sixty years, for, as he says, he "carried messages" in July, 1847. His regular entry, however, as a messenger boy was on May 15, 1850. With a natural bent for telegraphy, he soon acquired the art, and began his service as an operator for the New York, Albany and Buffalo Telegraph Company in his native town. In 1851 he was given charge of the office at Canajoharie, N. Y., thence going in the same capacity to Auburn. In September, 1852, now fifty-four years ago, he was transferred to the only office the company possessed in New York city, located at 2½ Wall street. He inaugurated the marine service at Sandy Hook in the spring and summer of 1853. He then returned to New York, but in 1854 was sent to Syracuse, where later he became chief operator and circuit manager of the Western division. In 1864 the company was absorbed by the Western Union, and Mr. Gifford was appointed district superintendent, a position he continued to hold until his retirement from the telegraph service, July 1, 1902. He is now living quietly at Syracuse, where he is held in high esteem by a large circle of friends and neighbors.

WALTER G. BROWNSON.

Walter G. Brownson, of Toledo, O., who now is at the head of the Electro-Chemical Ring Company, that city, was born at Monticello, N. Y., February 7, 1837. His first experience in the



W. G. BROWNSON,
Toledo, O.

telegraph service was as a messenger at Poughkeepsie, N. Y. His telegraphic and subsequent career, until 1900, when he engaged in his present occupation, was passed in the railroad service. The positions held may be briefly summed up as follows: Operator, agent, train dispatcher, division operator for the Erie and Atlantic and Great Western; chief dispatcher and superintendent of telegraph of the Cleveland and

Pittsburg Railroad; superintendent of the Panhandle Railway; master of transportation of the Cairo and St. Louis Railroad; superintendent of the Clover Leaf Railroad; assistant superintendent of the Chicago and Northwestern Railway; superintendent of the Fremont, Elkhorn and Missouri Valley Railway; assistant superintendent of the Mobile and Ohio Railroad; superintendent of the floating equipment of the Central Railroad of New Jersey; general manager of the Charleston, Sumter and Northern Railway, and general manager of the Santee Construction Company.

DANIEL COLESTOCK.

Daniel Colestock, a retired telegrapher, of Titusville, Pa., was born in Columbiana County, Ohio, September 29, 1843, and entered the telegraph service at Bayard Station, O., on the line



D. COLESTOCK,
Titusville, Pa.

of the Cleveland and Pittsburg Railroad in 1858. In 1861 he became a member of the United States Military Telegraph Corps, in which he served throughout the Civil War. The American Telegraph Company furnished him employment until 1866, after which he was with the Western Union Telegraph Company until 1889.

CHARLES J. CHRISTIE.

Charles J. Christie, of Cincinnati, is another telegrapher who is meeting with success since he abandoned the service attaching to the dot and dashes. He was born at Xenia, O., December 21, 1864, and entered the telegraph service at that point in 1879. From 1879 to 1884 he was an operator for the Western Union Telegraph Company, subsequently serving The Associated Press until 1889. Entering journalism, from 1889 to 1896 he was connected with the Cincinnati Enquirer, first as a reporter and afterwards as

editor, when he became managing editor of the Cincinnati Commercial Tribune, a position he continued to hold until 1900. Leaving the newspaper field he became secretary to Mayor Fleisch-



CHARLES J. CHRISTIE,
Cincinnati, O.

mann of Cincinnati, and vice-mayor of that city from 1900 to 1903, when he accepted the assistant secretaryship of The Fleischmann Company, where he now is.

STEPHEN E. BARTON.

Stephen E. Barton, now extensively engaged in the fire, marine and casualty insurance at Boston, as a member of the firm of Starkweather and Shipley, 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,



STEPHEN E. BARTON,
Boston, Mass.

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 afterwards 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 at Boston and at Worcester. 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."

GEORGE A. HAMILTON.

George Ansin Hamilton, electrician of the Western Electric Company, New York, was born at Cleveland, O., December 30, 1843. His tele-



GEORGE A. HAMILTON,
New York

graphic career began as a messenger boy at Salem, O., in 1860. Subsequently he served as lineman, operator, chief operator, manager, electrician and electrical engineer in both the railroad and commercial services. From 1873 to 1875 he was engaged with Prof. Moses G. Farmer at Boston in conducting experimental work and in the manufacture of dynamos. He will be more especially remembered here in New York between the years 1875 and 1880, first as the assistant and afterward as electrician for the Western Union Telegraph Company. It was his good name and enviable reputation as an electrician that took him out of the telegraph and into other employ. Mr. Hamilton's excellent work in his present office during the last nearly eighteen years has served but to strengthen the high estimate that was early placed upon his abilities as an electrician.

DAVID R. DOWNER.

David Robinson Downer, who is engaged in the gold and silver refining business at Newark, N. J., and whose home is near by in the outlying suburb of East Orange, is a native of the city of New York, where he was born November 15, 1839. His first connection with the telegraph was in the employ of the Delaware, Lackawanna and Western Railroad at Montrose Station, Pa. This was in 1866. For eighteen years he continued in the telegraph service, railroad and commercial, finally leaving the Western Union in April, 1884, resigning his position as assistant manager at 195 Broadway, New York, his brother, A. S. Downer, for some years previous being the manager, to enter his present business. Mr. Downer has prospered and has amassed



DAVID R. DOWNER,
Newark, N. J.

a competency. His friendly regard for his telegraphic friends of other days has never abated, for, as he himself says, "Although I have been away from my old telegraph friends for so long a time I retain the warmest recollections of friendship for those with whom so many years of my life were spent."

WILLIAM A. HUFF.

William Augustus Huff, of Greensburg, Pa., was born at Altoona, that state, January 21, 1856. He learned telegraphy, entered the employ of the Pennsylvania Railroad Company in 1872, and served as an operator for a number of years at various points along that line between Pittsburg and Harrisburg. For a number of years Mr. Huff has been engaged in the banking business at Greensburg, now occupying the position of secretary and treasurer of the Safe Deposit and Trust Company of that place. He has other important business connections, being identified with coal and glass interests; holding a directorship in the First National Bank of Hollidaysburg, Pa., besides being president of

the Westmoreland Water Company, of Greensburg; president of the Irwin Water Company, of Irwin, Pa., and president of the Derry Water



WILLIAM A. HUFF,
Greensburg, Pa.

Company, of Derry, Pa. Mr. Huff is a reliable and efficient bank officer, and has won for himself an enviable reputation for good judgment, correct business methods and financial ability.

JAMES HALLEY.

James Halley, of Rapid City, S. D., affords another example of the successful telegrapher, developed outside of the vocation originally selected in early life. Born in Stirling, Scotland,



JAMES HALLEY,
Rapid City, So. Dak.

January 7, 1854, and coming to this country in 1855, his boyhood was spent in Washington, D. C., where he became a telegraph operator in the employ of the Western Union Telegraph Company. He went to Dakota in 1876. Imbued with the genuine Scottish spirit of enterprise, he quit telegraphy in 1879 to accept the position

of teller in the First National Bank of Deadwood. The possibilities inherent in the banking business determined young Halley's future. Striking out for himself he organized the private banking house of Lake, Halley and Patterson, at Rapid City, the business of which was afterwards, in 1884, merged with that of the First National Bank, Mr. Halley being made cashier of the concern. In 1898 he succeeded to the presidency. Besides this office Mr. Halley is president also of the Harney Peak Bank and of the Bank of Hot Springs, all of which institutions are thriving under his direction. He is interested in other business enterprises in his section, has been twice Mayor of his city, a member of the state legislature, and otherwise takes an active part in all that makes for the civic advancement of the state and nation.

GEORGE W. ELLIOTT.

George W. Elliott, of the firm of George W. Elliott and Company, dealers in grain, hay, straw,



GEORGE W. ELLIOTT,
Sea Bright, N. J.

coal, wood, etc., at Sea Bright, N. J., is a telegrapher who left the service for commercial pursuits in 1891. He was born in Baltimore, Md., and for many years pursued the calling of a telegraph operator, entering the service at Chatsworth, N. J. During most of his telegraphic career, he served principally at points in New Jersey. He has met with success in his latter business and is a man much respected where he resides. For five annual terms he served his city as Mayor and won the respect and gratitude of his fellow citizens by his uncompromising honesty and ability displayed in overcoming corruption and reducing the city's indebtedness.

JOHN E. DUNNING.

John E. Dunning, now of the Allen and Dunning Company, Paterson, N. J., was born at Whitesboro, N. Y., January 4, 1836. He became

associated with the railroad telegraph at Utica, N. Y., in February, 1851. On May 9, 1872, he retired from the telegraph and agency service



J. E. DUNNING,
Paterson, N. J.

of the Erie Railroad to enter the cigar manufacturing business at Paterson, from which he has derived substantial benefits. Mr. Dunning and his wife are regular attendants at the reunions of the old timers.

JOSHUA M. SPENCER.

Joshua M. Spencer, who is now engaged in the practise of law in Rising Sun, Ind., is a native of that town. Being refused enlistment as a soldier on account of youth, he learned telegraphy and joined the United States Military Telegraph Corps in 1863, when in his sixteenth year. His duties confined him mainly to the



JOSHUA M. SPENCER,
Rising Sun, Ind.

state of Kentucky. At the close of the war he found employment in the Western Union office, Cincinnati, where he remained many years, and

where he began the study of law. Some of his co-operators in those early days were Thomas A. Edison, George Kennan and some others who have since become distinguished. He worked the receiving side of the first duplex wire operated between New York and Cincinnati, with Samuel S. Bogart and Edward Kearney at the New York end. He left the Cincinnati office in 1888, having for some years previous been taking The Associated Press reports and Washington specials half the night, and practising law in the daytime. Since that time Mr. Spencer has practised law in Rising Sun, has served as Mayor of the city for five years, and once was a candidate for Congressional honors.

WILLIAM H. SAWYER.

William H. Sawyer, formerly a well-known New York telegrapher, whose home is now at Pasadena, Cal., but who spends much time in



WILLIAM H. SAWYER.
Providence, R. I.

travel, was born in New York city, August 19, 1845. He became an office boy for the American Telegraph Company, 145 Broadway, New York, May 16, 1861. He soon became an efficient operator and later was made assistant night manager under D. Wilmot Smith. The Insulated Lines Telegraph Company in 1865 appointed Mr. Sawyer manager at Philadelphia, afterwards making him superintendent. Returning to New York in 1867, he became an operator for the Bankers' and Brokers' Telegraph Company, two years later accepting the post of inspector of the Gold and Stock Telegraph Company. In 1872 he was appointed superintendent of the American District Telegraph Company, New York, subsequently becoming superintendent of the electrical bureau of the Centennial Exposition, Philadelphia. In 1878 he became associated with Eugene F. Phillips at Providence, R. I., in the manufacture of insulated wires, and

in 1882, when the American Electrical Works was incorporated, became secretary and treasurer, also filling the position of superintendent until 1900, when he retired permanently from all active business. Mr. Sawyer retains his interest in the telegraph, and a recent visit to New York revealed to him several old acquaintances whom he had not met in years and whose gray hair stamped them as "Old Timers."

FRANK J. MULCAHY.

Frank J. Mulcahy, president of the Eaton, Cole and Burnham Company, Bridgeport, Conn., was born at Cleveland, O., July 16, 1858. His entry into the telegraph service dates from April 9, 1876, in the city of his birth. Here from 1876 to 1880 he was a telegraph operator and train dispatcher of the Pennsylvania Company Lines. A man of broad intelligence and possessed of indomitable energy, he abandoned telegraphy and railroading in the hope of directing his activities along more congenial lines of work. Hence it was that during the years 1891-1893 he filled the position of purchasing agent at Chicago of the World's Columbian Exposition. Following this, from 1893 to 1900, he was the general purchasing agent of the Crane Company, Chicago. Because of this association, Mr. Mulcahy derived a large amount of practical knowledge, re-



FRANK J. MULCAHY,
Bridgeport, Conn.

garding pipes, etc., which led to his appointment as commissioner of the Soil Pipe Association of the United States, a post he continued to hold during the years from 1900 to 1904. His position at the head of the Eaton, Cole and Burnham Company, one of the best known concerns of the kind in the country, affords ample opportunity for the display of the executive ability possessed by Mr. Mulcahy.

JOSEPH H. LAFAYE.

Joseph Henry Lafaye, of New Orleans, La., in which city he was born November 14, 1843, became a messenger in the telegraph service in his native place in 1859, developing into an operator in 1861. This was at the outbreak of the Civil War. He was stationed as an operator first at Fort McComb, La., afterward being transferred to Algiers under command of Gen. Lovell, where he remained until the place and the telegraph office were taken possession of by Admiral Farra-



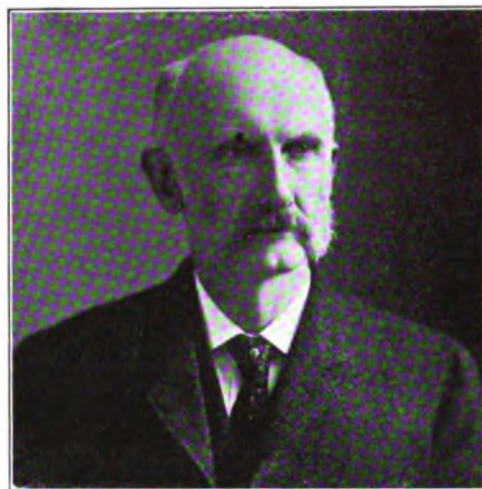
JOSEPH H. LAFAYE,
New Orleans, La.

gut's fleet, April 25, 1862. At this juncture Mr. Lafaye resigned from the telegraph service to follow commercial pursuits, at first holding office positions of trust, subsequently embarking in business on his own account. He is now the head of the successful firm of J. Henry Lafaye and Son, brokers in breadstuffs, provisions, grain, etc. Mr. Lafaye holds an enviable position in the business, civic and social life of his city. He has been a member of the New Orleans City Council, and for twelve years a director of the New Orleans Board of Trade, for two terms its president. He is a member of the board of commissioners of the New Orleans City Belt Railroad, and of City Park, and is also a director of the German-American Savings Bank.

WILLIAM N. EASTABROOK.

William N. Eastabrook, a former telegrapher and now in the telephone field, being the treasurer and a director of the New York and Pennsylvania Telephone and Telegraph Company, at Elmira, N. Y., was born at Scranton, Pa., March 25, 1847. His entrance into the telegraph service was in 1863 as an operator and agent for the Delaware and Hudson Canal Company at Providence, now a part of Scranton. Following this early experience he became successively operator, division operator, train despatcher and trainmaster on the Northern Central Railway,

with headquarters, respectively, at Williamsport, Pa., and Elmira, N. Y., during the period embraced within the years 1864 to 1882. With the



WM. N. EASTABROOK,
Elmira, N. Y.

advent of the telephone, he entered that field in 1879 and successfully developed the business in Southern New York and Northern Pennsylvania. In 1882 he became vice-president and general manager of the New York and Pennsylvania Telephone and Telegraph Company, a position he continued to hold until 1900. Mr. Eastabrook is regarded as an authority in the telephone situation in the "Southern Tier," and has acquired wealth and position.

PAUL R. WIGGS.

Paul R. Wiggs, of the real estate and insurance firm of Aird and Wiggs, Jacksonville, Fla.,



PAUL R. WIGGS,
Jacksonville, Fla.

was born at Goldsboro, N. C., January 16, 1869. He entered the telegraph business in July, 1882, at Chauncey, Ga. For ten years, or until April,

1892, he was an operator at various points for the East Tennessee, Virginia and Georgia Railway and for the Western Union Telegraph Company, a part of the time being a clerk in the office of Superintendent B. F. Dillon of the latter company at Jacksonville. In April, 1892, he was promoted to be chief clerk and assistant to Mr. Dillon, retaining that position until November, 1902. Retiring from the telegraph, during the following three years he was vice-president of a wholesale cigar and tobacco company. Since then he has been in the business first indicated in this sketch. During his residence in Jacksonville, Mr. Wiggs has identified himself with the civic progress of the place. In 1901-1903 he served as a member of the city council, and since its organization in 1895, he has been auditor of the Citizens' Loan Association.

WILLIAM E. BECKLEY.

William E. Beckley, of Springfield, Mo., is a well-known telegrapher, who has had a varied ca-



WILLIAM E. BECKLEY,
Springfield, Mo.

reer in his profession, and who was born at Norris-town, Pa., October 7, 1852. His entry in the telegraph service was in 1866, at Schuylkill Haven, Pa., with the Philadelphia and Reading Railroad. He has since served in both railroad and commercial employ, also has done duty with The Associated Press. He was a volunteer to go South at the time of the yellow fever epidemic in Mississippi and Louisiana in 1878, and was in New Mexico during the Indian troubles. He served The Associated Press at St. Louis in 1882-'85, and has since done cable, broker and race work in New York. In 1876 he accompanied Collins Brothers to Brazil, South America, who went thither to engage in railroad construction.

FRANK J. JONES.

Frank J. Jones, of Warren, O., train despatcher, is a native of Cleveland, where he was born June 5, 1859, and where he was inducted into the

telegraph service March 11, 1874, as a messenger boy of the Atlantic and Great Western Railway, now a portion of the Erie system. The year following, May, 1875, he became an operator, a position he continued to fill for nine years, when



FRANK J. JONES,
Warren, O.

he received the appointment as train despatcher, 1884. He is still employed as a despatcher on the Mahoning division of the Erie Railroad, at Youngstown, O. Since May, 1900, he has been the secretary and treasurer of the New York, Pennsylvania and Ohio Mutual Benefit Association, with offices at Warren, O.

JAMES A. WILSON.

James Allen Wilson, an operator in the Postal service at Pittsburg, Pa., who is usually a well-



JAMES A. WILSON,
Pittsburg, Pa.

known figure at the annual meetings of the Old Time Telegraphers' and Historical Association, is a native of Ohio, in which State he was born at

East Palestine, May 9, 1856. His entry into the telegraphic ranks was at Monongahela City, Pa., 1866, as a messenger for the Pacific and Atlantic Telegraph Company. After two years, when yet a lad, he was made an operator and in this capacity at the same place, until 1876, he served respectively not only his initial company but the Western Union and the Pennsylvania Railroad as well. He was then given the managership of the Western Union office at Foxburg, Pa. Since that time Mr. Wilson has remained constantly in the telegraph harness, a faithful worker in the commercial and railroad service besides the Carnegie Steel Works, his connection with the Postal Telegraph-Cable Company at Pittsburg dating from 1901.

ISRAEL G. BUTTERFIELD.

Israel G. Butterfield, of Emlenton, Pa., is a telegraph operator for the Pennsylvania Railroad, in whose employ he first entered forty-three years ago, and who is representative of the best type of the faithful telegrapher of the rail-



I. G. BUTTERFIELD,
Emlenton, Pa.

road class. He was born near Saltsburg, Westmoreland County, Pa., June 4, 1843, and his association with the telegraph dates from August 25, 1863, when he became assistant agent and operator at Blairsville Intersection of the Pennsylvania road. On February 1 of the following year he was appointed manager of the company's telegraph office at East Liberty, where he remained until July, 1866, when he was made a local agent of the Western New York and Pennsylvania Railroad, a position he continued to fill until 1873. At this time Mr. Butterfield was obliged to relinquish business on account of failing health, and it was not until 1879 that he was enabled to return to his post of duty. From the latter year until 1900 he filled the position of agent at Emlenton and is now regularly employed in the telegraph service of the road at that point.

CYRUS MOFFET.

Cyrus Moffet, manager of the branch office of the Postal Telegraph-Cable Company, at 54 North Third street, Philadelphia, was born in that city in 1857, where he also entered the telegraph ser-



CYRUS MOFFET
Philadelphia, Pa.

vice in 1876. From that date to this, prior to entering the Postal employ, he has worked for four different companies, namely, the Continental, the American Union, the Baltimore and Ohio, and the Bankers and Merchants, in each of which he made an excellent record for ability and industry.

JOHN A. TOWNSEND.

John Alfred Townsend, manager of the Western Union Telegraph Company at Dunkirk, N. Y., has long been in telegraph harness, and is justly regarded as one of the most faithful of



JOHN A. TOWNSEND,
Dunkirk, N. Y.

the large army who serve that company. He was born at Akron, O., April 24, 1837, his date of entry into the service being at that place,

March 1, 1849, as a messenger. For a year he filled this position when, having learned telegraphy, he was promoted to be an operator at that point. After one or two minor changes early in 1851 he was placed in charge of the O'Reilly telegraph interests at Cuyahoga Falls, O., from which, however, in November of the same year he was transferred to the office at Dunkirk, N. Y. When the telegraph at the latter point was united with the Western Union his services as manager were retained by the latter company, and continuously ever since he has served that corporation—a long and honorable tenure.

ROBERT T. BISHOP.

Robert Toombs Bishop, chief operator of the Western Union Telegraph Company at Montgomery, Ala., is a man well and favorably known in Southern telegraphic circles. He is a



ROBERT T. BISHOP,
Montgomery, Ala.

Georgian, having been born in Dougherty County, that state, March 30, 1858. His initiative into the telegraph service was at Dawson, Ga., in 1872. Subsequently he served at Albany, Macon, Columbus and Savannah, Ga., Montgomery, Ala., and New Orleans, La. Returning to Montgomery Mr. Bishop has risen through the grades of operator, wire chief, night chief operator to that of chief operator, having held the latter position for twenty years. His entire telegraphic career covering a period of thirty-four years of continuous service, has been passed in the Western Union employ, during which time he has been held in the highest esteem by his official superiors. Mr. Bishop was one of the charter members of the Old Time Telegraphers' Association, also of the Telegraphers' Mutual Aid Society. He is a member of the Methodist Church in which for twenty-five years he has been a steward.

HENRY A. REED.

Henry A. Reed, president of the Bishop Gutta Percha Company, New York, was a telegrapher in the old days, and was a close personal friend of Prof. S. F. B. Morse. Mr. Reed was born at Carmel, N. Y., February 11, 1829. He learned telegraphy in 1849 and in March, 1850, opened at Croton Falls the first office on the Harlem Railroad. A number of other offices were established by him in close succession, when, in July, 1852, he was appointed an operator of the New York, Albany and Buffalo Telegraph Company at 2½ Wall street, New York. In March, 1853, he took charge of the company's office at Poughkeepsie, N. Y., interests which he continued to serve for seventeen years, until the company was absorbed by the Western Union Telegraph Company. Mr. Reed conducted a book store for a portion of the time in connection with the telegraph office, and here it was that Prof. Morse, who resided in Poughkeepsie, made his headquarters. The two men became fast friends. Mr. Reed acted as su-



HENRY A. REED,
New York, N. Y.

perintendent of the telegraph line from New York to Buffalo, during the absence of Superintendent F. H. Palmer, when engaged in laying a cable from Nova Scotia to Newfoundland in the summer of 1856. Among others, Walter C. Humstone, who afterwards became superintendent of the Western Union Telegraph Company, at New York, learned telegraphy in Mr. Reed's office. Mr. Reed after leaving Poughkeepsie in 1876 had been instrumental in settling up successfully the estate of Mr. Bishop, and when in 1885 a company was formed to carry on the business of manufacturing wires and cables, Mr. Reed was made successively secretary, manager and treasurer, succeeding to the office of president in 1904. Mr. Reed is regarded as an authority on all kinds of electric cables. He planned the first cables which were successful in carrying high currents underground in New York, and all cables used by the government in electric buoy work.

THOMAS E. CLARKE.

Thomas E. Clarke, general superintendent of the Delaware, Lackawanna and Western Railroad Company, Scranton, Pa., who learned telegraphy at corps headquarters while yet a drummer boy in the army during the Civil War, serving from 1863 to 1865, was born at Connersville, Ind., in 1850. An estimate of the character of the man may be made from the fact that during his two years' army experience, boy that he was, he never answered sick call and never had a furlough. His first employment as a telegraph operator was in the railroad service at his native place in 1868. The year following he continued such employment at St. Paul, and in 1870 was appointed train despatcher and superintendent of telegraph of the St. Paul and Sioux City Railroad. Later Mr. Clarke held numerous official positions with various railroads—trainmaster, master of transportation, assistant superintendent, division superintendent, general super-



THOMAS E. CLARKE.
Scranton, Pa.

intendent and general manager. Six years ago he was appointed to his present position. In a recent letter he wrote: "An officer in the operating department of a railroad, especially if he is a telegrapher, is virtually connected with the telegraph service. My fondness for telegraphy has never ceased, and it has always been my practice to keep an instrument on tick in my private office."

CHARLES F. CLEMENT.

Charles F. Clement, of Minneapolis, Minn., secretary and treasurer of the "Soo" line, who has reached his present position climbing steadily up through the many grades from telegraph operator, was born at Kenosha, Wis., August 10, 1844. His introductory into the telegraph service was at Racine, Wis., in 1863, in the employ of the then Chicago and Milwaukee Railroad. During the following three years he was alternately in the railroad and commercial telegraph service,

where he was made train despatcher at Winona, Minn., of the Winona and St. Paul Railroad, a position he held for four years relinquishing it to



CHARLES F. CLEMENT.
Minneapolis, Minn.

become paymaster and general accountant of the same interests. In 1874 he was appointed chief clerk to the manager of the Southern Minnesota Railroad and the Chicago, Milwaukee and St. Paul Railway, at La Crosse, Wis., retaining the place for ten years, when he was transferred for a year to Mason City, Ia., as chief clerk to the superintendent of the latter road. After this, covering the years 1886 to 1890, he was successively car accountant, stationer, superintendent of telegraph and claim agent of the "Soo" line at Minneapolis; general storekeeper 1890 to 1892, since which time he has filled his present position of secretary and treasurer.

FRANK S. GANNON.

Frank S. Gannon, of New York, originally a



F. S. GANNON,
New York, N. Y.

telegrapher and now a railroad president, was born at Spring Valley, N. Y., September 16, 1851,

and entered the telegraph service as a messenger at Port Jervis, N. Y., in 1868. He was an operator and agent for the Erie Railroad at that point until 1871, between which date and 1875 he was clerk and operator in the president's office; clerk in the superintendent's office, and agent and train despatcher on the New Jersey Midland and the New York and Oswego Midland railroads, now the New York, Susquehanna and Western and the New York, Ontario and Western. From 1875 to 1881 he was first train despatcher and afterwards master of transportation on the Long Island Railroad. Since that time he has occupied the positions of supervisor of trains, Pittsburg division, Baltimore and Ohio Railroad; general superintendent of the old New York and Northern, from 1881 to 1886; general superintendent and general manager, Staten Island Rapid Transit Company, 1886 to 1896; general superintendent, New York division, Baltimore and Ohio Railroad, 1890 to 1896; president Staten Island Railway, 1893 to 1897; third vice-president Southern Railway, 1896 to 1903; vice-president Interurban Traction system, New York, 1903 to 1906. Mr. Gannon is now president of the Norfolk and Southern Railroad, Atlantic and Southern Railroad, Virginia and Carolina Coast Railroad, Pamlico, Oriental and Western Railroad, and chairman of the board of directors of the Raleigh and Pamlico Sound Railroad.

L. M. MONROE, SR.

L. M. Monroe, Sr. and Jr., are druggists at New Canaan, Conn. The elder Mr. Monroe, who was born December 28, 1825, was for a long time



LUCIUS M. MONROE,
New Canaan, Conn.

a telegrapher, but for many years past has been divorced from the dots and dashes, and in his present occupation fills an honored place in the

business and civic life of the town and section in which he is located.

JOHN R. VAN WORMER.

The career of John Rufus Van Wormer, who is now the secretary and general manager of the Lincoln Safe Deposit Company, of New York,



JOHN R. VAN WORMER.
New York, N. Y.

affords another illustration of the evolution of the telegraph operator into the successful business man. Mr. Van Wormer was born March 14, 1849. His entry into the telegraph service began in 1863, at Adams, N. Y., for the Montreal Telegraph Company. Between that date and December, 1877, he was employed by the Western Union Telegraph Company at various points within the state of New York, when he became private secretary to George B. Sloane, speaker of the New York Assembly. From Albany he went to Washington as secretary to United States Senator Roscoe Conkling, serving also as clerk of the senate committee on commerce. Later Mr. Van Wormer became confidential man to Thomas L. James, postmaster of New York, afterwards accompanying the same, in 1881, to Washington as secretary, when Mr. James entered the cabinet as Postmaster-General. Mr. James subsequently made his secretary chief clerk of the department, a position he held during the famous "star route" revelation. Returning to New York he accepted the position of teller in the Lincoln National Bank, later becoming secretary and general manager of the Lincoln Safe Deposit and Warehouse Company, and vice-president of the Brooklyn Warehouse and Storage Company. Mr. Van Wormer was secretary of the Union League Club, 1893-94; is president of the New York Athletic Club, serving the present term, 1900 to 1907, and is also president of the Holland Society of New York, 1906. He is a frequently-heard after-dinner speaker, and more than once has entertained the members of the Magnetic Club with his oratory.

GEORGE M. MYERS.

George M. Myers, a retired capitalist, of Kansas City, Mo., and a telegrapher of former years, was born in New York, November 25, 1855. He began his telegraphic life at Berea, O., when he entered the service of the Lake Shore and Michigan Southern Railroad in 1870. Believing that a better opportunity awaited him further west he went to Kansas City in 1875, where he became an employee of the Western Union Telegraph Company, later being associated with the Atlantic and Pacific and the American Union telegraph companies, as manager of the latter, and afterwards as manager of the Mutual Union Telegraph Company. In the meantime he had served as Western Union manager at St. Joseph, Mo. Mr. Myers was the prime mover in effecting the organization of the Pacific Mutual Telegraph Company, a most ambitious scheme for gridironing the Far West with the telegraph. Remarkable progress had been made in advancing the interests of this company, when it was leased to the Bankers and Merchants, and Mr. Myers was made a district superintendent. Financial trouble overtaking this company, Mr. Myers was appointed receiver of



GEORGE M. MYERS,
Kansas City, Mo.

all lines west of St. Louis, a trust he executed with remarkable fidelity, paying all obligations. The Pacific Mutual again came into possession of its own, Mr. Myers becoming general manager, resigning in May, 1887, on the transfer of the property to the Postal Telegraph-Cable Company. Mr. Myers has since been active in successfully promoting numerous important undertakings, by which he has acquired large wealth.

WALTER C. HUMSTONE.

Walter C. Humstone, who resides in Brooklyn, N. Y., where he is vice-president of the Hamilton Trust Company, besides being financially interested in other enterprises, was born at Esopus, N. Y., June 1, 1849. Like many another who have afterwards acquired distinction in the

telegraph service, he began his telegraphic career as a messenger at Poughkeepsie, N. Y., in 1862, in the office of the Hudson River Railroad Company. In 1869 he was appointed manager of the Brooklyn office of the Western Union



WALTER C. HUMSTONE,
Brooklyn, N. Y.

Telegraph Company. Later he became superintendent in New York of the Atlantic and Pacific Telegraph Company; in 1875 he was made manager, at Chicago, of the company's lines west of Buffalo, and in 1879 was advanced to the position of general superintendent. Toward the close of 1880, at the instance of Gen. Thos. T. Eckert, he rendered important service, both in Europe and America, in behalf of the American Cable Company. In 1881, when Gen. Eckert became general manager of the Western Union Telegraph Company, Mr. Humstone was called to the superintendency at New York, a position held by him until his retirement from the telegraph service in 1902, after giving to the telegraph business forty years of his life.

CHARLES A. TINKER.

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, and elsewhere, 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 in October, 1861, Mr. Tinker became an operator of the United States Military Telegraph service in the War Department at Washington, afterwards being detailed as an army operator at the front, and later, by recall, being appointed chief operator and cipher operator at the War Depart-

ment. He succeeded to the management of the office, finally closing up the affairs of the military telegraph. In 1865 he was appointed manager of the Western Union Telegraph Company, Washington, resigning in 1872 to become superintendent of telegraph and general train dispatcher for the Central Vermont Railway, at



CHARLES A. TINKER,
Brooklyn, N. Y.

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.

GENERAL THOMAS T. ECKERT.

General Thomas Thompson Eckert, now of New York, the only living ex-president of the Western Union Telegraph Company, and now chairman of its board of directors, holds an honored name and place in the history of the telegraph in this country. He was born in St. Clairsville, O., April 23, 1825, and although living a life of great activity and carrying heavy responsibilities, he still maintains, even at his advanced years, a firm mien and a carriage and deportment showing natural strength of body and of mind. It was as long ago as 1848 that General Eckert first acquired an operating knowledge of telegraphy. His telegraphic experience throughout his earlier

years, gained in the West, was a varied one. His opportunity came with the breaking out of the Civil War, for in that year of 1861 he was placed in charge of the military telegraphs at the headquarters of General McClellan, afterwards becoming superintendent of the Military Telegraph Department of the Potomac, with the rank of Captain and Assistant Quartermaster. In September, 1862, he established the military telegraph headquarters in the War Department with the rank of Major. His duties brought him into intimate contact with President Lincoln and Secretary of War Stanton, and he frequently was called upon to execute many important and delicate secret missions in behalf of the government, including at one time a meeting with certain leaders of the Confederacy at City Point. The abilities of General Eckert were never questioned.



GEN. THOMAS T. ECKERT,
New York, N. Y.

and his good judgment, positive and forceful character, earned for him the confidence of those by whom he was surrounded. In 1864, Major Eckert was brevetted Lieut.-Colonel, and soon after Brigadier General. The same year he was appointed Assistant Secretary of War, a position he held until August, 1866, when he resigned to accept the office of general superintendent of the eastern district of the Western Union Telegraph Company. From this position General Eckert resigned to accept on January 14, 1875, the presidency of the Atlantic and Pacific Telegraph Company, which was followed on January 1, 1880, by his becoming president of the American Union Telegraph Company, holding the same until the merger with the Western Union Telegraph Company, of which he was made general manager, succeeding in 1892, on the death of Dr. Norvin Green, to the presidency of the company. In 1902 he retired, since which time he has held his present position.

HARVEY P. DWIGHT.

Harvey P. Dwight, president of the Great North Western Telegraph Company, Toronto, Ont., who is one of the best known representatives of the telegraph in America, is a native of New York State, having been born in Jefferson County, December 23, 1828. He has served Canadian telegraphic interests for so long a time that he has come to be known affectionately across the border as the "Father of Canadian Telegraphy." He began his telegraphic career under Mr. Orrin S. Wood, as an operator of the Montreal Telegraph Company, first at Belleville in 1847, and later in Montreal, thence going to Toronto in 1849, where subsequently he became general western superintendent of the line. When the Dominion and Montreal telegraph companies were merged into the Great North Western Telegraph Company in 1881, Mr. Dwight was appointed general manager of the united companies. Shortly after this he was elected vice-president and in 1893, president. On many occasions Mr.



H. P. DWIGHT.
Toronto, Ont.

Dwight has rendered services of the utmost importance to the government of his country. During the Fenian raid the distribution of operators along the frontiers where the trouble existed or was threatened was placed in his hands, and by this means the government was in a position to act with a knowledge and promptness which would otherwise have been totally lacking. During the northwest rebellion in 1885 he also rendered signal service to the government along similar lines, his service in this connection having been publicly acknowledged in Parliament by the minister of militia.

PATRICK B. DELANY.

Patrick B. Delany, a former telegrapher, and the well-known inventor of telegraph apparatus, is a resident of South Orange, N. J. He was born in Ireland, January 28, 1845, and was considered a good operator at the age of sixteen at

Hartford, Conn. He had a fine reputation, especially as a receiver, and displayed much ability in copying press from twenty to twenty-five words behind the sender. Always of an inventive turn of mind, he continued to serve various tele-



PATRICK B. DELANY.
New York.

graphic interests, even dropping into the field of journalism, until 1880, when he decided to give his entire attention to inventing. He has been most prolific in this respect. His mind is a highly practical one, and whatever he has produced has been of a useful character. Probably over one hundred and fifty patents have been obtained by him, representing almost every branch of electrical science, but mainly devoted to telegraphy. His anti-Page relay, anti-induction cables and synchronous multiplex telegraphy are among the most prominent. His multiplex system was adopted by the British postoffice in 1885, and is now in use in Great Britain. Cable telegraphy has claimed his skill, and he has produced several forms of transmitters, automatic and manual, all of a character to increase speed in sending. His greatest work, perhaps, is his rapid automatic system, by which it is possible to transmit 1,000 or more words per minute on a single wire. Of late Mr. Delany has devoted more attention to telegraphic transmitting devices and has brought to great perfection keyboard machines for all branches of Morse telegraphy land lines, cables and wireless telegraphy. He has also invented automatic dot-making devices, mechanical and electric, the best known of which at present is the "Auto-Dot" transmitter. During the past three years Mr. Delany has been experimenting with wireless telegraphy at Nantucket, Mass., where he has reared a wireless pole 130 feet high on his farm "Derrymore."

WILLIAM R. PLUM.

William R. Plum, of Lombard, Ill., now retired, was born at Massillon, O., March 24, 1845. He entered the telegraph service as an operator at

Atwater, O., in 1860, afterwards serving the Cleveland and Pittsburg Railroad at Cleveland, and in 1861 became a member of the United States Military Telegraph Corps at Columbia, Ky. He saw much active service in the early years of the Civil War in the states of Kentucky and Tennessee, a portion of the time being chief operator in charge of the telegraph line between Nashville, Tenn., via Fort Donaldson, to Paducah, Ky. Later he was with Gen. Thomas at Atlanta, Ga., at which point he became manager and also chief operator at headquarters. At the close of the war he entered the Yale law school at New Haven, Conn., and while there he became night manager of the telegraph office. Graduating in 1867 he practiced law in Chicago, until 1903, when he retired from the active practice of his profession. Mr. Plum was one of the organizers of the Society of the United States



W. R. PLUM.
Lombard, Ill.

Military Telegraph Corps, of which he served as president from 1881 to 1898, and is the author of a history of that organization during the war period. He was also one of the organizers of the Old Time Telegraphers' Association, and wrote its constitution, also holding the office of president for one term.

B. F. WOODWARD.

B. F. Woodward, who is now in the real estate business at Denver, Colo., an old-time telegrapher, was born at Newark, O., June 25, 1834. His service in the telegraph dates from 1850, when, at sixteen years of age, he was given the position of copyist in the office of the National Telegraph Company, made up of three independent corporations, of which the late James D. Reid was superintendent of all three. From Philadelphia Mr. Woodward went to Pittsburg, at which point later he became local manager of the Western Union Telegraph Company. During the early period of the Civil War, Mr. Woodward became

identified with the United States Military Telegraph service, doing duty at the front in Virginia. He resigned in the spring of 1863, and in the following fall engaged in the construction of a branch line from Galesburg to Denver of the



B. F. WOODWARD.
Denver, Colo.

Pacific Telegraph Company. On October 10 Mr. Woodward opened the Denver office. A few years later he was made division superintendent of the Western Union Telegraph Company, a position he held for a number of years. Subsequently, and for a dozen years, or more, he became superintendent of telegraph of the Denver and Rio Grande Railway. Mr. Woodward organized the United States and Mexico Telegraph Company and built the line from Denver to Santa Fe, although projected to the City of Mexico. It was afterward sold to the Western Union. Mr. Woodward expresses a lively interest in the welfare of the old-timers and the United States Military Telegraph men, in both organizations of which he is a member.

DENNIS J. HERN.

Dennis J. Hern, of Boston, Superintendent of Street Lighting, that city, and who was actively engaged as a telegrapher up to 1902, was born in Boston August 19, 1854. At ten years of age he became a messenger for the United States Telegraph Company, in his native city, in which, indeed, he has been a lifelong resident. Two years later his first promotion came, boy that he was, when he was made line repairer and battery man. During the years from 1868 to 1871 he served several different telegraph interests, until in 1872, he was appointed inspector of the city line department of the Atlantic and Pacific Telegraph Company. In 1875 he was made manager of the local office. This was followed in 1877 by his advancement to the position of superintendent of the lines of the same interest between Boston and New York. In 1879 Mr. Hern was made superinten-

dent of the Mutual Union Telegraph Company, with jurisdiction covering the lines between Bangor, Me., and New York, holding the place until 1896. At the same time, covering the years 1880 to 1883, he also became general manager of the Eastern Telegraph Company, Boston to Bangor; also general manager of the Mutual District Messenger Company of Boston from 1882 to 1902. This latter enterprise was a personal undertaking of Mr. Hern's, and in its furtherance he secured a ten-year contract with the Mutual Union Telegraph Company, an arrangement which was also continued with the Western Union until 1902, when Mr. Hern left the telegraph and messenger service to accept the position of Commissioner of Health of the Port of Boston. His term of four years expired in May last, when he was appointed to his present office



D. J. HERN,
Boston, Mass.

with the understanding that he should effectually reorganize the street lighting department, which sadly needed attention.

WILLIAM T. GENTRY.

William Thomas Gentry, of Atlanta, Ga., a former well-known telegrapher, and now prominent in telephone circles at the South, was born at Gordonsville, Va., April 14, 1854. He entered the telegraph service at Charlottesville, Va., October 1, 1871, becoming an operator for the Southern and Atlantic Telegraph Company. In 1874 he was promoted to be circuit manager, covering the first division of that company. The absorption of the company by the Western Union Telegraph Company took Mr. Gentry into the employ of the latter at Wilmington, N. C., where later, and also at Alexandria, Va., he filled the positions of manager. Leaving the telegraph for the telephone in 1884, he accepted the management of the Atlanta telephone exchange of the Southern Bell Telephone and Telegraph Company. Since that time Mr. Gentry's advancement in the telephone service of this company has been steady. From the general man-

agement, to which he was elected in 1900, he was elected vice-president in 1902. In addition to this office he is also either president or vice-president of a number of subsidiary companies



WM. T. GENTRY,
Atlanta, Ga.

located in North Carolina and Virginia. Mr. Gentry is a man who has had large experience in nearly every department of the telephone business, and has constructed exchanges and toll lines, installed central office equipment and erected buildings. Besides this he has secured numerous patents covering various improvements in telephone apparatus. Notwithstanding the fact that Mr. Gentry is a very busy man, he finds time to occasionally attend the meetings of the old time telegraphers, in whose association he still retains his membership, for his friendships among telegraphers are both numerous and cordial.

JAMES H. NICHOLS.

James Hervey Nichols, of Denver, Col., formerly a well-known telegrapher, whose service throughout the Civil War in the United States Military Telegraph Corps affords a most interesting record, is now in the real estate business. Yet, despite the engrossing cares incident to the conduct of the large interests in which he is engaged far removed from the scenes of earlier life, he remains loyal in his affections for the old timers and the military telegraphers and says: "I am proud to know that they have made such valuable citizens and have taken a prominent part in making history for America. Mr. Nichols was born in Chester, O., January 19, 1843, entering the telegraph service at Granville, O., in 1859. Early in 1861, while serving at Pittsburg as chief operator of the first division of the Pittsburg, Fort Wayne and Chicago Railway, he became a member of the United States Military Telegraph Corps, July 7 of that year, serving until December, 1865, during which time he was stationed in the War Department, and in the field with leading generals. He gives this thrilling account: "I was at Grant's headquarters at Appomattox at the time of Lee's sur-

render, where I saw Generals Grant and Lee enter the McLain house, there remaining about half an hour. During that eventful half hour the terms of surrender were arranged. General John Gibbon received the actual surrender of the army of Northern Virginia, and I was assigned to him as operator with tent and office in the front yard of the McLain house, and witnessed the details carried out. It was a very solemn occasion. The only cheering that I heard during the act of surrender occurred when General J. B. Gordon brought up his division to be paroled, and to receive passes, the cheers coming from his own comrades, who desired to show their esteem for their brave commander. On the first day of the surrender I saw General Seth Williams, adjutant general of the Army of the Potomac, and General Pickett of the Confederate Army, meet on the steps of the McLain house; they rushed into each other's arms,



J. HERVEY NICHOLS.
Denver, Col.

hugged and kissed each other, while the tears ran down their cheeks. They had been classmates at West Point. I realized then that the war was over. I was ordered to Lynchburg, where I found eight Confederate operators waiting to surrender to somebody." From Lynchburg Mr. Nichols was ordered to Richmond, and after a few months was directed to take charge of the Petersburg, Va., office, which did the repeating for the Southern States. When the Government turned over the lines to the Western Union he remained as manager at Petersburg until September, 1867, when he was transferred to Denver, Col., then a town of 3,000 inhabitants, and not a railroad within two hundred miles of it. Subsequently he became manager at Cheyenne of the repeating office for the overland business, reaching that point by the first passenger train arriving there. Here he remained until 1876, when he abandoned telegraphy, removed to Denver to engage in other business and where he has since resided.

JOSEPH UHRIG.

Joseph Uhrig, of Chicago, a former telegrapher, who has been successfully engaged in the marble and granite business in the western metropolis since 1889, is a Marylander, having been born in Baltimore, February 6, 1854. His entry into the



JOSEPH UHRIG.
Chicago, Ill.

telegraph was as a messenger at Chicago. Mr. Uhrig as a boy was the possessor of the same type of energy that has brought him success in later years, for his upward progress in the telegraph service was rapid, carrying him in quick succession to the positions of chief clerk and finally to that of assistant superintendent.

JOHN A. PAYNE.

John Adams Payne, of Cincinnati, a former well-known Associated Press operator from



J. H. PAYNE.
Cincinnati, Ohio.

1885 to 1887, in Nashville, Tenn., where he was born March 4, 1860, and where he entered the

telegraph service, is now the vice-president of the Interstate News Bureau, Cincinnati, which controls a leased wire system of nearly 6,000 miles. Mr. Payne introduced the use of the typewriter in connection with telegraphy in 1885 in the Nashville "American" office, and such was the success of the innovation that subsequently he visited New York, Philadelphia, Washington, Pittsburg, Cincinnati, Chicago, St. Louis and other Associated Press points, in company with Superintendent A. C. Thomas, for the purpose of demonstrating the feasibility of receiving press reports by typewriter, it being considered at that time an impossibility. Mr. Payne is a very successful business man, and enjoys a wide acquaintance in telegraph circles in every section of the country.

EDWARD W. MCKENNA.

Edward W. McKenna, who is now the second vice-president of the Chicago, Milwaukee and St. Paul Railway Company, at Chicago, was originally a railway telegrapher. He was born at Pittsburg, Pa., in 1848, and entered the railway ser-



E. W. MCKENNA,
Chicago, Ill.

vice of the Pennsylvania Railroad as messenger in May, 1862, afterwards becoming an operator. From June, 1864, to August, 1865, during the closing year of the Civil War, he served in the United States Military Telegraph Corps, a portion of the time on the military railroads in Virginia. Leaving the government service and returning to railroad work, from the positions of operator, freight clerk and general superintendent's clerk for the Cleveland and Pittsburg Railway, at Pittsburg his promotions in railway employ have been steady. He had a year at train despatching, then became superintendent of the Indianapolis and Vincennes railroad from 1871 to 1880, thence in like capacity, to 1885, serving the interests of the Jeffersonville, Madison and Indianapolis road. Other railroad positions were filled by him with ability and credit until October 31, 1895, when he

retired from all railroad connection to engage in the business of renewing steel rails under an invention of his own of a process for securing that result, organizing for the purpose the McKenna Steel Working Company of which he was the president for a number of years. From February 1, 1904, to September 23, 1905, he was the assistant to the president of the Chicago, Milwaukee and St. Paul Railway, on the latter date being elected to his present office of second vice-president.

WILLIAM T. LEWIS.

William Turnor Lewis, of Racine, Wis., a former well-known telegrapher, now extensively engaged in manufacturing, was born at Utica,



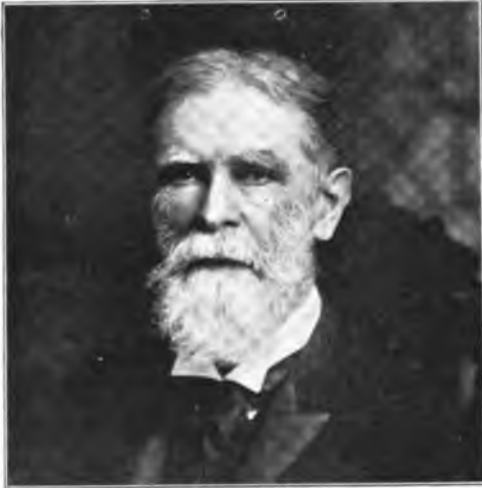
W. T. LEWIS,
Racine, Wis.

N. Y., March 10, 1840. Early in life, locating at Racine, he entered the telegraph service at that point in 1859. In later years, however, abandoning telegraphy, he branched out into other avocations and organized and was president of the Badger Electric Company, of the Mitchell and Lewis Company, Mitchell Motor Car Company, all of Racine; vice-president of the Great Northern Implement Company of Minneapolis, Minn., and president of the Yucca Cyanide Mining and Milling Company, of Cedar, Arizona. He also organized and was president of the Anti-Contract Convict Association, the object of which was to prevent states leasing their convicts in competition with honest or outside labor. He is still active in business, and as all of his undertakings were successful he has become a man of large means.

W. A. M. GRIER.

Wm. Alex. Montgomery Grier, of Brooklyn, a retired former telegrapher, is a native of Danville, Pa., where he was born December 9, 1833. He entered the telegraph service in the town of his birth when, in March, 1850, the telegraph first reached that place. For several months he had charge of the local office, and then as the

line was extended westward to Milton, Williamsport, and eventually to Bellefonte, he installed the instruments and instructed operators at those places. Later he moved the office of the Philadelphia and Wilkes Barre Telegraph Company at Wilkes Barre and instructed the operators. His active telegraph career covered a period of about three years. He entered Lafayette College in 1853, and after graduation in 1856 he became teller of the Danville Bank. In 1863 he organized and became cashier of the First National Bank of Danville, and in 1867 be-



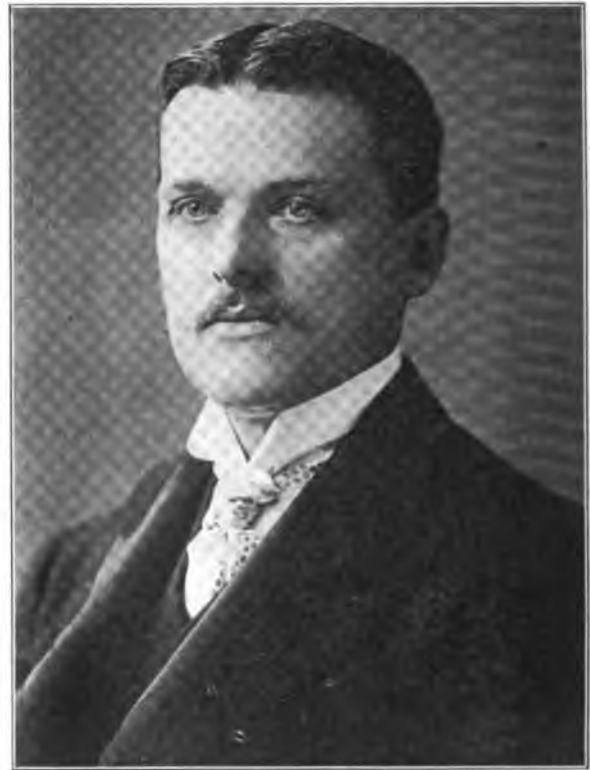
W. A. M. GRIER,
Brooklyn, N. Y.

came managing partner of Pardee, Markle and Grier, bankers, at Hazelton, Pa. In 1882 he went to New York, where for several years he was president of a manufacturing company. Mr. Grier, while a resident of Hazelton, was sent as a delegate to the Republican national convention at Chicago in 1880, and to him belongs the honor of nominating General Garfield to the presidency.

—
J. FRANK HOWELL.

The subject of this sketch, Mr. J. Frank Howell, banker and broker at No. 66 Broadway, New York city, was born in Elizabethtown, Kentucky, March, 1859, and, after a short tuition under the skilful guidance of Mr. Joseph S. Wilson, at Morrisonville, Illinois, was launched forth as a telegrapher by Chief Despatcher J. M. Walker, at Homer, Ill., on the Wabash Railway. As Mr. Howell puts it, after a few years' experience among friends the business seemed so easy that he became uneasy and wandered away from the reservation, as it were, and into what might have been a more frigid climate, but for the timely intervention of Mr. George W. Stevens' interception and placing him with the Grand Rapids and Indiana Railway, at Fort Wayne, Ind. After a few brief months at the latter place he was promoted to the president's office of the same company at Grand Rapids, Mich. While in the

latter city, Mr. Howell formed a liking for commercial telegraphy and was given a position with the North Western Telegraph Company in Milwaukee. Discerning the Eastern Star from the "famous city," Mr. Howell set forth for New York, where, after an engagement with the Western Union and American Union telegraph companies, he transferred his services for the last named company to St. Louis, and later worked westward to San Francisco, thence back to Ogden, Chicago and New York, where he has put in most of his time up to ten years ago, when he became a member of the New York Consolidated Stock and Petroleum Exchange, of which he is one of the Governors, receiving the largest num-



J. FRANK HOWELL,
New York.

ber of votes cast at the last election. Mr. Howell probably conducts a business second to none in volume on the Exchange named, and what is most gratifying is that his word of mouth is his bond, as attested to, in and since the Northern Pacific panic, when failures of others dragged him down to the extent of fifty thousand dollars, and his friends and legal advisers suggested bankruptcy; but he said, "No, if given a chance, I will pay dollar for dollar, regardless of whether the others come to life or not,"—and he did.

Mr. Howell owns a beautiful estate of twenty-six acres in Englewood, N. J., where he lives in the full enjoyment of the beauties of nature. He has the reputation of being a good amateur whip and is a familiar figure on the road behind his

trotter, pacer or tandem. Mr. Howell's love for the telegraph is shown in the significant remark: "Go to the telegraph bureau for futurity talent."

The Word "Telegraphone."

Recently TELEGRAPH AGE made editorial mention respecting the meaning and the misuse of the word "Telegraphone." It appears to have attracted considerable attention.

The Electrical World, of New York, has this to say:

"The subjoined item from TELEGRAPH AGE is timely and pertinent. The growth of the art is creating many difficulties of this character. For example, the new Cahill electric music system speaks of its wonderful apparatus as the 'telharmonium' and the 'dynamophone'; and it is evidently casting around for new and appropriate terminology. The Age says: 'The misuse of the word 'telegraphone' is apt to create wrong impressions as to its true meaning, and consequently lead to confusion and error. For instance, the term as it is generally employed in this country, especially in railroad and telegraph circles, where, indeed, it is most frequently met with, applies in brief to a telephone circuit attached to an ordinary telegraph line. In Europe, on the other hand, and even to a certain extent here in America, an understanding of the word is held to denote the device of Poulsen, which is, as a matter of fact, no more or less than a form of phonograph or graphophone, for the instrument records speech on a metal band. As the definition of the word now coming more freely into usage is so diverse in meaning, it would seem that a change might properly be made by the adoption of a new title for one form of interpretation.' The American Institute of Electrical Engineers might do worse than appoint a committee on electrical terms and phrases, for purposes of standardization."

In England, the London Electrician reprints the article and says: "In this country the word 'telegraphone' is not likely to cause much confusion, but in America the word is in more general use, so that there is good reason for the protest by TELEGRAPH AGE."

The American Institute of Electrical Engineers is a competent body to adjust phraseology adaptable to the electrical arts, and we quite agree with the suggestion emanating from the Electrical World in this respect.

Competitive Growth of Telephone and Telegraph.

Some interesting figures have been compiled recently in Boston, as to the relative earning powers of telegraphy and telephony. In the ten years ended December 31 last the toll and long-distance service of the American Telephone Company and its sub-companies increased from \$4,000,000 gross to \$30,000,000, a gain of \$26,000,000, or 650 per cent. In the same period the gross business of the Western Union Telegraph Company in-

creased \$6,815,626, or 3.6 per cent. During these ten years, however, the Western Union has had to meet the sharp rivalry of the Postal Telegraph-Cable Company.

Mayor McClellan and Municipal Ownership Abroad.

Mayor McClellan of New York, who has been in Europe for the past three months looking over the subject of municipal ownership returns to this city a firm believer in corporate management. The London Electrician says: "He has come to the conclusion that much of Europe's vaunted municipal superiority is a delusion and a snare. Germany apparently is the country where it is vaunted most of all, but where Mr. McClellan has failed to find any success. On the contrary, he has found conditions in cities like Frankfurt and Dresden, having their own tramways, which no American community of even second-rate importance would tolerate. Not only is the traffic of these places insignificant to an American, but it is badly handled. The conditions in England, according to Mr. McClellan, are even worse than on the Continent, with the possible exception of Glasgow. He is of the opinion that the result of the Tramways Act of 1870 has been the 'perpetuation of old fogyism and the stunting of private enterprise,' and he is more than ever convinced that municipal operation is the last desperate means, which ought to be resorted to only when private enterprise has absolutely failed."

Personal Mention.

Mr. D. H. Bates, the veteran telegrapher, is to contribute to the Century Magazine an article on "Lincoln in the Telegraph Office." During the war, as a young operator, Mr. Bates was very close to Mr. Lincoln and enjoyed his confidence.

Mr. George G. Ward, vice-president and general manager of the Pacific Commercial Cable Company, New York, who left Yokohama, Japan, on the steamer Mongolia on September 9, as reported in our previous issue, is on Midway Island, the Mongolia having run on a reef off that island on September 15. He is expected to leave October 1 on the company's repair steamer, Restorer. Mr. Ward is accompanied by his wife and his daughter, Mrs. Hough. Midway Island is one of the repeating stations in the Pacific of the Commercial Pacific Cable Company.

"Modern Practice of the Electric Telegraph," although not a new publication, nevertheless fully maintains its value as an excellent technical handbook for electricians, for telegraph managers and for operators. The fact that numerous editions of the book have been issued proclaims its intrinsic worth. The author, the late Franklin Leonard Pope, was a former president of the American Institute of Electrical Engineers, a member of the Institution of Electrical Engineers of London, an old-time telegrapher, and a writer of marked ability. The volume embraces 234 pages, has 185 illustrations and is fully indexed. Price, \$1.50, postpaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

LETTERS FROM OUR CORRESPONDENTS.**PHILADELPHIA, WESTERN UNION.**

Mr. V. G. Hudgins, who has been identified with this company for a number of years in various capacities, principally as a very successful branch office manager, has resigned to become manager of the office at Raleigh, N. C.

The following changes have recently taken place among the branch offices: J. R. Kettler, manager of the Vine street office promoted to be manager of the Produce District office, vice V. G. Hudgins; E. F. Bradford, of West Philadelphia, succeeds Mr. Kettler; W. E. Maloy, Mr. Bradford, and Miss Clara Shaw, Mr. Maloy.

The resignations of J. J. Buck, L. E. Philips, and Louie Eisenberg, branch office managers, were accepted and their places filled by the appointment of J. M. Lucy, vice Buck; McBurt, vice Philips, and Edward Miller, vice L. Eisenberg.

J. Edwards is back from Oil City and once again has become a member of the operating force.

CHICAGO, POSTAL.

Following the course of change involved by a number of important promotions of late in this office, Mr. F. Y. Churchill, in charge of the claim department, has been appointed electrician, Mr. Richard Ahlers succeeding to the vacancy thus created.

Ninety-one regular extra and extra operators were transferred to regular tricks September 15.

Mr. George Doerr, Eastern traffic chief, who has been seriously ill for some time, is reported to be improving.

Mr. A. S. Kennedy, timekeeper, is away on his vacation, visiting relatives in Kansas.

Mr. R. W. Daniels, who was in charge of the annunciator board, has resigned, accepting an appointment with the Burlington Railroad as a wire chief.

Fred Buecking has been assigned to the annunciator board.

NEW YORK, WESTERN UNION.

The following have returned from summer offices: Misses M. Kingstrom, Kate Meyers, Mamie Coen, A. McMurtry, Kate Mahoney, Clara Ayers, Bertha Wilson, Mamie E. Hopkins, and Messrs. S. Oakes and Ed. Mesler.

Mr. Clampitt, Eastern night chief, is absent on his vacation.

The following details were made during the recent State Convention: To Buffalo: Messrs. Lovegrove, McIntyre, Smearer, St. Clair, Biggins, Bradford, C. M. Egan, Miss McGillis, with R. J. Murphy in charge. To Saratoga: Messrs. G. Hoyt, Van Valen, G. Barton, J. J. Wilkinson, Haden, Moffatt, Gaffney, Freber, with F. R. Johnson in charge.

The following have been assigned to assist The Associated Press: At Troy, N. Y., C. E. Barto; at Amsterdam, N. Y., A. Moore; at Auburn, N. Y., J. Mendelson; at Ithaca, N. Y., E. F. Fischer; at Poughkeepsie, N. Y., J. C. Sullivan.

Mr. Thomas Devine, assistant chief operator at Boston, who accompanied the Harvard crew to London, Eng., paid us a visit while en route home. William Burns, night Western chief, died suddenly September 23. He had worked up to 3:30 A.M., and was on the way to his home in Brooklyn when death overtook him.

Robert C. Edwards, formerly of this office, died September 13 at his home in this city, the burial being at Cypress Hill.

A. M. Fancell has been appointed junior operator and stenographer.

Miss Agnes Sullivan has resigned to accept a position with the Long Island Railroad Company.

Charles Pearsall has been appointed record clerk, vice J. P. Cronin appointed operator.

C. A. Kilfoyle, financial secretary of the Telegraphers' Aid Society, is spending a vacation of two weeks in Sullivan County, N. Y.

OTHER NEW YORK ITEMS.

Local 16 of the Commercial Telegraphers' Union of America, at its recent meeting, elected Joseph F. Ahearn president. The new executive board of the local contains J. F. Burke, Edward F. Fagan, James A. Griswold, H. A. Green, A. S. Hughes, E. R. Henderson, George Kearney, J. I. Marsh and C. V. Snow. R. M. McLennan and George H. Wisner are the vice-presidents; C. P. McNerney is secretary-treasurer, and P. O. Purcell is recording secretary.

Mr. John K. Green, employed in broker and commercial offices in New York for the past twenty years, has gone to Boston where he will hereafter reside.

Mr. Daniel C. Donohue, Jr., late of the Postal executive offices, has accepted a position as stenographer and private secretary to A. S. Thweatt, eastern passenger agent of the Southern Railway, New York.

Mr. Jim Brown, manager at the Marconi wireless telegraph station, Sea Gate, Coney Island, N. Y., has returned from Siasconset, Mass., whither he has been stationed since his return from Europe on September 1.

Assessment No. 454 has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of James Y. Borden, at Asbury Park, N. J.; Cambridge R. Tracy, at Wheeling, W. Va.; Clinton L. Hoff, at Albany, N. Y., and George Flowers, at St. Louis, Mo.

New Telegraph Headquarters at Baltimore of the Baltimore and Ohio Railroad Company.

The Baltimore and Ohio Railroad Company at Baltimore moved its telegraph office to its new quarters in its handsome fourteen-story office building September 8. The move was begun at 8 A.M., and by 5 P.M. the old office at Camden Station was abandoned. The new office is said to be one of the best and handsomest in the country owned by a

corporation. The operating room is located on the mezzanine floor and is about 75 feet in depth by 50 feet wide, ventilated by automatic ventilators, regulated by two electrically connected thermometers. The switchboard is on the Western Union style, two sections at the head of the room. There are six large tables, giving working room for forty-eight operators. Current for the different circuits is furnished by the Western Union Telegraph Company, except the local sounder circuits, and this is furnished by a small dynamo in the cellar with an auxiliary storage battery plant.

The principal cities worked with direct are: Duplex to Newark, quadruplex to Grafton with Wheeling, Cleveland, Lorain, Benwood, and several other points on the first side. Quadruplex to Pittsburg, with half a dozen different points on the first side. Single wires to Cleveland, Cincinnati, Chicago, Garrett, Ind.; Wolf Lake, Cumberland, Connellsville, Washington, D. C.; Philadelphia, New York, Jersey City, and way wires.

The office is handsomely finished, red mahogany being used in the trim. Light is furnished by forty 100-candle power ceiling incandescent lamps. The office furnishings are unusually fine. In the center of the room there is a double cabinet, where the different forms are kept. Underwood typewriters are furnished the men by the railroad company. At one end of the room is a pneumatic tube station connecting with each floor.

The telegraphic staff is made up as follows. Charles Selden, superintendent of telegraph; E. W. Day, assistant superintendent; F. G. Adams, division operator; G. D. Ward, chief operator; W. H. Hoffman, night chief; G. W. Buckman, all night chief; W. Quinn, day wire chief; E. S. Wyandt, night wire chief; Louis Wehage, day traffic chief; Lester Robinson, night traffic chief.

The Lansingburg, N. Y., Test Office.

The Lansingburg (Troy), N. Y., station of the American Telephone and Telegraph Company is undergoing some extensive changes, made necessary by the rapidly increasing number of wires entering that station. The test room, which has become crowded, is being enlarged to twice its present size. Three sections of test board are to be added, increasing the capacity to 480 wires. Two sections of the latest type of Morse board will replace the one now in use. The new board will have a capacity of forty Morse circuits. The number of single Morse repeaters is to be increased to thirty sets. Provision will also be made for three duplex sets. The storage battery plant will be considerably enlarged and a motor-generator added.

Lansingburg is an important junction point between New York and Montreal, Boston and the west. Business for Saratoga, Plattsburg, Montreal and the Adirondack region passes through that office. The Adirondack broker wires are repeated there. One of the repeaters on the Bos-

ton-Omaha telephone circuit is also located there. This is probably the longest telephone circuit in daily service.

The wire chief's department, where all the Morse circuits are handled, is in charge of S. H. Riker, wire chief; C. J. Korndorfer, assistant wire chief; G. M. Rutherford, and A. T. Crouse, test board men; W. I. Bradshaw, wire chief's clerk; T. W. Geary, inspector, and J. L. Harrington, assistant inspector.

T. C. Devine in the Role of Mascot.

The Harvard crew which lately rowed a race with the Cambridge men, in England, was supposed to possess several mascots, according to the London Daily Chronicle. Writing on the subject a reporter of that journal had this to say:

"The other mascot is chubby-faced, but slightly older—Mr. T. C. Devine, assistant chief operator of the Western Union Telegraph Company, of Boston, Mass., and no less. The only reason for his appearance in this quiet Thames village that I have been able to discover is that for sixteen years he has gone with Harvard to New London, which is also on the Thames (U. S. A.), for their annual contests with Yale. He is a tradition of Harvard, without being a back number. He is a part of the outfit, an offset against training orders, in which tobacco and even lager beer are ruled out. Mr. Devine has done feats in war telegraphy which are talked about in the States. But he is here only because Harvard like him, and feel they would not be happy without his presence to remind them of American conditions. He is a mascot, like "Jimmy" Wray, Hart, their boatman, their "shell" itself, and the newspaper men who have come over with them to keep America informed as to their progress."

The United Engineering Building in New York city, which will be the permanent home of the American Institute of Electrical Engineers and other engineering societies, is now enclosed and roofed, with partitions in place, all risers in position and some elevators running. Foundations were carried down in some cases 67 feet to secure a hard rock footing.

A telegrapher who is meeting with popularity is John H. Hannan, of Malden, Mass., station agent since 1889, of the Boston and Maine Railroad at that point, a well known railroad man of New England, who has just been elected president of the International Railroad Agents' Association of the United States, Canada and Mexico. He is forty-six years of age, is a member of the Boston and Maine agents' association, also of the relief association of that road, besides holding the presidency of the Railroad Agents' Association of New England. He began his telegraphic career at Malden in the employ of the Western Union Telegraph Company.

Courtesy Pays.

Mr. F. M. McClintic contributes the following to the current issue of *The Railroad Man's Magazine*:

Down in Texas they have a railroad with a motto. The Texas and Pacific, which covers the Lone Star State from end to end and adds a few hundred miles of Louisiana for good measure, believes that it is "No trouble to answer questions." Many years ago, before the "Tee-Pee" had gained fame with the public and favor with the Goulds as one of their best assets, the president of the road happened to stop off one day at a little Louisiana town to send a telegram. Railroad presidents in those days were not troubled with private secretaries, so the president strode into the little telegraph-ticket office to write his own telegram. On asking for a blank he was agreeably surprised at the courtesy accorded him, although it was his first visit and he had reason to believe that the young man behind the ticket window had never seen him before and did not know who he was.

It was not a day to bring cheerfulness, for the weather was as muggy and sticky as only Louisiana weather can get. The operator radiated sunshine, however, and the president liked it. Over the ticket window he noticed a sign that read, "No Trouble to Answer Questions." A series of interrogations developed that the motto was not an empty one, and the president noted with pleasure that the sunshine on the telegrapher's face never faded. He also learned that the motto was original with the youthful dispenser of good cheer and tickets.

Soon there was a place a little higher up for the boy. Step by step, under the eye of the appreciative president, he forged ahead and year by year the policy, "No trouble to answer questions," permeated the big railroad system. For many years E. P. Turner, the one-time cheerful operator at the Louisiana way station, has been general passenger and ticket agent of the Texas and Pacific, and the policy is in evidence at every station between El Paso and New Orleans. There is perhaps no railroad in the United States where simple courtesy and plenty of it has worked greater wonders. So famous is the watchword that a letter mailed in New York addressed to "No Trouble to Answer Questions, Texas," would reach Mr. Turner's office in Dallas and receive a courteous reply without so much as an hour's delay.

Texas has another ex-telegrapher general passenger agent in Cyrus W. Strain of the 'Frisco at Fort Worth. Like Mr. Turner, Mr. Strain began his career in a little telegraph office. Following the same policy and giving off the same sunny radiation, Mr. Strain advanced, division by division, until his recent appointment at the top rung of the 'Frisco passenger ladder in Texas.

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

General Mention.

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

It appears that Mr. Walter Wellman, after all of his ostensible preparation, has decided to abandon the project of reaching the North Pole by means of his dirigible airship, because of the lateness of the season.

Mr. E. Chambers, superintendent of the Western Union Telegraph company, Penzance, England, in writing ordering a renewal of his paper, says: "I am very much pleased with *Telegraph Age* and you can reckon me as a permanent subscriber."

Mr. Thomas Rodger, inspector of telegraphs and telephones, Grand Trunk Railway, Montreal, Que., in a recent letter declares: "TELEGRAPH AGE has become one of the necessities of a telegrapher's life; there is no help for it. You are therefore to always continue my subscription to TELEGRAPH AGE."

A comparatively slight but welcome reduction in the expense of conducting foreign business transactions has been brought about by the action of the International Postal Congress in doubling the weight limit for foreign letters. As soon as the new regulation goes into effect, five cents will suffice for a letter weighing a full ounce, instead of a half ounce as now.

A correspondent writing to the *Boston American*, says: "The telegraphers are responsible for the new style of spelling. It is customary, among telegraph operators while conversing on the wire to spell the words as they sound and to abbreviate as much as possible. In proof of the assertion, Mr. Andrew Carnegie is an old-time telegraph operator."

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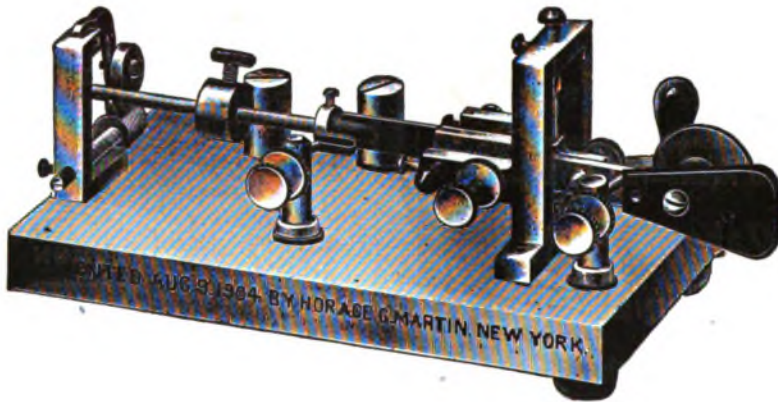
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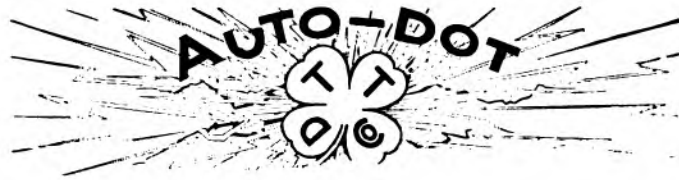
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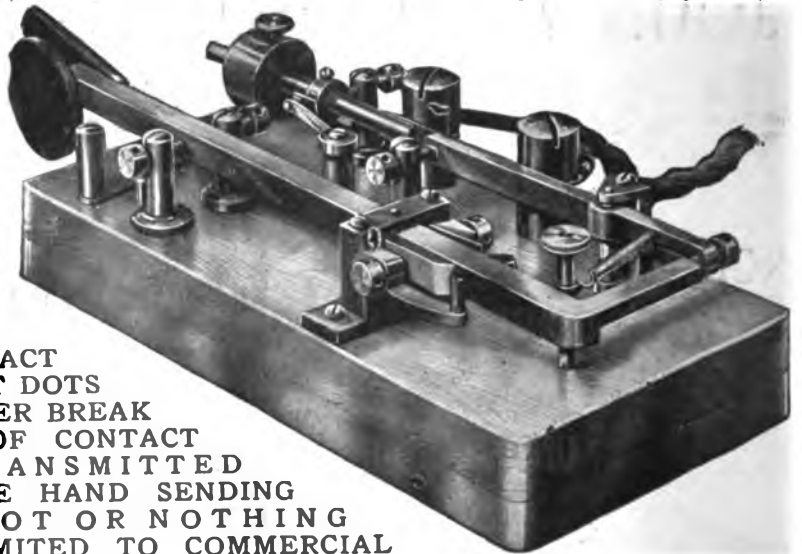
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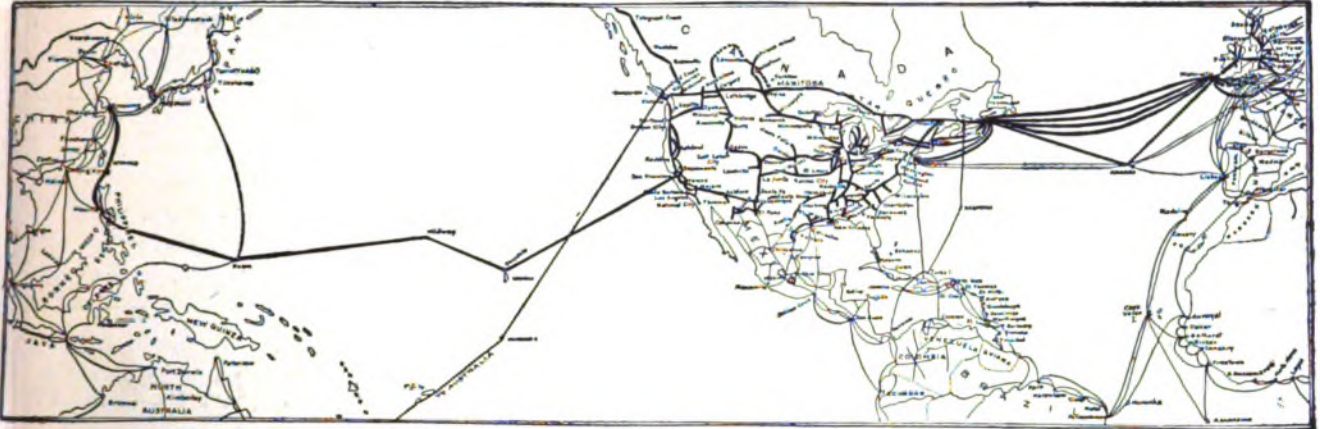
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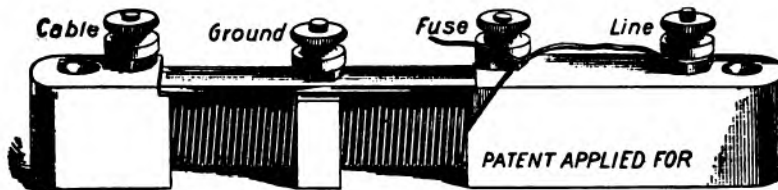
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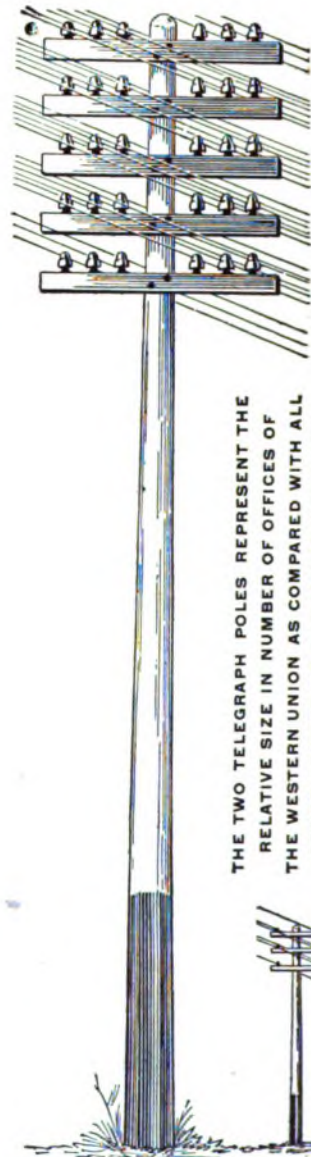
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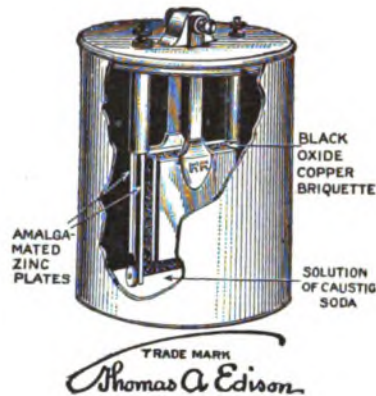
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No. 20.

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VOL. XXIV.

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SOME POINTS ON ELECTRICITY.

Questions Answered.

BY WILLIS H. JONES.

A young man interested in the study of electrical matters writes to this journal as follows:

Will you please explain how a circuit consisting of two or more conductors connected in parallel or multiple can possibly possess less resistance than that of any one of the number singly. I know it is said that the "joint resistance" of the several conductors bring about such a possibility, but in my unenlightened state of mind I cannot quite understand the seemingly paradoxical statement that if I add resistance to a circuit I actually reduce the total value therein. Surely each additional circuit possesses some resistance. What becomes of it?

The perplexity of our correspondent evidently arises from his inability to distinguish the difference between adding resistance to a conductor and the addition of a conductor containing resistance in parallel to an already established circuit. Or possibly he may have a too limited knowledge of what an electric circuit may consist of. While each conductor through which an electric current flows is, of course, an electric circuit, so far as the dynamo circuit is concerned, the complete circuit for that machine comprises the combination circuit made up of all the individual conductors together arranged in parallel or multiple receiving current therefrom. In other words, the combination of conductors must be considered the equivalent of one single circuit, the total resistance of which is identical with that of any large gauge single con-

ductor which would offer equal facilities for the flow of current. With this explanation the young man should now begin to realize that while the word "resistance" as usually interpreted implies a certain degree of opposition in a conductor to the energy of the dynamo, the conductor itself, despite its unavoidable resistance, really offers a necessary outlet for the dissipation of the machine's energy. Hence each additional conductor that is connected with the dynamo, regardless of its own resistance, tends to reduce the external opposition in the circuit, called resistance, by virtue of the extra outlet for current it provides. The true resistance of a combination circuit, therefore, is not indicated by the sum of the separate resistances of the various conductors, but by a value which represents inversely the sum of the individual facilities the latter offers for the development and conveyance of current. The apparent reduction in the value of resistance ascribed to the "joint resistance" of a number of separate conductors in parallel or multiple, should not convey the idea that any existing resistance in any of the conductors themselves is actually removed by that method of arrangement, but rather that such an arrangement of conductors creates in the combination circuit thus formed such additional current facilities that the equivalent of elimination is thereby obtained. Another way to illustrate this point is as follows:

Suppose a dynamo is running at full speed but has no wire or other closed conductor connected with its brushes. Under these conditions, notwithstanding the fact that the machine possesses no circuit, it is nevertheless generating its full electric pressure, or voltage, as a voltmeter will readily show if connected across the two brushes; yet no current will flow through the armature coil because the intervening air gap between the brushes offers too great a resistance to act as a conductor. If, however, a metal conductor possessing, say, 100 ohms resistance, be connected across the brushes, a certain volume of current will immediately flow therein from the armature coils of the machine. If a second similar conductor of 100 ohms be then connected to the brushes in like manner, twice the original volume of current will be drawn from the armature and divide equally between the two paths. One hundred wires of 100 ohms each thus connected to the machine would draw 100 times as much current as one wire alone would, and in like manner divide equally between the hundred avenues.

Now, it is evident that where 100 conductors are employed there has necessarily been 100 times as much resistance material actually placed in the circuit as there would be had but one of the conductors constituted the circuit. Yet owing to the

many outlets provided by the multiplicity of conductors the actual obstruction, or resistance to the dynamo's pressure in the former case is but the one hundredth part of that which would oppose the electromotive force when one conductor alone is connected. Hence we get the formula for joint resistance, which shows that the true resistance of a combination circuit is the quotient obtained, where all the circuits possess identical resistance, by dividing the ohmic resistance of one conductor by that of the total number of conductors in the circuit. Of course, where the various conductors possess different values of resistance the current will not divide equally between them. The short ones will absorb the greater ratio of current and a different formula for ascertaining the joint resistance of such a circuit obtains. Nevertheless the principle is the same and the answer derived therefrom gives a value which represents, inversely, the sum of the separate current facilities existing in the combined circuits.

Business Notice.

The Mecograph Company, of Cleveland, O., state that it is shipping quite a number of their transmitters to Australia, Italy and the Philippines. This would indicate that members of the craft on the other side of the world are not slow in availing themselves of up-to-date labor-saving machinery.

Recent Telegraph Patents.

A patent, No. 830,253, for a telegraph key, has been granted to Jesse T. Sheets, of Covington, Ky., assignor of one-half to Sol. P. Kineon, of Cincinnati, Ohio. An improved telegraph key is described.

A patent, No. 831,288, for a system of telegraphy, has been obtained by Isidor Kitsee, of Philadelphia, assignor of one-half to William J. Latta, of Philadelphia, Pa. An improved system of simple telegraphy.

A patent, No. 831,355, for a telegraphic transmitting device, has been issued to Isidor Kitsee, of Philadelphia. Two opposing unequal sources of current are provided with means for shunting the stronger.

A patent, No. 831,526, for a signaling apparatus, has been issued to Harry O. Rugh, of Chicago, assignor to Western Telephonograph Company, Minneapolis, Minn. Makes use of a polarized relay for controlling the signal bell.

A patent, No. 831,525, for a system of composite telephony and telegraphy, has been granted to Harry O. Rugh, of Chicago, assignor to Western Telephonograph Company, Minneapolis, Minn. A shunt is placed around the telephone, having low resistance, but high impedance.

Municipal Electricians.

Mayor Timanus, of Baltimore, Md., is having expert examination made to determine if the city cannot prevent the stringing of high and low-tension

wires on the same poles throughout the city. The electrical workers' union has made complaint about the danger resulting, and it appears that it will be necessary to place the wires in municipal subways, this being the opinion of the city building inspector. The mayor, however, says that he thinks there may be some other way out, and will investigate further.

Personal Mention.

Mr. Joseph Le Roy Van Meter, superintendent of traffic of the American Telephone and Telegraph Company, New York, was married October 3 to Miss Susan Sharpe, daughter of Dr. and Mrs. William J. Sharpe, of Toledo, O.

Much sympathy is expressed for Thomas R. Taltavall, now and for many years past one of the editors of the Electrical World, an old time telegrapher, and at one time superintendent of the leased lines of The Associated Press, New York, in the death of his only son, Thomas R. Taltavall, Jr., "Ronald," as he was familiarly known, who died on Monday, October 1, at his home in Montclair, N. J. Mr. Taltavall was in his twenty-first year and was a young man of much intellectual promise.

Mr. James Barclay, chief operator of the Quebec office of the Great North Western Telegraph Company, celebrated the fiftieth anniversary of his entrance into the telegraph business September 18, He has been employed with practically the one company for half a century, having entered the service of the old Montreal Telegraph Company fifty years ago, and still continuing with the company when it was acquired by and merged into the Great North Western Telegraph Company. During his lengthy career in the business, Mr. Barclay has risen from the lowest step of the ladder to the position of chief of staff. Congratulations and many good wishes from his fellow-employees in the office and from others were extended him on his long and honorable service and on the high esteem and respect which he has won on all sides.

Western Union Telegraph Company.

EXECUTIVE OFFICES.

Mr. H. F. Taff, manager of the Washington, D. C., office, and Mr. S. C. Mason, storekeeper at Chicago, were among the recent visitors to the executive offices.

The company is to have a new main office at St. Louis, in the Commercial building at Sixth and Olive streets. The two upper floors and a large office on the ground floor adjoining the alley on the Olive street side, are now being made ready for occupancy, and possession is expected on December 1. Extensive arrangements are being made to install an elaborate system of appliances in the offices, and it is expected that the new location will be better adapted to the large business transacted on account of its location in the center of the business district.

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EXECUTIVE OFFICES.

Mr. E. J. Nally, the newly appointed vice-president of the company, formerly general manager at Chicago, has removed his headquarters to New York and will hereafter be located on the tenth floor.

Mr. John F. Skirrow, associate electrical engineer of the company, who has been absent owing to illness for the past year, has returned to the service and is located on the seventh floor. Mr. Jesse Hargrave, assistant electrical engineer, is also an occupant of the office.

Mr. E. C. Bradley, formerly vice-president of the company, and now a member of the executive staff of the American Telephone and Telegraph Company, was a recent visitor to the executive offices.

Recent New York Visitors.

Mr. George F. Macdonald, superintendent of fire and police telegraphs, Ottawa, Ont.

Mr. John G. McNerney, Western Union Telegraph Company, Buffalo, N. Y.

Mr. W. S. Burnett, general manager of the Morse Code Signal Company, Milwaukee, Wis.

Mr. J. E. Jenkins, inspector Western Union Telegraph Company, New Haven, Conn.

Mr. W. F. Williams, superintendent of telegraph of the Seaboard Air Line, Portsmouth, Va.

Mr. W. C. Furness, manager of the Great North Western Telegraph Company, London, Ont.

Mr. I. McMichael, vice-president and general manager of the Great North Western Telegraph Company, Toronto, Ont.

Resignations and Appointments.

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

Mr. Ensign M. Halderman, formerly with the Postal Telegraph-Cable Company, of Texas, at Texarkana, has been appointed night manager at that point.

Mr. U. W. Boggess, who resigned some months ago from the management of the office at Clarksburg, W. Va., and was succeeded by Thomas H. Drakeford, has been reappointed to his former post.

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

Mr. Irvin G. Cohen, chief operator, has been appointed manager at Meridian, Miss., vice C. S. Sedberry, resigned to enter other business.

Mr. J. T. North, of New York, has been appointed manager of the office at Wilmington, N. C., vice J. E. Wood, resigned. Mr. Wood has been manager at that point for many years.

The following changes have occurred in the service of the Canadian Pacific Railroad Telegraphs:

Mr. Fred T. Jennings, inspector of electrical equipment, has been appointed superintendent of the newly constituted Lake Superior division, with headquarters at Sudbury, Ont. Mr. Harry Bott, chief operator at Montreal, succeeds Mr. Jennings as inspector, and Mr. Frank J. Mahon, manager of the company's office at Quebec, will go to Montreal to fill the position formerly held by Mr. Bott. The vacancy at Quebec has been filled by the appointment of Mr. J. Manning, of the Canadian Pacific Railroad general office staff.

Mr. J. H. Egli has been promoted to be all-night chief of the Montreal office, vice William Atchison, appointed manager at Sault Ste Marie, Mr. Al. Jarvis being made assistant traffic chief.

Obituary.

Sylvester J. Tinsman, an old-time telegrapher, aged fifty-eight years, died at Washington, N. J., on September 29.

George A. Carter, of Saco, Me., ex-mayor, died in that city, October 6, in his seventy-sixth year. He was formerly a telegraph operator, retiring from that business in 1882.

Oliver Truedly, aged seventy years, for fifty years a telegraph operator, and until a few years ago the Chicago, Hamilton and Dayton operator at Jones' Station, died at Hamilton, O., September 24.

George W. Wilson, aged thirty-one years, manager of the Western Union Telegraph Company at Gardner, Mass., died at Manchester, N. H., while absent on his vacation, on October 5. He was a high degree Mason and Odd Fellow and held membership in numerous lodges.

Miss Clara Smith, from 1887 to 1891, manager of the Western Union Telegraph Company at Muscatine, Ia., and later connected with the same company and taking leased wire press for the "Post," at Denver, Col., a most efficient operator, died in that city September 7.

The Railroad.

Moved by the great scarcity of competent telegraphers, the Pennsylvania Railroad is about to establish a training school to furnish men for its road.

The Lake Shore and Michigan Southern Railway is at present engaged in stringing a second long distance telephone wire from Chicago to New York, to accommodate the rush of business which can not be handled on the single telephone circuit now used by this company.

The published Proceedings of the twenty-fifth annual convention of the Association of Railway Telegraph Superintendents, held at Denver, Col., on June 20 and 21, has made its appearance. A very full report of the meeting is given of the papers read and of the discussions which followed the same, together with a large amount of regular statistical matter usually found in this publication. It is an

admirable book of reference for those interested, and once again Mr. P. W. Drew, the secretary and treasurer of the association, who compiled the volume, is entitled to the thanks of his fellow members and others for the excellent manner in which the work has been performed and the early date of its appearance.

The New York, New Haven and Hartford Railroad Company has installed a new, much improved and more extensive telephone office at New Haven, Conn. The telephone department is in charge of the superintendent of telegraph, N. E. Smith. This department has become a very important factor in the operation of the New Haven road. It has several hundred miles of leased lines in addition to lines owned by the company, with telephone exchanges in many of its large stations and terminals. It is said that no other road in the country has a more complete and thoroughly organized telephone department, and it is safe to state that no other railroad company has switchboard facilities equal to those just put in operation at New Haven.

For the purpose of widening the sphere of usefulness of the telephone extensive experiments are being made on the Harriman railroad lines. It is proposed, if practicable, to equip trains with a telephone device enabling the conductor and engineer to consult while the train is in motion. A complete telephone system is also soon to be established in connection with the extensive block signal system now installed and is to be used to bring dispatchers and tower operators into closer touch. It will also serve to connect the dispatcher with the non-telegraphic stations. On some sections of the roads it is intended to introduce the composite system of wires, by means of which one wire may be used simultaneously for both telephone and telegraph work. Trains will be equipped with portable, composite telephone apparatus, enabling the conductors to reach the dispatcher or the nearest telegraph station immediately.

RAILWAY SIGNAL ASSOCIATION CONVENTION.

The annual meeting of the Railway Signal Association will be held at the New Willard Hotel, Washington, D. C., October 16, 17 and 18. There will be daily sessions on Tuesday and Wednesday from 10 A.M. to 1 P.M., and from 2 P.M. to 5 P.M., while that of Thursday will be from 9.30 A.M. until adjournment.

On Tuesday, committee No. 8 will make a report on standard specifications for all electric interlocking, and material for construction work, together with recommendations.

There will be a special committee report on standard specifications for mechanical interlocking and material for construction work, which it comprises, and corrections in the reading and full corrections. Committee No. 4 will make a report on "Installation, Maintenance, etc., of Storage Battery," and a special committee will report on "How to remedy the effects of foreign currents on automatic block signals," to-

gether with recommendations. There will be presented an amendment to the constitution.

On Wednesday, committee No. 12 will report and make recommendations on specifications for "Rubber Covered Wire." Committee No. 11 will report on "Oil to be Used in Signal Lamps," as well as on "Design of Lamps." There will be a special committee report on "Interlocking and Block Signals," which will cover recommendations for the various positions and indications which can be derived from the signal operating in the upper quadrant, as recommended by this association at its last annual meeting. Committee No. 1 recommends specifications for relays. Committee No. 6 will present a progress report on "What shall constitute cost in estimates for installation and record of maintenance." Committee No. 3 will make a report on "Circuits for Interlocked Signals," together with history and recommendations. The following papers will also be presented:

"Devices to keep railroad switches from becoming clogged with snow and ice," and "The optics of the signal lens," the former being by Mr. F. Shaw, and the latter by Mr. William Churchill, of the Corning Glass Works, Corning, N. Y.

A large programme of entertainment has been provided, and in addition President Roosevelt, by special appointment, will meet the entire association at the Executive Mansion at 2.30 P.M., October 18.

Wireless Telegraphy.

A dispatch from Vineland, N. J., says: "The Christian Endeavor Society of Rosenhayn has made arrangements for a novel hour of worship by wireless telegraph. The society of the Baptist church at Frostburg, Mo., 150 miles distant, will on next Sunday at the same minute begin service with the same songs, the same subjects and the same prayers as the Rosenhayn Society."

The work of removing all portable materials from the abandoned United States Government's wireless station at Montauk, L. I., to the new station at Fire Island, has been completed. The Fire Island site is one-eighth of a mile from the lighthouse. It is much superior to the Montauk plant, as the largest vessels pass within ten miles of the Atlantic shore. The new station will be completed before the cold weather.

The New York Evening Post in discussing the wireless conference at Berlin, says: "At the international conference on wireless telegraphy a number of important questions will be brought forward for discussion. This new form of communication has from the first been seized upon by the army and navy authorities as being in their especial province. Particularly has this been true in our country, where it has been argued that only the Government should be allowed to operate wireless stations, especially along the coast. The commercial uses of wireless telegraphy have but slowly developed. If it should

be found feasible to establish a commercial service between, say, Chicago and New York, the governmental attitude would have to undergo a change. All vessels equipped with the wireless should be made to receive messages from any other vessel, no matter what the flag or the system. The chief trouble is the language. How is a Spanish ship to communicate with a German except by spelling out the letters of the international signal code?"

The *Electrical World*, in an editorial on the conference of nations regarding the regulation of wireless telegraphy, has this to say:

"It has, indeed, been officially stated that Germany, which initiated the wireless conference idea two or three years ago, will propose that an international bureau shall be created for the control of wireless telegraphy; that each wireless station must be connected with the ordinary telegraphs by special lines; that the conditions under which wireless stations of companies that do not subscribe to the conclusions of the conference shall work, shall be laid down by the conference (that is, when these stations are within the territories of states adhering to the conclusions of the conference); that governments which do not adhere to the convention may do so later, and that when controversies arise over the interpretation or application of the convention they shall be submitted to arbitration. The interest of Germany in the matter seems due not only to its governmental necessities, but to the fact that the wireless systems of the empire have not yet been able to compel other systems to make an interchange of business, i. e., receive messages at wireless stations from ships equipped with the German apparatus. A very pretty quarrel is thus involved, with aspects that are far beyond a parochial effect in the decisions that may now be reached."

The Institute of International Law lately in annual session at Ghent, Belgium, adopted several articles relative to wireless telegraphy as follows:

1. The air is free. The only rights that states have in it, in peace or war time, are such as are necessary to their preservation.

2. In the absence of special circumstances, the rules applicable to correspondence by ordinary telegraphy shall be applicable to wireless telegraphy.

3. Each state shall have the faculty, so far as is necessary for its safety, to oppose the passage of Hertzian waves over its territorial waters, whether such waves emanate from state apparatus or from private apparatus placed on land, on a ship, or on a balloon.

4. In the event of correspondence by wireless telegraphy being prohibited, the Government shall at once warn other Governments of the fact.

The regulations are rather in the nature of legal conclusions, and it may be decided fairly

that the air must be free, whether within or outside territorial limits. In time of peace wireless bolts will settle themselves, and in the event of war the most cautious country will not send them. It is rather difficult to understand how rules affecting communications under proper control can be applied to wireless telegraphy, and each state will not have any need to destroy Hertzian waves, as it is safe to say that none will exist in time of war. The rule of Governments to warn others when wireless telegraphy is prohibited does not seem practical.

Mr. J. Henniker-Heaton, who has been the prominent advocate in England of cheap postage and cheap telegraphy, says in the *Nineteenth Century* in regard to wireless telegraphy: "May I be allowed to sum up one or two considerations as to the probable influence of wireless telegraphy on the future of our race? In the first place, a severance of communication with any part of the earth—even the antipodes—will henceforth be impossible. Storms that overthrow telegraph posts and malice that cuts off cables are impotent in all-pervading ether. An explorer like Stanley in the tropical forest, or Peary amid ice fields, will report daily progress in the *Times*. Every wandering tramp steamer will have its wireless spar, and will be in constant touch with vessels that dot the ocean all about it. Sir William Preece's dream of signaling to Mars may (say by utilizing Niagara for the experiment) yet be realized. A governing fact is the cheapening of the new force. Everything essential to human happiness is cheap—air, water, the bountiful fruits of the earth—and electricity is no exception. Hitherto the cost of wires has kept this blessing from the bulk of mankind. Already the Marconi company (in a letter which I possess) offers to telegraph to India at half the present rates, and Mr. Marconi promises messages to America at a penny a word. The speed attained is twenty-five (or with two sets of apparatus, fifty) words a minute. For some time wireless telegraphy will not replace wire and cable systems, but it will supplement and cheapen them, coming to their aid and the aid of humanity in case of mishap and meanwhile cutting down rates. Our ultimate ideal must be instantaneous electrical communication with every man on earth, ashore or afloat, at a cost within the reach of every one. To profit from this human necessity is as wrong as it would be to tax speaking or walking. It follows that all the machinery of the world's communications should belong to the State. Let our government rise to the occasion and buy up all the British cables and wireless company's shares at the market price of the day on which this review appears. Whether this suggestion will please those companies I know not. I have no pecuniary interest in any; my one thought is, as it always has been, to secure the best, cheapest and most widely available communication between man and man."

The Cable.

Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, New York, sailed from Honolulu, October 9, for San Francisco en route to New York.

Mr. C. H. Reynolds, M. I. E., general manager of the British Pacific Cable Board, London, England, who has been visiting the Australian colonies and Canada on business connected with the service, is now in this country en route home.

The second section of the cable connecting Germany with German Southwest Africa is now being laid. This section is about 4,000 miles long and starts from Vigo, in Spain, and ends at Wal-fisch Bay, Demaraland. The first section from Emden to Vigo, a distance of 2099 miles, was laid ten years ago.

Cables interrupted October 13:
 Venezuela Jan. 12, 1906
 Messages may be mailed from
 Curacao or Trinidad.
 Pinheiro "via Cayenne" Aug. 13, 1902
 Santa Cruz de la Palma (Canaries) July 12, 1906
 Island of Lanzarote Sept. 18, 1906
 Steamer from Las Palmas (Canaries.)

In its issue of September 15, under the heading of "A Costly Fad," referring to the all-British cable, the Daily Graphic of London makes a boast of being "One of the few organs of public opinion that ventured to protest against wasting the taxpayers' money upon a popular delusion," and complains of the contributions by the various countries concerned toward the deficit of £72,556.

The year 1904 was a particularly bad one for the Indo-China telegraph system. Rains, typhoons and floods have called for constant effort on the part of the personnel and an enormous amount of work to ensure the proper maintenance of the line. The typhoons of May 1 and September 3 in Cochin China and Cambodia caused damage to the extent of 30,000 piastres, and that of September 11 and 12 in Annam also caused great damage to the telegraph lines. At Laos, in the wooded districts, storms threw many trees on to the wires, which by reason of floods could only be repaired under great difficulties and dangers. Elephants in the south of Annam also caused much damage, although not to such an extent as in the previous year.

It is announced that the German-Dutch cable undertaking in the Far East is threatened with competition in the near future. As will be remembered, this joint enterprise was established a few years ago for the purpose of affording a connection between the Caroline Islands of Germany and Kiau-Chau and the American island of Guam on the one hand, and the Dutch Indies on the other. The cables have already been laid and are at work. By this means, the Dutch colonies in the East Indian Archipelago, which, until the completion

of the new cables, depended exclusively upon English lines for telegraphic communication with the rest of the world, were afforded a second connection in the shape of the Dutch-German-American cable routes. Now, however, according to the Berlin Tageblatt, the Eastern Extension Telegraph Company has secured a concession from the Dutch Government for the laying of a cable which will connect Java with the Cocos or Keeling Islands in the Indian Ocean. These islands, which are English property belonging to the Government of Ceylon, form the supporting point of a cable owned by the Eastern Extension Company, which connects Perth on the west coast of Australia with the island of Mauritius, which in turn has cable connections northward with Zanzibar and southward with Durban. It will be seen that by means of the proposed new cable between Java and the Cocos Islands, the Dutch Indies will obtain convenient telegraphic facilities with both Australia and Africa, and the Germans expect that the new line will draw traffic from the Sunda Islands and will not be of advantage to the German-Dutch cable enterprise.

A New Wireless Telephone.

The Paris journals report that M. Maiche, a well-known inventor, has made a sensational discovery in the field of wireless telephony. His new apparatus consists of two posts which are placed in his premises. Each post consists of a telephone, battery, a special form of induction coil and a frame which is formed of a series of insulated wires. One post is placed in the garden and a second one in a room in the building some distance off, about one hundred feet, and several walls, doors and windows come between the posts. Conversation can be carried on easily, and the sound is clear. The inventor started five years ago to work on the question. At the chateau of Marchais, belonging to the Prince of Monaco, he made experiments, using the earth as a conductor, and these were successful at a distance of two miles. One year afterward he was able to communicate between Toulon and Ajaccio in Corsica, over the sea at one hundred and eighty miles distance, using the sea as a conductor for the waves. These experiments were kept secret, however. As the new apparatus works without the use of ground, the results are more important. He expects to increase the distance indefinitely by giving more power to the apparatus, which is only in its first stages. Submarine boats could use the system to good advantage.—Scientific American.

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

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Annual Report of the Western Union Telegraph Company.

The annual meeting of the Western Union Telegraph Company was held at the office of the company, 195 Broadway, New York, October 10. The old board of directors were re-elected, with the exception of Russell Sage, deceased, and Louis Fitzgerald, whose places were filled by Henry Walters and Joseph J. Slocum.

The annual report of Col. Robert C. Clowry, president and general manager, shows the business of the year as follows:

	Year ended June 30, 1905.	Year ended June 30, 1906	Increase.	Decrease.
Revenues	\$29,033,035.04	\$30,075,054.53	\$1,042,019.49	
Expenses, see statement below	21,845,570.32	23,605,071.65	1,759,501.33	
Net revenue	\$7,188,064.72	\$7,070,582.88		\$117,481.84
Int. on bonds	1,227,200.00	1,327,975.00	100,775.00	
Profits	\$5,960,864.72	\$5,742,607.88		\$218,256.84
Appropriated for dividends	4,868,083.75	4,868,088.75	5.00	
Surplus	\$1,092,780.97	\$874,519.13		\$218,261.84
Surplus July 1, 1905		\$15,974,200.25		
Carried to surplus as above		\$74,519.13		
Surplus June 30, 1906		\$16,848,728.38		

STATEMENT OF EXPENSES FOR THE YEAR:

Operating and general expenses, including taxes	\$17,191,039.47
Rental of leased lines	1,553,287.84
Maintenance and reconstruction of lines	4,422,959.70
Equipment of offices and wires	437,784.04
Total expenses as above	\$23,605,071.05

The large increase in the revenues for the year has warranted a continuance of the policy of making liberal appropriations from earnings for raising the standard and improving the stability and operating efficiency of the lines, by adding to the number of poles per mile on trunk lines, replacing small poles with larger ones, substituting copper for iron wire in reconstruction work, and renewing insulation and cross-arms, thus increasing the reliability of the service and developing the traffic, which shows an increase of over 4,000,000 in the number of messages transmitted during the year.

The expenditures for these purposes and for the general maintenance and repair of the lines during the year amounted to \$4,422,959.70, an increase of \$703,626.06 over last year.

A large part of this amount was devoted to the betterment of the property, and might with propriety be charged to capital account, but has been charged to maintenance and reconstruction, in pursuance of the conservative policy of paying for betterments out of earnings, instead of capitalizing them.

From the \$7,070,582.88 net revenue of the year, \$4,868,088.75 was paid for dividends, and \$1,327,975 for interest on bonds. The remainder, \$874,519.13, was added to the surplus.

The net growth of the plant was: In poles and cables 2,735 miles; in wire 71,590 miles; in offices 509.

Of the total of 1,256,147 miles of wire at the close of the year, 352,164 miles were of copper and 903,983 of iron; an increase in copper of 45,428 miles, and of iron 26,162 miles during the year.

Cost of new construction was \$3,292,981.36, which was \$2,115,481.12 more than last year.

The increase of 4,009,762 in the number of messages resulted in a corresponding increase in the operating and general expenses.

A purchase has been made of property 134.3 by 187.9 feet with a five-story brick building thereon at the corner of Sixteenth and Clark streets in Chicago, for the supply department, at a cost for the property and improvements on the building of \$106,000, and it is now occupied and used for that purpose.

The cost of telegraph materials, especially poles, copper wire, cross-arms, insulators and battery supplies is steadily increasing, and the supply is not always equal to the demand. We also have much difficulty in securing railroad cars for the prompt transportation of the large quantities of such material, required to take proper care of our rapidly increasing traffic; but, notwithstanding these facts and the growing exactions of the public for more rapid and accurate work, our service has never been so generally satisfactory as at the present time. We are constantly introducing, at considerable expense, new inventions and improvements in our machinery, especially of an automatic character, to improve and quicken the service.

Contracts covering 8,311 miles of railroad were closed during the year with the following-named railroad companies:

Utah Railway Company; Dublin and Southwestern Railroad Company; Raleigh and Southport Railway Company; Weatherford Mineral Wells and Northwestern Railway Company; Toledo, St. Louis and Western Railroad Company; Denver, Enid and Gulf Railroad Company; Las Vegas and Tonopah Railroad Company; Denver Northwestern and Pacific Railway Company; Pacific Railway and Navigation Company; Northampton and Bath Railroad Company; Hannibal Connecting Railroad Company; Colorado Southern, New Orleans and Pacific Railroad Company; Beaumont, Sour Lake and Western Railway Company; Orange and Northwestern Railroad Company; Louisiana Railway and Navigation Company; Trinity and Brazos Valley Railroad Company; Illinois Central Railroad Company; Aberdeen and Rockfish Railway Company; Tallulah Falls Railway Company; Live Oak, Perry and Gulf Railroad Company; Terminal Railroad Association of St. Louis and St. Louis Merchants' Bridge Terminal Railway Company; Wrightsville and Tennille Railroad Company; Kansas City and Memphis Railway and Bridge Company; New Orleans Great Northern Railroad Company; Detroit, Toledo and Ironton Railway Company; Oklahoma Central Railway Company; Beaumont and Great Northern Railroad Company; Atlanta and St. Andrews Bay Railway Company; Hocking Valley Railway Company; Montana Central Railway Company; Montana and Great Northern Railway Company; Minnesota and Great Northern Railway Company, and Dakota and Great Northern Railway Company.

A special meeting of the stockholders of the company held on October 10, authorized the issuance of \$25,000,000 twenty-year four per cent. convertible

bonds, the purpose of which is for the general extension of the company's existing lines, the construction of additions and the purchase of new property.

The election of officers of the Western Union Telegraph Company will occur on Wednesday, October 17.

New Western Union Office at Oklahoma City.

The Western Union Telegraph Company is to have a handsome new office at Oklahoma City, Okla., and for this purpose has leased the entire first floor of the Lee Hotel Annex, 30 x 140 feet, together with the basement. Upon the completion of this building the company will install an entirely new set of apparatus, the appropriation for the removal to the new quarters and the installation of the new apparatus and furnishings being \$15,000.

The furnishings of the new offices will be of oak. There will be eight octette tables, each with eight typewriter cabinets capable of accommodating sixty-four operators. At the present time in the crowded quarters the Western Union is now occupying, twenty-four operators are employed. Thirteen dynamos, run by electric power furnished by the local electric company, will be placed in the new building. A gasoline engine will also be installed, and in case the electric light company should temporarily shut down, this would furnish both light and power. A new switchboard will be installed.

Three years ago the local offices were moved from small quarters in the Lee Hotel to the present office, the officials believing at that time that the room would be large enough to care for the business of the company at that point for ten years. At this time the local office is the relay station for the territories and handles between 5,000 and 6,000 messages daily.

The Use of the Hyphen and the Misuse of Words

A correspondent writing to the Scientific American on the use of the hyphen and the misuse of words makes these well considered comments:

I have read your journal for many years with more or less regularity, and now have it every week. I always feel, after reading a copy, that I have traveled a good many miles for a nickel and added much to my stock of knowledge.

I wish to congratulate you on the vastly improved punctuation you now use over that of a few years ago, especially in compound words, such as "twenty four-inch guns," instead of "twenty four inch guns," which is meaningless. But your practice of tying an adverb to an adjective is useless, I think, as in "widely-separated ships," for the adverb cannot jump over the adjective, as might be the case of the first adjective in "three masted vessels," where three vessels are referred to. I see you do not always use a hyphen thus, for on page 130 you speak of an

"exceedingly sharp grade." Correct. On page 132 Mr. Claudy says, "The camera could only expose one plate at a time." He never meant that. He tried to say, "The camera could expose only one plate at a time." Seldom, indeed, is the word only used in the right place. Even our best writers "only get it right once in a while," or "get it right only once in a while."

I see you use the monstrosity anyone for anybody or any one. Anyone, someone and noone are fakes made by linotype pounders. I have yet to find a dictionary that sanctions their use. Nobody, somebody, and anybody are the right words.

Some speak of hardwood floors. Redwood and whitewood are definite, but hardwood does not exist. A hardwood floor may be made of oak, beech, elm or any wood that is hard. Why do such misconceptions live so long?

Pardon these suggestions from an old proof-reader, once of your city.

Slang of This Kind Is Branded O. K.

Aptly applied, some modern slang words and phrases "go," says Professor Frederick Manley, of Harvard University. Mr. Manley is on record as expressing the right of children to use such expressions. He said in qualification of his remarks that he did not want to be understood as indorsing the use of slang, but declared that some expressions should be leniently considered by teachers in instructing the young.

In support of his theory, Professor Manley referred to slang expressions that he typified as beautiful, poetic and effective. He said he once heard a boy, who was being oppressed by a dull lecture, remark:

"Gee. If I don't get out of here I'll get bats in me belfry."

He thought this was severely critical and definite.

The slang expressions "glad hand" and "marble heart," Mr. Manley said were to him strong and poetical. He believed that if the story of the "Prodigal Son" had stated that the world gave him the "marble heart," and his father gave him the "glad hand" on his return, professors of literature would now be expatiating on the beautiful simplicity of these expressions and referring to them as literature that is not made nowadays.

"A peach with dew on it?"

"Isn't that beautiful?" asked the speaker.

"Yet it is the slangy way in which I once heard a boy describe a girl who had the bloom of May on her cheeks."

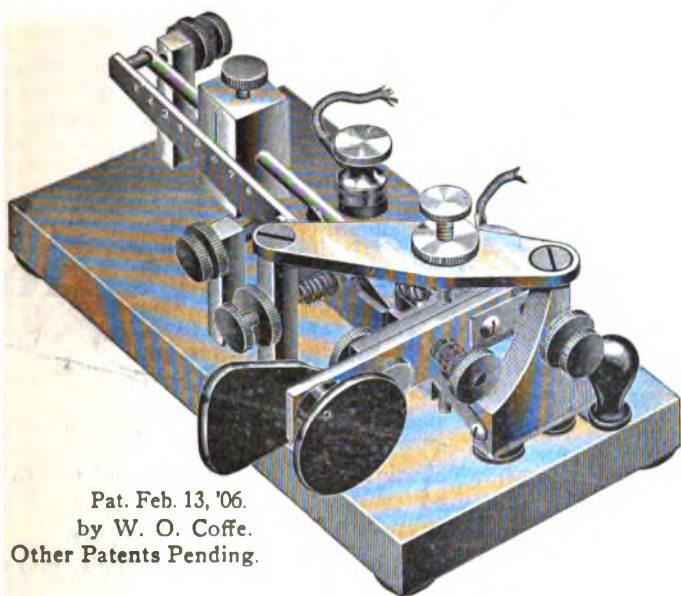
Mr. Manley pleaded that children might be taught the close relations between literature and life and to regard the language masterpieces not as so many lines to be studied, but as beautiful expressions describing the phases of life.

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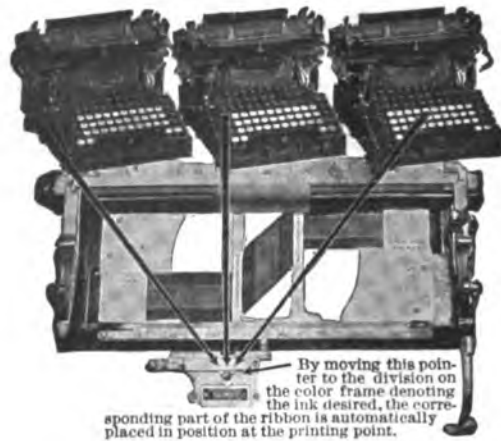
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NEW YORK, OCTOBER 16, 1906.

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

The Postal Commission which has been in session in New York at the Holland House, adjourned on October 6 to reconvene in Washington, November 26, when hearings will be resumed.

Elsewhere in this issue a full report will be found of the reunion at Washington, of the old time and military telegraphers. As these annually recurring occasions draw together many of the craft, those either engaged still in the telegraph service, or those having graduated therefrom without losing their love for it, its personnel and the old time associations, their occurrence becomes a sort of love feast at which all may partake with satisfaction and pleasure. For old acquaintances there renewed and re-remembered, persons known only over the wire develop into living personalities, and life is made

happier and stronger. Telegraphers should ever hold steadfast to these social organizations.

A Messenger Boy Episode.

No one will deny that the messenger boy is an important adjunct of the telegraph in this country. Were it not so the frequent reference "He began life as a messenger" might be eliminated from the average sketch of well known telegraphers. Be that as it may, the more modern genus, quite a distinct production over that of former times, possesses idiosyncrasies, sometimes extraordinary in their development and always peculiarly his own; characteristics held apparently quite in common, whether the product of a New York environment or that lending its impulses at points elsewhere.

The latest assertive demonstration of messenger boy precocity, in which the element of comedy is not lacking in visibility, has shown itself in a southern city. It seems that in the town in question on occasions when the circus puts in an appearance, a ball game is announced, or when a new swimming hole is discovered, the boys, taking advantage of such outside attractions, appealing more vividly to the ardent youthful temperament than the prosaic duty of delivering messages, have exhibited a propensity for "playing hooky" with results not always of a felicitous nature to the service in which they are supposed to be regularly employed. In fact, it may even truthfully be said that such unauthorized absenteeism has sometimes aroused influences decidedly detrimental to any well-ordered messenger business.

A few days ago two of the lads were supposed to have spent in decorating the shady side of a grassy plot along the bayou bank in full undress uniform instead of the regulation blue of the service. Of course, discipline must be maintained and as punishment the delinquents were commanded to work from 8 to 8, instead of the usual hours of from 8 to 7 o'clock, and rustle messages under the close, scrutinizing eyes of the man in command. No walking delegate could have produced such a startling response as did the lads who were disciplined. Twenty-five boys made a dash for the street and the strike was on.

It was at the morning hour and the outlook for the proper transaction of the day's business wore a dismal aspect, especially as this point is a center of unusual activity during the cotton season. At 10 o'clock the real rush opens. At that time the maintenance of business relations with the outside world largely depends upon the telegraph system. Commercial messages were commencing to hum over the wires. From scores of business houses the call for messengers was becoming imperative.

Something must be done to meet the situation. "Hooky privileges" are dear to the boy heart, and what boy of spirit would surrender this "right" so long determined by usage! Not much. If official sanction could not be obtained for such escapades, official blindness might be accepted in lieu thereof when the swimming fever should become too strong for resistance. At any rate, whatever the reason or the inducement held out to the boys, a truce was

effected, the revolt overcome, and the incident closed; the boys with a wink of the eye, with tongue in the cheek and just a faint smile illuminating their determined features, returned to work on the restored eleven-hour basis and the business of the day proceeded merrily as of old.

The Chicago Postal Operators.

In our issue of October 1 we published as a matter of news an article entitled, "The Postal Company at Chicago and its Operators." This referred briefly to the fact that the Postal operators in the Lake City had presented a bill of grievances against the company and that the latter had made reply thereto, a portion of which answer we printed, omitting, for lack of space, the lengthy articles of complaint, thirty-two in number, embodied therein, a detail really not essential for a proper consideration of the case under the circumstances of publication. The article concluded with the statement that as the reply did not prove acceptable to the complainants, the entire subject had been referred to the general executive board, just where the matter stood, according to our information, when we went to press. As the company and its operating staff have since apparently adjusted their points of difference, a result certainly a cause for satisfaction, the incident would appear to be closed. Yet in a letter but lately received from Mr. Will C. Long, Editor of the Commercial Telegraphers' Journal Chicago, attention is called to the fact that the Chicago operators feel aggrieved because this journal did not print the specific points in controversy, although just why is not clear. Mr. Long concludes his letter by stating: "The fact is that all of their (the operators) requests, except that relating to salaries and articles 22, 23, 24 and 26, were agreed to, consisting of twenty-two articles of one section each, two articles of two sections each, one article of ten sections, and one article of thirteen sections, when the committee met with Mr. Nally the second time; and that this agreement between Mr. Nally and the committee resulted in a set of rules and regulations for the information and guidance of the telegraphers of the Postal Telegraph-Cable Company, Chicago, Ill., being presented by Mr. Nally, dated September 26, 1906, and distributed among these employees."

According to Mr. Long this action leaves the subject of controversy on an apparently accepted basis of settlement between all concerned, and on the theory of "All's well that ends well," happiness and contentment should prevail.

The initial (October) number of "The Railroad Man's Magazine," published by the Frank A. Munsey Company, of New York, appears with a bright red cover, emblematic, possibly, of the characteristics of its intended contents, for it bears the starting legend printed across the front cover of "A red-hot magazine for the railroad man or for any

one else who knows a good thing when he sees it." While recognizing the superior efficiency of religion in the world, Mr. Munsey in his introductory places the railroad as the second greatest civilizing and enlightening force, linking it with the telegraph, which, doubtless, he regards as its coequal, the alliance between the two in productive results being so close. The article is optimistic in its estimate of the desirability of the field it aims to occupy, and promises to furnish the railroads with a lot of miscellaneous matter that cannot fail to interest. The current number seems to be well charged in this respect, and as well-told telegraph stories, rewritten from our own pages, are included therein, TELEGRAPH AGE should not withhold a commendatory notice. The price of the magazine is ten cents a copy.

The new state law regulating child labor, which went into effect October 1, and which provides that no children under sixteen years of age in cities of the first class shall be permitted to work after seven o'clock in the evening, has made it necessary for the telegraph and messenger companies to readjust the hours of employment for many of the boys in their service in New York and Buffalo, the points affected. Owing to the strict requirements of the law in question the difficulty in securing messenger boys becomes more acute.

What Degree of Accuracy is Feasible and Necessary in Wiring Calculations?

Certain inconsistencies in wiring calculations are pointed out by Albert Scheible, who questions why they should exist and suggests more consistent practice. Wiring tables give the size of wire to an average exactness of 0.01 per cent., and he has found it the practice to use these figures to the last place, although the wire itself may vary one per cent. in size and methods of computing length allow for a variation of two per cent. Another practice in the use of the resistance constant differs also, some using a constant as low as 10.35, and others eleven. Other figures met are 10.5, 10.8 and 10.6. Certain authors adopt a constant not stating any conditions of temperature and purity of copper. Others use a rather large constant; for instance in dynamo design, and thus allow for a longer wire than that computed, not giving any reason why the wire should always be longer, and not shorter, than the calculated length. To avoid these discrepancies it is suggested that certain approximate dimensions, accurate to one-half per cent., be used, and the same method be done with respect to the resistance of these sizes of wire.—Abstracted by the Electrical Review from the Journal of the Western Society of Engineers, Chicago.

The Newfoundland Government telegraph system has its main office in St. John's, and it has offices and operators at ninety-two points on the island.

Reunion of the Old Time Telegraphers' and Historical Association and the Society of the United States Military Telegraph Corps.

The twenty-sixth annual reunion of the Old Time Telegraphers' and Historical Association held jointly, according to custom, with the So-



HARVEY D. REYNOLDS, BUFFALO, N. Y.
President-elect of the Old Time Telegraphers' and Historical Association.

All will carry away with them only delightful recollections of the affair, and of the opportunity accorded to many for the first time, of viewing the capital city of the United States and the magnificence of the Government buildings.

The telegraphers made their headquarters at the Arlington Hotel. A business meeting of the Old Time Telegraphers' and Historical Association on the morning of Tuesday, October 9, was



ISAAC McMICHAEL, TORONTO, ONT.
Vice-President-elect of the Old Time Telegraphers' and Historical Association.

ciety of the United States Military Telegraph Corps, met at Washington, D. C., on Tuesday, October 9, and continued over the 10 and 11 insts. Much had been done for the reception of the visitors by the various committees who had

the first formal event to take place. President William H. Young called the assemblage to order in the room which had been decorated for the occasion by the War Department with American flags. The decorations were complete with the



GEORGE A. BURNETT, BUFFALO, N. Y.
Vice-President-elect of the Old Time Telegraphers' and Historical Association.



GEORGE F. MACDONALD, OTTAWA, ONT.
Vice-President-elect of the Old Time Telegraphers' and Historical Association.

charge of the affair, and the comfort and pleasure of all was fully conserved. President Young, as the executive head, and all of those associated with him in planning and making ready for the reunion, will be held in grateful remembrance for work performed and courtesies extended.

collection of pictures belonging to President Young showing the history of the telegraph from the early days to the present time.

The gavel used by Mr. Young was another relic, it being made from an old Harp register that was in use fifty years ago.

Mr. Young introduced Henry B. F. Macfarland, president of the board of commissioners, Washington, who talked to the telegraphers in an informal, happy vein.

After setting his listeners laughing with several stories, Mr. Macfarland became more serious, and said:

"Even without the new marvel known as the wireless telegraph, even without its near relative, the telephone, the telegraph of Henry and Morse stands as one of the wonders of the world. It is hard for us who have had the use of it all our lives to realize what life was without it, but we know that if it should be suddenly taken away from us the whole fabric of our life would be shaken as by a gigantic earthquake. The service which you have rendered in war and in peace alone entitles the telegraph to universal gratitude. And you deserve your share of praise for its beneficence, because of your loyalty and fidelity. Here, where Henry and Morse lived, where the first message was sent; here at the heart of the political life of the nation, the seat of its authority, from which its government sends its messages in war and in peace over the wires at home and abroad and under the seas, everywhere connecting us with all other peoples, and bringing us into that closer understanding which means peace and mutual benefit, you ought to feel perfectly at home. Some of you sent Lincoln's commands in the Civil War, some of you sent McKinley's commands in the Spanish war, all of you have been close to our greatest men in time of peace, and all of you deserve well of your country."

William J. Dealy, superintendent of the Commercial News Department of the Western Union Telegraph Company, New York, responded to the address. He thanked Mr. Macfarland and the District government for the kindness of their welcome.

"When again we meet, our first thoughts will be for the kindest and most cordial of men, Commissioner Macfarland," said Mr. Dealy. "And," he continued, turning to the commissioner, "if ever you have occasion to be present at one of our gatherings, there will be many of the old fellows, old chaps who have grown gray over the click-click of the instrument, who will welcome you."

President Young then launched forth into his opening address. Mr. Young said in part:

"In this, the twenty-sixth anniversary of our beginning, and the twenty-sixth convention of our delegates, I am more than glad to have our association meet in Washington. Washington is the center of the world, and it is now a Greater Washington than it ever was. The telegraph has done much to make this so, and Washington is grateful for it."

Mr. Young said he had been in the service more than fifty-two years. "Nothing," he continued, "ever has given me any more pleasure than this meeting, and I shall remember it as

long as I live. Welcome to Washington."

Mr. Young suggested that some changes be made in the laws of the association.

"Personal Reminiscences of Dr. James J. Clark," was the subject of a paper then read by Mr. Young. Dr. Clark was for many years the only man who made the telegraph instruments.

The paper gave a minute description of old instruments, and of interesting incidents in the life of the writer, which is filled with the romance of the wires.

William J. Dealy pinned the badge of presidency on Mr. Young. The insignia is a picture of Prof. Morse, which was found on his daughter when her body was recovered from the ocean. She was drowned from an ocean liner between the West Indies and New York.

A memorial to Edward Rosewater, editor and proprietor of the Omaha Bee, who recently died, was read by Col. W. B. Wilson, president of the Society of the United States Military Telegraph Corps. A resolution eulogizing Mr. Rosewater was read and passed. A copy will be sent to his wife.

The reports of the secretary and treasurer were then read. The first showed that at the beginning of the fiscal year there were 1,352 members on the roll; that during the year 104 persons applied for membership and that that number of certificates were issued. The present net membership is 1,443. There have been fifteen deaths among the membership, as follows: W. J. Byrne, Charles A. Elster, Charles D. Livermore, Alexander M. Mackay, William A. Rudd, Alfred S. Brown, M. F. Gafrney, H. S. Larcombe, Kenneth McKenzie, Rodney Smith, M. F. Findley, Henry Holland, S. H. Kauffmann, G. E. Rainsfort, Theodore Sumwalt.

The treasury was shown to have a balance standing to its credit of \$1,042.31.

The Old Time Telegraphers then took a recess and the Society of the United States Military Telegraph Corps was convened for its business meeting.

Col. William B. Wilson, president, of Holmesburg, Philadelphia, called the meeting to order. After a brief address, business was rushed through till Colonel Wilson made a short talk on pensions for the military telegraphers, for which he has long been a most earnest advocate. There is a bill asking for pensions for these men, all of whom served in the army during the Civil War, now pending before the Congress. As yet no action has been taken on it.

The secretary's report of the military society was then read and approved. It showed that five deaths had occurred during the year, those of Martin Barth, J. D. Flynn, W. S. Logue, Edward Rosewater and D. A. Williams.

After a short discussion the following officers were elected:

Col. William B. Wilson, Holmesburg, Philadelphia, president; William L. Ives, New York, vice-president; J. E. Pettit, Chicago, secretary

and treasurer; executive committee: A. H. Bliss, Chicago; A. B. Chandler, New York; W. R. Plum, Chicago; George C. Maynard, Washington; R. B. Hoover, New York; J. D. Cruise, Kansas City; M. H. Kerner, New York; John Wintrup, Philadelphia.

At the conclusion of the meeting of the military telegraphers, President Young again called the old timers' association together. The committee on nominations, time, and place consisting of John Wintrup, of Philadelphia; James E. Pettit, of Chicago; G. F. Macdonald, of Ottawa, Ont.; W. J. Dealy, J. B. Taltavall and D. F. Malen, New York, reported in favor of Niagara Falls as the place of the next meeting, the date to be selected by the local executive committee.

The following officers for next year were then chosen:

Harvey D. Reynolds, superintendent of the Postal Telegraph-Cable Company, Buffalo, N. Y., president; George A. Burnett, Great North Western Telegraph Company, Buffalo, Isaac McMichael, general manager of the Great North Western Telegraph Company, Toronto, Ont., and George F. Macdonald, superintendent of fire and police telegraphs, Ottawa, Ont., vice-presidents. John Brant of New York, who was too ill to be present, was reelected secretary and treasurer.

The executive committee selected included William H. Young, Washington; John C. Barclay and Charles C. Adams, New York; U. J. Fry, Milwaukee.

The transaction of this business concluded, the meeting adjourned.

In the afternoon members of the two societies went to the Arlington National Cemetery, special cars conveying them to and from the historic spot. In the evening the attractions of the theatre claimed the attendance of the entire delegation.

On Wednesday, October 10, the day began with a sight-seeing tour of the city. In the afternoon at half past two o'clock, the telegraphers were received by President Roosevelt, the reception being held in the East Room of the White House. To each one he gave a peculiarly hearty handshake. This evidently made a deep impression upon the visitors, as one of them remarked at the conclusion of the reception:

"I know, now, why it is that every one who meets the President is proud of it."

Leaving the White House, the visitors boarded special cars on Pennsylvania avenue for the Capitol. Every room in the vast building was inspected, the stay of the telegraphers lasting until five o'clock. They returned to the Arlington for dinner, and in the evening, escorted by members of the local society, visited the Congressional Library.

Thursday, October 11, was crowded with interesting events. At half past nine in the morning all went down the Potomac by steamer to visit historic Mt. Vernon, the home of Washington, and the burial place of the Father of his

Country. Returning at one o'clock the afternoon was devoted to the inspection of the Corcoran Art Gallery, the Washington Monument and the National Museum. While the vast collection at this point spread before the visitors was full of interest, the one little telegraph instrument which transmitted the famous original message "What hath God wrought," sent by Miss Annie Ellsworth over the first telegraph line that was constructed between Washington and Baltimore, attracted much attention. The old instrument had been hauled out of its receptacle, cleaned up, and connected with batteries for the edification of the visitors. Many used it to send brief messages.

A "Souvenir Programme" of the reunion, a neatly prepared brochure, containing numerous views of the public buildings in Washington, views of Arlington and Mt. Vernon, were distributed among the telegraph visitors.

The concluding feature of the reunion was the banquet in the evening, served at the Arlington Hotel. It was an elaborate affair and a large number of guests sat down at the well-appointed tables. The apartment was handsomely decorated, flags and flowers abounding, and during the entire evening an orchestra discoursed sweet music. There was also a quartette of male voices whose fine singing both in part songs and in solo renderings, added much to the pleasure of the diners. One of the quartette selections given was "Twas a Boy that Swung the Key," words and music by Marion H. Kerner, of New York, a member of the United States Military Telegraph Corps. When the last chorus was sung a uniformed messenger boy rose and waved the American flag. Copies of this song were afterwards distributed among the guests, the same being presented with the compliments of Col. R. C. Clowry, Col. A. B. Chandler, W. R. Plum, A. H. Bliss, Charles A. Tinker, D. H. Bates, W. J. Dealy, C. D. Hammond, C. W. Jaques, J. D. Cruise, Paul W. Bossart, Joseph Hansen, A. P. Cochran, John Lonergan, J. Hervey Nichols, L. H. Korty and Marion H. Kerner.

When W. H. Young, the president of the old timers, and who presided, rapped for order at the conclusion of the dinner, there was a general settling back in the chairs in anticipation of the good things that were to come in the form of speechmaking. Hon. P. V. DeGraw, fourth assistant postmaster general, was the toastmaster, and well did he take his part. The first speaker was Prof. Willis P. Moore whose subject, "Weather Reports by Wireless," was of exceeding interest, describing as it did how information was gathered by which weather forecasts were prepared, wireless telegraphy enabling information to be transmitted frequently from distant points at sea. B. W. Trafford, of Philadelphia, spoke on "The Telephone and its Relation to the Telegraph," a theme which held the close attention of the telegraphers present. Commander E. E. Hayden,

of the Navy, gave a fine talk on the "Time Service of the Naval Observatory," describing with detail the practical workings of the same. W. W. Jermane, a Washington newspaper correspondent, had for his topic "The Press and Telegraph Indissoluble and Indispensable," a self evident fact which he made interesting by careful elucidation. John E. Wilkie, the head of the United States Secret Service, followed with "Old Time Outsider." This speech, largely in poetic measure, proved to be a strong appeal to the telegraphic heart, for in his reference to the days when he was a "plug" operator, and in other reminiscent allusions he kept his audience in fine feather. Col. William B. Wilson, of Philadelphia, was at his best in treating "The Military Telegraph in the Civil War," in which he made a strong plea that justice be done to the military telegrapher, urging that the pension bill so long hanging fire in Congress should be passed for the relief of this long neglected contingent of the Army in the Civil War period who shared every danger with the soldier. M. J. O'Leary was the last speaker and he was quite at home when he discussed the question, "As a Powerful Auxiliary for Good and the Advancement of the Standing of the Profession, the Telegraphers' Mutual Benefit Association stands Pre-eminent," a title that constitutes in itself an epitome of the remarks of the genial secretary of the association referred to.

It was a late hour when Auld Lang Syne was sung and the twenty-sixth reunion of the Old Time Telegraphers' and Historical Association and of the Society of the United States Military Telegraph Corps was brought to a close.

Among those present were:

- Altoona, Pa.—C. N. Swoyer.
- Ashtabula, O.—C. W. Jacques and wife.
- Baltimore, Md.—J. M. Creamer and wife; E. W. Dav, Charles Selden and wife; A. Stevens, and J. B. Yeakle, wife and daughter.
- Bangor, Me.—P. J. Feeney and wife.
- Boston, Mass.—W. J. Fraser, wife and two daughters; H. W. Gillespie and daughter, and John H. Connors.
- Chattanooga, Tenn.—R. C. Jones and wife, and G. L. Lang.
- Chester, S. C.—L. S. Nichols and wife.
- Chicago, Ill.—R. G. Davidson, A. G. Hancock, C. A. Martin, S. C. Mason, and J. E. Pettit and daughter.
- Cincinnati, O.—William Fellowes, J. P. McCabe and wife, and I. N. Miller and wife.
- Cleveland, O.—F. C. Hackett and wife, and W. C. Wood and wife.
- Columbus, O.—O. H. Newell.
- Corning, N. Y.—F. J. Howell.
- Covington, Tenn.—W. N. White.
- Cresson, Pa.—Henry Taylor and daughter.
- Dallas, Tex.—J. C. Smith.
- Detroit, Mich.—James Moxam and wife, and Roderick M. Ross, wife and daughter.

Duquesne, Pa.—Wm. Allenbaugh, wife and daughter.

Elmira, N. Y.—J. H. Shearer and wife.

Jersey City, N. J.—J. B. Bertholf, and Jos. W. Fletcher and wife.

Johnstown, Pa.—Peter Weitz, wife and daughter.

Los Angeles, Calif.—John F. Knapp.

Louisville, Ky.—F. B. Williams.

McConnellsburg, Pa.—T. F. Sloan and wife.

Montreal, Que.—L. B. McFarlane and wife.

Mount Pleasant, Pa.—Joseph Landis and wife.

Nashville, Tenn.—A. H. Stewart, wife and daughter.

Newark, O.—Charles A. Anderson.

Newbern, N. C.—George Henderson and wife.

New York, N. Y.—Miss Jennie Allen, R. L. Bamford, Mrs. C. H. Bristol, W. J. Dealy, J. H. Drakeford and wife, R. Ferguson and wife, J. H. Flood and wife, E. P. Griffith, O. J. Hicks, Charles A. Hicks and wife, J. R. Heidemark and wife, J. Frank Howell and wife, Mrs. W. H. Jackson and daughter, M. H. Kerner, F. E. McKiernan and sister, D. F. Mallen, F. G. Mason and daughter, Mrs. Cora A. H. Mauer, C. H. Murphy, M. J. O'Leary, Henry A. Reed and wife, F. J. Scherrer and wife and daughter, George Schreiner, H. V. Shelley and wife, Frank A. Stumm, J. B. Taltavall, wife and daughter, Charles A. Tinker, H. P. Wilkins.

Ottawa, Ont.—George F. Macdonald.

Paterson, N. J.—J. E. Dunning and wife.

Philadelphia, Pa.—J. P. Altberger and wife, J. O. Edmondson, Joseph E. Janney, wife and daughter, Wm. Koons, E. L. Maize and wife, Frank E. Maize and wife, Charles H. Snyder and wife, W. P. Westbrook, John Wintrup, and Col. W. B. Wilson and wife.

Pittsburg, Pa.—J. H. Amend, W. A. Case and wife, D. Kelly and wife, E. J. Kirby, F. J. McKenna and wife, W. I. McQuown, wife and son, Theodore E. Moreland, W. E. Peirce, W. R. Smith and wife, John B. Stewart and wife, John W. Stump and wife, and J. W. Yealy, wife and daughter.

Plainfield, N. J.—C. H. Schermerhorn and wife.

Portland, Ore.—J. Annand and wife.

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

Richmond, Va.—H. L. Harvey.

Rochester, N. Y.—George M. Case, wife and daughter.

Saginaw, Mich.—Mrs. R. S. Warfield.

Salt Lake City, Utah.—S. F. Fenton and wife.

Scranton, Pa.—Dr. J. E. O'Brien, wife and daughter.

Slingerlands, N. Y.—C. D. Hammond.

St. Paul, Minn.—W. Weisel and wife.

Titusville, Pa.—D. Colestock.

Toledo, O.—W. G. Brownson.

Washington, D. C.—Wm. Henry Allen, Wil-

liam M. Ash, M. W. Barr and daughter, R. W. Bender, Mrs. Wm. J. Bodell and daughter, Wm. S. Bronson, D. F. Brown, P. E. Brown and wife, W. W. Burhans, R. G. Callum, wife and son, J. A. Casterlin, James J. Clark, J. W. Collins and wife, John F. Connor, George Coombs, D. W. Daly and wife, Hon. P. V. De Graw, R. B. Dickey, G. L. Diven, H. F. Dodge, H. W. Dowling and wife, Ernest W. Emery and wife, R. R. Gibbs and wife, Miss Anita C. Grosscup, Frank Kane, Major J. O. Kerbey, J. O. La Gorce, Robert E. Layton, Wm. J. Lee, W. H. McKeldin and wife, George C. Maynard, J. J. Mooney, T. T. Moore and wife, C. C. Mothersead and wife, W. M. Patton, W. H. Potter, John D. Prosser and wife, G. W. Ribble, Jesse H. Robinson, Major Edgar Russel, H. F. Taff and wife, A. B. Talcott, E. J. Totten, J. J. Vowels, George W. Warner, Wm. H. Young and daughter, and A. J. Lombard.

Wilmington, N. C.—W. P. Cline.

Winsted, Conn.—C. K. Hunt and wife.

NOTES OF THE CONVENTION.

Mrs. Reed, wife of Henry A. Reed of New York, a forty-niner of the telegraph, who was present at Washington, is the possessor of a rosebud presented to her by Prof. Morse, the inventor of the telegraph, when her husband was the manager of the telegraph office at Poughkeepsie, N. Y., during the fifties. It is a well preserved memento and she naturally values it highly as a souvenir.

Mr. Charles A. Tinker, of New York, formerly general superintendent of the Eastern division of the Western Union Telegraph Company, and a military telegrapher who served in the War Department and in the field during the Civil War, was in attendance at the reunion, the first occasion of the kind at which he has been present in years. He was pleased with the attention shown him and with the opportunity afforded to renew acquaintance with a number of old friends. He remarked that it was just forty-five years ago, October 10, that he went to Washington to enter the service of the government and the official to whom he reported was none other than Col. William B. Wilson, now of Philadelphia. At the banquet when Mr. Wilkie finished his speech learning that Mr. Tinker was present, he sought that gentleman whom he surprised and delighted by disclosing the fact that he was once a member of a Sunday school class taught by Mr. Tinker in Chicago years ago.

Mr. George F. Macdonald, of Ottawa, Ont., a newly elected vice-president of the association, proved to be a great favorite among the young people, for he had an interminable fund of stories on tap, and as he is the embodiment of jollity and good nature, his was always a welcome presence.

Mr. W. H. Young, president of the Old Time Telegraphers' and Historical Association, at the business meeting of the same, paid a merited compliment to the excellent work performed by his various committees, whose enthusiasm and loy-

alty never faltered. He referred to the splendid work accomplished by Mr. William H. McKeldin, chairman of the Finance Committee, whose efforts in raising money proved so successful.

Col. William B. Wilson, president of the Society of the United States Military Telegraph Corps, who is an artist of no mean repute in the line of caricature, exhibited a number of his sketches, comically illustrating numerous members of the two associations, which were afterwards distributed among his friends, and which caused much merriment.

Mr. J. N. Worl, of Westfield, N. J., a forty-niner of the telegraph, sent a communication to one of the members of the Old Time Telegraphers' and Historical Association advocating the dividing of the membership into two divisions; the first to embrace those who began their telegraph service prior to 1870, and the second division to consist of those who entered the service subsequent to that date. The proposition was favorably commented upon by various members, and official action on the subject may possibly be taken at the next meeting.

The absence of John Brant, the secretary and treasurer of the old timers' association, which was due to illness, called forth many expressions of regret, for Mr. Brant is justly popular in the organization for which he has rendered such conspicuous and faithful service during the years he has held office. His re-election to the office he has dignified was a unanimous tribute both to the man and to his abilities.

Chattering of Telegraph Relay in Composite Set.

A correspondent of the American Telephone Journal asks: I should be glad to have you tell me why in a railway composite set it is necessary to furnish ringing current of such high frequency to signal telephone stations.

The Journal replies: In sets of this type, to be used for telephoning on a line also equipped with telegraph instruments, it is necessary that the use of the telephone either for talking or signaling should not interfere with the operation of telegraph instruments. It was found that alternating current of the frequency of that furnished by an ordinary telephone generator readily passes through the telegraph relays, causing them to chatter and interrupting any message which may be in process of transmission.

To overcome this condition the best plan was considered to be to increase the frequency of the telephone signaling current and design a suitable bell to be operated by this high frequency current. The impedance of the telegraph relay to this current of high periodicity is so great that it is completely shunted to the telephone circuit.

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.

Sketches of Some of the Members of the Old-Time Telegraphers' and Historical Association and of the United States Military Telegraph Corps.

The great number of illustrated sketches appearing under the above head in the October 1 issue, of present and former members of the large army of the telegraph, those who retain their connection with the Old Time Telegraphers' and Historical Association and of the Society of the United States Military telegraph Corps, constituted a feature of that notable edition that has attracted wide attention and elicited many expressions of commendation. As we remarked in our introduction, many of the sketches served to teach a "wholesome lesson of the dignity and power of individual character that 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 foreign or allied thereto." Several photographs were received too late to have engravings made therefrom in season to appear in connection with the preceding list of their fellows. These, with appropriate sketches, are now presented and may be accepted as a fitting conclusion to those finding place in the October 1 number.

JOHN M. WOOTEN.

John Monroe Wooten, who is now postmaster at Morristown, Tenn., is a telegrapher, a native of that state, having been born at New Market, March 26, 1859. His first experience in the telegraph serv-



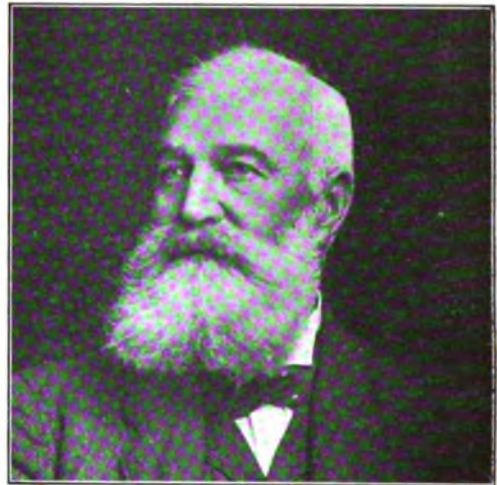
JOHN M. WOOTEN.
Morristown, Tenn.

ice was gained at Riceville, Tenn., as an operator for the old East Tennessee, Virginia and Georgia Railway, a position entered upon October 22, 1880. In August of the following year he became assistant train dispatcher at Knoxville, in the same interests, being transferred after a few months to Morristown as night operator. At the end of two years of such

service he was advanced to higher positions in the railroad employ which he continued to fill until 1887, when he received his appointment as manager of the Western Union Telegraph Company at Morristown. In this capacity he served until receiving his present appointment as postmaster, February 13, 1906, which came to him as a fitting recognition of the telegraphic interests.

HENRY C. HEPBURN.

Henry Charles Hepburn, now a resident of Babylon, L. I., and for the past twenty-seven years a member of the New York Stock Ex-



HENRY C. HEPBURN.
Babylon, N. Y.

change, was identified with the early history of the telegraph, in its construction, its operation and in a wide contemporary acquaintance among prominent people actively interested at the time in its promotion, whose names, many of them, from that of Morse, have passed into history as "fathers of the telegraph." Mr. Hepburn was born in Perrington, N. Y., September 22, 1826, and consequently has just passed his eightieth birthday. Yet his form is as full and erect and his step as firm as a man twenty-five years his junior. He entered the telegraph service at Philadelphia in December, 1844, the same year that Ezra Cornell built the initial line of telegraph from Baltimore to Washington. In the same year he became connected with Henry O'Reilly, who had the contract to build all lines west of Philadelphia, with James D. Reid, and helped to construct the telegraph line from Philadelphia to Baltimore. He also personally had charge of the building of a portion of the line from Harrisburg, Pa., to Pittsburg, and opened the first office established at the latter place. This was in 1847. Mr. Hepburn also constructed the line from Pittsburg to Cleveland, and established the office in the latter city, as he had previously done at Pittsburg. He afterwards became superintendent of the line reaching from Buffalo to Detroit and the cross section, Cleveland to Pittsburg, and personally attended to the opening of

each of the offices on these long stretches, practical telegraphers in these days, who might have served the purpose, being scarce. He was present at Jersey City at the time of the opening of the telegraph from Jersey City to Philadelphia, the link that completed the important line to Washington, and describes the enthusiasm that prevailed at the time, for the utility of the telegraph had long since been demonstrated, and its value was well confirmed in the public mind. Mr. Hepburn was associated with Mr. O'Reilly through many years, guiding the latter's financial matters with loyalty, prudence and with much circumspection. To recite in detail the telegraphic history of this veritable "old timer," who holds an honored place in the ranks of the Old Time Telegraphers' and Historical Association, would involve too long a story, interesting as it may be, for publication at this time.

GEORGE M. FERRY.

George M. Ferry, a former well-known telegrapher, now general yardmaster of the Pennsyl-



GEORGE M. FERRY,
Duquesne, Pa.

vania Railroad at Duquesne, Pa., was born at Wilmore, Pa., May 19, 1857, at which point, in 1872, he first entered the telegraph service in the railroad employ. From this time until August, 1883, he was an operator at various points on the Pittsburg division of the Pennsylvania road, including a position held in the superintendent's office at Pittsburg, when he was promoted to be yardmaster at Thomson, Pa., on the Monongahela division, known as the Pittsburg, Virginia and Charleston road. Further advancement made him trainmaster at Pittsburg, south side, a post he held from February, 1889, to July 1, 1903, when he received promotion to his present occupancy, with jurisdiction extending from Pittsburg, south side, to McKeesport, Pa.

TELEGRAPH AGE should go regularly to every one interested in the telegraph. Write for a sample copy.

The Telharmonium.

The first telharmonic concert given with the Cahill dynamophone, the invention of Dr. Thaddeus Cahill, by which the electrical distribution of music directly from a generating plant is made possible, a method which has before been referred to in these columns, occurred on the evening of September 26 before the New York Electrical Society and a delighted audience at Broadway and Thirty-ninth street. The plant was driven by a motor of two hundred horsepower on the Edison mains. It was explained on the occasion that the telharmonium combines in itself the musical power of all known instruments, the tones of which may be transmitted over telegraph and telephone wires for distances practically without limit; that each small alternating-current dynamo constituting part of the dynamophone generated a special current, whose musical note corresponded to the frequency, and that these currents through the apparatus and the keyboard on which the performer played could be so compounded that musical notes were heard in the receiving telephone and regular compositions could be rendered. From the keyboard the music is delivered to as many telephones as may be in circuit, and so conveyed direct to subscribers.

Great North Western Election.

At the annual meeting of the Great North Western Telegraph Company, held at Toronto, Ont., September 26, officers and directors were re-elected as follows: H. P. Dwight, Toronto, president; Adam Brown, Hamilton, vice-president; I. McMichael, Toronto, vice-president and general manager; George D. Perry, secretary and treasurer, and A. C. McConnell, auditor. The board of directors includes the officers named, with the exception of Messrs. Perry and McConnell, and James Hedley, W. C. Mathews, H. N. Baird, Hon. K. Kerr, Toronto; Colonel Robert C. Clowry, and J. B. Van Every, New York.

The Philadelphia, Reading and Pottsville Election

The Philadelphia, Reading and Pottsville Telegraph Company held its annual election at Reading, Pa., October 2, with the following result: George F. Baer, president; Richard Tull, treasurer; W. R. Taylor, secretary; C. M. Lewis, superintendent; directors, Joseph S. Harris, Theodore Voorhees, C. E. Henderson and Samuel Dickson.

"Modern Practice of the Electric Telegraph," although not a new publication, nevertheless fully maintains its value as an excellent technical handbook for electricians, for telegraph managers and for operators. The fact that numerous editions of the book have been issued proclaims its intrinsic worth. The author, the late Franklin Leonard Pope, was a former president of the American Institute of Electrical Engineers, a member of the Institution of Electrical Engineers of London, an old-time telegrapher, and a writer of marked ability. The volume embraces 234 pages, has 185 illustrations and is fully indexed. Price, \$1.50, postpaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

The Western Union's Specifications for Testing Galvanized Iron Wire.

The Indiana Steel and Wire Company in a circular issued by them gives in condensed form the Western Union Telegraph Company's specifications for testing galvanized iron wire. They are:

"1. The wire to be soft and pliable, and capable of elongating 15 per cent. without breaking, after being galvanized.

"2. Great tensile strength is not required, but the wire must not break under a less strain than two and one-half times its weight in pounds per mile.

"3. Tests for ductility will be made as follows: The piece of wire will be gripped by two vises, 6 inches apart, and twisted. The full number of twists must be distinctly visible between the vises on the 6-inch piece. The number of twists in a piece of 6 inches in length not to be under 15.

"4. The weight per mile for the different gauge wires to be: for No. 4, 730 lbs.; No. 6, 540 lbs.; No. 8, 380 lbs.; No. 9, 320 lbs.; No. 10, 250 lbs., or, as near these figures as practicable.

"5. The electrical resistance of the wire in ohms per mile, at a temperature of 68° Fahrenheit, must not exceed the quotient arising from dividing the constant number 4,800 by the weight of the wire in pounds per mile. The coefficient .003 will be allowed for each degree Fahrenheit in reducing to standard temperature.

"6. The wire must be well galvanized, and capable of standing the following tests: The wire will be plunged into a saturated solution of sulphate of copper, and permitted to remain one minute, and then wiped clean. This process will be performed four times. If the wire appears black after the fourth immersion, it shows that the zinc has not been all removed, and that the galvanizing is well done; but if it has a copper color, the iron is exposed, showing that the zinc is too thin."

The following bit of history respecting the ancient manufacture of wire will be read in this connection with interest: The making of wire is as old, almost, as time itself, and the evolution of its manufacture if truly told would take volumes. The first wire of which we have any account was in early Egypt. Gold wire is mentioned in connection with the decorations of the sacerdotal robes of Aaron, while metallic shreds—it is recorded—have been actually discovered that date as distant as 1700 B. C. A specimen of wire made by the Ninevites some 800 years B. C. is exhibited at the Kensington Museum. From such remote eras up to the fourteenth century wire in its general acceptance was produced by hammering out strips of metal, and not by the process of drawing as practiced at the present time. It is, however, fairly substantiated by technical records that the present method of "drawing wire" was practiced in the Lennes district of Germany, during the fourteenth century.

One Substitute for the Telegraph.

Mention has been frequently made during the recent native troubles in South Africa of the "Kaffir telegraph," the strange system to which news of any importance is communicated from one extreme of the native territories to the other with almost incredible rapidity, and the working of which, it has been stated, is still a mystery to the white man. This latter statement is scarcely correct. Numbers of up-country residents, traders and the like, are well acquainted with many of the ways in which communication passes from tribe to tribe. When a chief receives a message he selects a fast runner, and gives him the words, and instructs this man to run in a given direction as fast as he can—horses are never used in this work—until he is exhausted. When he can run no longer he enters the nearest kraal, selects the chief man, gives him the words, and this man in his turn picks out his fastest runner, who at once starts off until he also is exhausted, when he acts in a similar way.

It is not an enviable task carrying a chief's message at night, for the native is always suspicious of cattle thieves. Assegais and guns are handy, and the man who dashes past a kraal in the dark may possibly come to a sudden stop with an assegai or a bullet through him; but, failing this extreme method he is liable, when near the borders, to be seized by the native police as a suspicious character. With relays of runners like this a hundred miles can be covered in twenty-four hours. The system of "calling messages" is largely used by the natives in war time. The air in South Africa is so dry that sound carries a very long way. Native messengers are stationed at the tops of hills to call messages to each other. It is no exaggeration to say that they can make themselves heard and carry on conversation a quarter of a mile distant, but for obvious reasons they cannot be stationed so close together, so a system of signaling by smoke is carried on at night, but this means is not followed in such a case as I am trying to describe.

A white man named Groom had settled down among the Pondos and adopted their ways and, except for the trifling difference of color, was to all intent a Kaffir himself. This man once, in answer to an argument which took place outside the store in Mount Frese, offered to have a message delivered in Kongha, about 200 miles away, on the day after the one on which we were speaking, and a note was accordingly written to a storekeeper in that village and given him. On the second morning a Kaffir walked into the store in Kongha and placed the paper in the storekeeper's hand and walked out; but we never found out how this had been accomplished.—The London Field.

Sample copies of TELEGRAPH AGE will be sent free to all intending subscribers.

Telegraph Age is headquarters for electrical and telegraph books. Write for catalogue.

The Early Progress of the Electric Telegraph.

[In our issue of September 16 we republished from the *Journal of the Society of Arts*, London, printed in the issue of April 23, 1858, an extract from an exceedingly interesting paper by C. W. Siemens, who afterward became the head of the famous house of Siemens Brothers, on the subject indicated above, the original title of the article. The contribution in question was lengthy; and we herewith publish another extract from the same.—Editor.]

About this time gutta percha had become known in England, and having been struck with its peculiar plasticity, I forwarded my brother, Werner, in Berlin, a sample, to see whether he could use it for the purposes he had in view. He soon discovered its remarkable insulating properties, and recommended an experiment on a larger scale, which, having been sanctioned, he completed a line of from four to five English miles (between Berlin and Gross-Breeren) successfully in the summer of 1847. The machine he designed for covering the copper wire with gutta percha is nearly identical with the cylinder machine still used for the same purpose. In the spring of 1848, a considerable length of gutta percha coated copper wire was submerged in the harbor of Kiel for military purposes, but it was found that, owing probably to the impurity of the material, the gutta percha underwent a gradual change, as though it was penetrated by the sea-water, to counteract which Werner Siemens proposed, with apparent effect, to mix a small proportion of sulphur with that substance. In the same and the following year more than a thousand miles of gutta percha coated line wire was laid down underground, and proved successful for several years, when it began to fail, for the most part in consequence of the impure and adulterated condition of the material then supplied. Although the underground line wire has, for the most part, been superseded again by the suspended wire, I venture to assert that we shall eventually return to it for all principal lines. The experience gained in this great experiment has been most valuable in paving the way to submarine cables, which, at the present time, occupy so large a share of public attention.

* * * * *

Since the time of the first successful introduction of the electric telegraph, a great variety of instruments, insulators and other appliances have been proposed, among which the chemical recording instruments of Bain and Bakewell, the modifications of Wheatstone's magneto-electric needle, and dial instruments of Henley and Stoehrer, the various combinations of Messrs. Highton, Clark and Bright, and the more recent productions of Mr. Varley and Mr. Whitehouse, are of undoubted merit in having contributed to the general progress of electric telegraph engineering. To describe them here would be a task far exceeding the limits of this paper, and I shall therefore proceed at once to point out what, in my opinion, at least, supported by actual experience, are the best means to be adopted, at

the present time, for extending the electric telegraph, both on land and across the seas.

The foregoing sketch of gradual development of the electric telegraph may serve to show that the particular arrangements adopted to indicate or register the message, or the particular combination of elementary signs, is of secondary importance, but that every essential progress is marked by the discovery of some new means of generating currents of greater dynamic power, or of producing by their means more decided effects at the further extremity of the conductor.

Let us inquire, then, what are the conditions of current generator, current conductor and receiver, best calculated to realize a maximum of palpable effect at great distances. Inquiry into these questions is of particular interest at the present time, when great efforts are being made to extend telegraphic communication across the Atlantic and Indian oceans, distances far exceeding the length of any land lines yet constructed. Among the different varieties of electricity hitherto applied to telegraphic purposes, that produced by friction possesses the greatest tension or power to overcome resistance in the conductor. But its discharge is instantaneous, and it is, therefore, ill-suited to produce dynamic effects with time or duration a factor.

The voltaic current, on the contrary, may be considered as absolutely continuous, and, therefore, as best suited to produce powerful effects, but it is deficient in tension, unless a great number of elements are employed, in which case it becomes expensive and troublesome. A battery of sufficient intensity to convey an effect through the Atlantic cable, would have to be composed of at least 500 Daniell's cells, according to ordinary practice, but I apprehend that the internal resistance of such a battery would of itself annihilate its presumed power, and that practically no battery of sufficient power could be thus constructed.

We now approach the subject of submerged conductors, which, at the present time, engrosses the attention of electrical engineers, and also commands a large share of public interest, owing both to the difficulties with which it is surrounded and the vast importance of the object in view. Regarding the history of submarine cables, it appears that the first experiments, on a small scale, to submerge an insulated conductor (copper wire coated with cotton thread saturated with pitch and tar), were made at Calcutta, in 1839, by Dr. (now Sir) William O'Shaughnessy.

Professor Wheatstone proposed, in the following year, to establish a telegraph cable between England and France, and prepared very elaborate and well-considered plans, which, by his kindness, I am enabled to place before the meeting. The cable Wheatstone proposed contained six separately insulated copper wires, which were protected by a strong sheathing of iron, differing,

however, from the sheathing now generally adopted, in being devoid of strength in a longitudinal direction.

Submarine telegraphs must, however, have proved impracticable but for the timely discovery of gutta percha, and of its remarkable insulating properties. It is, therefore, not surprising that the first successful attempts to establish sub-aqueous conductors were made by Werner Siemens, in 1848, in the bay of Kiel, and in crossing the Rhine at Cologne, and other rivers. The gutta percha coated copper wire was at first submerged without outer protection, but it was laid by the side of a strong chain to protect it from anchors. In the following year, however, a lead coating was introduced.

The first attempt to establish a sub-aqueous conductor across the open sea (from Dover to Calais) was made by Wollstone, in 1850. It consisted of a gutta percha coated copper wire, without external protection, and failed immediately after it had been laid. In the following year, Crampton laid a cable between the same places successfully. This cable was sheathed with iron wire, according to Messrs. Newall and Company's patent process, which gives great longitudinal strength, and has been generally adopted ever since, except in the instance of the Varna-Balacava cable (laid by Messrs. Newall and Company in 1854), which had no sheathing, excepting at the shore ends, and which worked successfully till just before the evacuation of the Crimea by the allies.

It would be tedious to notice the numerous successful and unsuccessful attempts which have been made since the year 1837 to establish submarine cables; suffice it to state the general results of the experience obtained, which goes to prove that the difficulty of submerging and working submarine cables is small in shallow and narrow waters, but increases in a very rapid ratio with the depth and breadth of the ocean to be traversed.

* * * * *

The insulated covering of gutta percha increases the bulk without adding to the weight of the cable, being nearly of the same specific gravity as sea water; it improves both the mechanical and electrical properties of the cable, and the only limit to its desired thickness is its expense. The principal weight, and all the available strength of the cable, reside in its sheathing, which should be made of a material combining strength with lightness, and also with hardness, to resist the crushing and tearing action of the brakewheel; and there can be no doubt that steel wire combines these qualities in the highest degree, nor do I think it would be much dearer than iron if power of suspension was taken for the basis of calculation.

It can easily be shown, by the simple rule here given regarding the strain upon the cable in

leaving the vessel, that an iron-sheathed cable cannot, under the most favorable circumstances, be laid in water of more than three miles in depth, without a certainty of rupture taking place, whereas a steel-covered cable might be laid, with reasonable safety, to a depth of five or six miles, which depth is, I believe, rarely exceeded in any ocean.

* * * * *

In order to insure continuity of the electric conductor in a cable, a strand of several copper wires is now generally adopted, instead of a single wire, which latter is found very liable to break. This simple but useful plan was, I believe, first thought of and acted upon by myself, having ordered some gutta percha coated strand, for experiment, from the Gutta Percha Company, in the spring of 1855, part of which I have laid upon the table.

* * * * *

My summary of telegraphic novelties would not be complete without a notice of a method of sending messages simultaneously in both directions through one and the same line-wire, the joint invention of the Hanoverian telegraph engineer, Frischen and my brother. It consists in splitting a point of a battery into two equal parts, of which the one proceeds through the line and the other through an adjustable resistance coil by a short circuit to the earth. Both currents pass in opposite directions round the relay magnet of the communicating station, and neutralize each other in effect, but the portion of current passing along the line-wire produces an effect upon the relay at the receiving station, and vice versa; but if both stations include their batteries at the same time, the current of the line-wire will be doubled, and in exercising a preponderating effect upon both relay magnets, will cause both to attract their respective armatures, and establish the printing circuits. By this means, the transmitting power of a single line-wire is doubled. This system works satisfactorily between Amsterdam and Rotterdam, and some other places where there is not much interference by intermediate service, but it is, I consider, as yet too refined for general application. The same objection applies to a system of accelerating the speed of transmission of messages by preparing strips of perforated paper which, in passing between a metallic roller and contact finger, break and restore the metallic current with unlimited rapidity; a system first introduced by Bain years ago. These plans will very probably be of great practical utility eventually, when the use of the electric telegraph is more extended.

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

Allen Woodle Western Union Manager at Boston.

Allen Woodle, who has been in charge of the Boston office of the Western Union Telegraph Company since the death of William A. Rudd, has been made manager, his appointment dating from September 26, is from the West, having been born in Monroe, Wis., February 12, 1868. He entered the office of the St. Paul Railroad at Brodhead, Wis., at the age of 19, where he learned telegraphy, subsequently being employed at various other points on that railroad until 1889, when he entered the Western Union service at Kansas City, Mo., under the then chief operator, but now manager, G. W. Brownson. Soon becoming an expert telegrapher, he drifted to Dallas and worked there and in other Texas cities until 1892, when he entered the service of the Mexican Central Railroad at Mexico City, Mexico, shortly after being transferred to Aguas Calientes, where he acquired his first experience as manager. In the course of a year he returned to the United States, again entered the Western Union office at Kansas City, thence going to Boston in 1893 in the same interests, where he was employed as an operator until sent



ALLEN WOODLE.

Newly Appointed Manager Western Union Telegraph Company, Boston, Mass.

to Newport, R. I., in 1899, as manager. After three years' service in that office he was made manager of the Portland, Me., office and again promoted in 1905 to be assistant superintendent of the American District Telegraph Company at Boston. Mr. Woodle is married and has four children, and is popular with the rank and file of the craft, of whom he was a member but seven years' ago.

Mr. A. W. Rinehart, manager of the Postal Telegraph-Cable Company, Pittsburg, Pa., in ordering a continuation of his subscription, wrote: "You were perfectly right in renewing my subscription, which you will kindly do each ensuing year in the future and send me the bill. I have been a subscriber to TELEGRAPH AGE since the first issue and consider it a necessity."

Fred T. Jennings Appointed Superintendent.

The promotion of Fred T. Jennings, inspector of telegraphs of the Canadian Pacific Railway Telegraph, Montreal, Que., a post he has held since January 1, 1904, to the position of superin-



F. T. JENNINGS.

Newly Appointed Superintendent of the Canadian Pacific Railway Telegraphs, Sudbury, Ont.

tendent of the newly-created Lake Superior division of his company, with headquarters at Sudbury, Ont., a point well west of Lake Nipissing, further advances a man whose claims to recognition are based upon merit. Mr. Jennings has a studious and well-informed mind and his devotion to duty, coupled with a thorough knowledge of the business, together with executive ability, have given him preferment. He became identified with the Canadian Pacific in 1886, resigning from the Great North Western Telegraph Company to accept the place of assistant chief operator and circuit manager. In 1890 he succeeded to the chiefship, and in this place he remained nearly fourteen years, gaining knowledge and experience, which brought him reward by placing him in the position from which he has just retired to go still higher. The promotion causes very general satisfaction.

China's Telegraph Protest.

China has protested to the International Bureau of the Telegraphic Administrations at Berne, Switzerland, against Japan's continued control of the telegraph lines in Manchuria. Representatives of China recently visited Japan and attempted to obtain the restoration of the Chinese lines, or an agreement regarding their future working. Since then Japan has filed with the bureau a schedule of rates to the principal Manchurian towns, giving them Japanese names, and has also filed cable rates from Port Dalny to Japan. China asserts that the operation of the cable is a violation by Japan of her former agreement on the subject.

Mr. Mulcahy Loyal to Old Telegraph Associations.

The publication in the issue of October 1 of the numerous sketches of telegraph people, those both in and out of the present-day service, so interesting a feature of that number, and which was devoted so largely to the interests of the Washington reunion of the old-time and military telegraphers, has caused Mr. Frank J. Mulcahy, president of the Eaton, Cole and Burnham Company, Bridgeport, Conn., brass goods manufacturers, whose sketch and picture were included among those printed, to drop into a reminiscent mood in replying to a letter addressed to him by the Editor of this paper. He says in part:

Your letter gave me an opportunity for indulging in one of those day dreams that come to us but seldom. It is with pleasure that I learn you are an old resident of the dear old Forest City, my birthplace, and a spot to which I naturally turn with undisguised tenderness and affection. You left Cleveland in 1874, two years before I started in as a night telegraph operator at the old "M. S." yard office of the Cleveland and Pittsburg Railroad, just 150 miles from the "M. A." Manchester yard office of the same company, where Albert B. Chandler officiated about the time of the war. You undoubtedly knew old Charlie Thomas (C. D.), "Billy" Manning, the old night chief at Cleveland, and the Bruner brothers, well-known telegraphers in those early days. "Billy" Manning is in the insurance business in Cleveland, while poor Thomas long ago joined the silent majority.

It seems impossible for me to get away from the brass business, and while it is many years since I was engaged in "pounding brass," I am still manipulating that high-priced metal.

I had planned for a three-days' visit to Washington, to meet the "Old Timers," and three months ago had engaged my hotel accommodations, but unforeseen events connected with the running of this large plant have intervened, which will prevent my presence at a gathering that will probably be historic.

I have never forgotten the old life, and to this day if I happen to be in the corridor of a hotel or even at an important meeting, the ticking of the telegraph instrument will invariably distract me, and I find my ear unconsciously and mechanically resorting to eavesdropping tactics.

We have a private line between this plant and our office in New York and I frequently find it very convenient to sit down at the key at this end when important matters requiring either the telephone or telegraph come up, in which case I most always decide in favor of old Morse.

No man living has a warmer spot in his heart for the old craft than has the writer, nor is any one prouder of the associations formed with those who are graduates from one of the most worthy and laudable professions boasted of to-day.

If my business would only permit it I would frequently join you and the rest of the good fellows at your periodical gatherings, as I am a member of the "Old Timers," as well as the Magnetic Club, and am desirous of meeting a number of those whose names have been household words since I first began to formulate dots and dashes. Some day when in New York I certainly shall claim the pleasure of dropping in and exchanging compliments with you. Meanwhile let Telegraph Age come to me regularly. I will trust to you to remind me when the subscription expires and when a remittance is necessary.

TELEGRAPH AGE has helped many a telegrapher in his career. It will help you. Send for a free sample copy.

T. W. Carroll Postal Superintendent at Chicago.

Thomas W. Carroll, of Chicago, who has been promoted from the position of assistant electrical engineer to that of superintendent of the first district, western division of the Postal Telegraph-Cable Company, with headquarters at that point, succeeding W. I. Capen, who takes Mr. Nally's place as general superintendent, as mentioned in our issue of October 1, elevates to executive office a comparatively young man, who has won his way in the telegraph service because of inherent abilities that have developed by study and close application to duty. Mr. Carroll was born at Cleveland, O., January 22, 1871, and became a



THOMAS W. CARROLL.

Superintendent of the Postal Telegraph-Cable Company, Chicago, Ill.

member of the Postal force in that city in 1888. His subsequent record as an operator both at Cleveland and 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 his elevation to the superintendency before mentioned occurred.

The telegraph companies have long practiced simplified spelling, says a contemporary, in such cases as "smorning" for this morning, "sevening" for this evening, and a good many people find "frinistance" and "nuf sed" amply sufficient to convey their meaning. If abbreviations of sound and silence are the chief design a whole lot can be "cut out."

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

Installation and Maintenance of Storage Batteries in the Railway Service.

Committee No. 4, of the Railway Signal Association having to do with the installation and maintenance of storage batteries for railroad signaling, made the following recommendations at the convention at Washington, October 15:

Construction of Cells.—Storage cells for railroad signaling should have the grids made of one piece to prevent possible resistance, due to contact losses, the formation should be of the Plante type. Separators of rubber for portable, and rubber or glass for stationary cells should be used. Covers should be used to prevent loss of electrolyte due to spray and to keep out foreign matter, they should not be sealed. Portable cells should have splash proof covers with gas vent, and rubber jars, placed in suitable wooden cases. Stationary cells should have glass jars in sand trays on insulating supports to distribute the weight and prevent current losses due to grounds. Stationary cells should be placed in a ventilated shelter that is acid proof, a coating of acid-proof paint will assist in making it impervious to acid fumes. The fumes should be kept away from all signal apparatus. Damage to bright metal instruments and connections can be prevented by a coating of vaseline. Protection from cold temperatures is not necessary. Electrolyte, when prepared, should be made of chemically pure sulphuric acid, and distilled water. Electrolyte should be obtained from manufacturers when possible. Impurities in the electrolyte will lower the capacity of the cell.

Installation: Transmission Line System.—The transmission lines should be equipped with lightning arresters, and can be put on poles with telegraph wires, and carry 500 volts. They should go from line to batteries through air when possible. The same wires can be used for charging batteries for motor signals and track circuits. Duplicate sets of batteries should be used. Only one long track circuit should be supplied from one set of cells. The cells should have a reserve capacity to give five days' service after supply was interrupted.

Portable System.—The cells should have a capacity to run the signal 30 days with a reserve supply of from twenty-five per cent. to fifty per cent. at the end of that time. There should be about twenty-five per cent. more sets than there are signals. Sets of storage cells should be shipped between signals and power house by freight and motor car or by motor car alone. This system is giving entire satisfaction on single track roads in the West for motor signal circuits.

Gravity Battery Storage System.—Gravity cells in this system do not require any special attention providing connections are good. The number of gravity cells should be such that the charging e. m. f. and the counter e. m. f. will adjust themselves automatically. This system is giving good satisfaction where used.

Maintenance.—Storage cells used in signal work should be examined once a week, by making volt-

age and sp. g. test, and inspecting for short circuits. If the electrolyte is kept free from impurities and the plates free from short circuits, the cells will hold up under very severe conditions. The sp. g. of the electrolyte must never be adjusted until the cause of the disarrangement is found and removed. A pilot cell is not advisable in small sets such as used in signaling. An overcharge once a month will keep the cells in good working state under ordinary conditions.

Tests of Electrolyte for Impurities; Platinum.—Pour the electrolyte into a cell in which the regular battery plates are immersed. If gassing takes place for sometime on open circuit, the presence of platinum is indicated and a test by a skilled chemist should be made, as the smallest trace will discharge the cell. **Iron.**—To half a test tube of electrolyte add a few drops of chemically pure nitric acid, HNO_3 , boil and when cool to half of this add a few drops of potassium-sulphocyanide, KCNS , a deep red color will show the presence of iron, to the other half add ammonia in excess, set aside to cool, and a brown precipitation shows iron present in dangerous quantity. **Chlorine.**—Dilute electrolyte with five or six volumes of water and add a few drops of nitrate of silver, AgNO_3 , a cloudy white precipitate turning blue in sun light indicates chlorine. **Nitrates.**—Put 25 cu. cms. electrolyte in a test tube and add 10 grams of strong ferrous sulphate solution, carefully pour down the side of the test-tube 10 c. c. of c. p. concentrated sulphuric acid. If nitric acid be present it will be indicated by a stratum of brown color which will form between the solution and the concentrated acid. The depth of color will indicate the relative proportion of nitric acid present. **Copper.**—To a sample of electrolyte add an excess of ammonia hydrate, a rich blue color indicates the presence of copper, or to a sample electrolyte add potassium hydrate, if a blue precipitate is found which turns black upon boiling, it is an indication of copper. **Mercury.**—The presence of mercury in the electrolyte is indicated by a black precipitate when lime water is added or by an olive green precipitate when potassium iodide is added.

Eucalyptus for Timber.

The forest service of the Department of Agriculture, in co-operation with the state of California, has recently completed a study of the mechanical and physical properties of the common eucalyptus, with a view to determine whether eucalyptus can be substituted for some of the hard woods that are becoming difficult to obtain. The wood of eucalyptus has not been extensively used by manufacturers in the United States, because the supply has not been sufficient to establish a market. Blue gum, the most common and fast-growing species in California and which is hard, strong and tough, has, however, competed with black locust for use in the manufacture of insulator pins.

Letters from our Correspondents.**PHILADELPHIA, WESTERN UNION.**

Mr. A. P. Sell, of this office, is accompanying the Republican speakers on their journeys through Pennsylvania, and is handling the press matter for this company in a very creditable manner.

Frank E. Maize, assistant manager of the Philadelphia Electrical Bureau, and wife, accompanied by Chief E. L. Maize, western wire chief, and wife, were among those who attended the Old Timers' convention at Washington.

W. E. Wineland, who was reported in this column several issues ago as being critically ill, is now so low that his death is expected at almost any time.

Recent arrivals are: Miss Shaw, Miss Herbst, T. S. Orr, H. W. Reitz and J. E. Lessig.

Messrs. Uber and Shinn, the popular managers of their respective baseball park offices, have returned to an every-day grind at this office.

NEW YORK, POSTAL.

Mr. John J. Hennessey, chief clerk of the delivery department, has been appointed chief clerk in the service department, vice W. H. Matthews promoted, and Mr. A. F. Kavanaugh, assistant; Mr. T. Gray takes charge nights.

Mr. J. Roth, number clerk, has been appointed service clerk, vice William Mille, transferred to the night force.

Besides those in the service department already named, the remaining number of that force are as follows: J. J. Williams, A. H. Strack, V. Fiore, J. Santulli, J. Ward, M. Lynch, R. Demars, J. J. Wallace, H. F. Higgins, H. McIntosh, F. E. Leman, F. McNeill, J. Roth, E. Reilly, J. O'Brien, W. Carey, C. Gaven, N. Murphy, Miss H. Cunningham, Miss M. Hogan, Miss N. Darcy, Miss L. McGregor, Miss M. A. Brown, Miss G. Grassau, Miss Ida Ward and Miss W. Dedrick.

Mr. D. A. Sullivan, for twenty years assistant night chief clerk in the delivery department, has been appointed day chief clerk.

Mr. George V. Hinman has resigned and B. J. Kearney succeeds him in charge of the broker wires.

Mr. W. F. Stirling was in charge of the press service at the Saratoga convention lately, and was assisted by J. W. Kirby and W. M. Hawes of this office, also by several operators from the Albany, N. Y., office.

Mr. J. B. Havice has been appointed to take charge of the tubes running to the cable office, 20 Broad street, and to the Cotton and Produce exchanges.

Mr. W. J. Conly, who has recently returned from the Sea Girt, N. J., summer office, has been appointed as assistant to Mr. J. B. Havice on the cable office tube, 20 Broad street.

Mr. Arthur Banker, who is located at Plattsburg, N. Y., having charge of summer offices in

the Adirondack region during the summer season, was a recent visitor.

Mr. Thomas Tierney, from the Siasconset, Mass., wireless station, was also a recent visitor.

Mr. Charles Adams is confined to his home, due to a painful accident to his back.

On the Rowland sending machine Mr. T. Smith is in charge, assisted by Miss Hagarty, Miss Sullivan, Mrs. Hunt, and by Messrs. W. M. Hawes, Harry Sender, William S. Mullin and Hugh O'Rourke.

Those recently absent on vacation and who have returned, include P. O. Purcell, who has been at Scranton, Pa., and O. J. Nourse, London, England.

Those now on vacation are: Miss W. N. Crawford, secretary to Manager F. F. Norton; Miss Winifred Crawford, D. F. Mallen, F. E. McKiernan, western wire chief; J. Dupius, assistant city chief.

The new arrivals include: H. Kirkstine, C. W. Parker, F. E. Brown, L. F. Andrews, C. J. Mitchell, M. B. Pierce, James M. Walsh, D. F. Stair, William Bowman, Walter Street, Miss Violet Devlin, Miss F. Finn, T. Young and C. Oran.

The resignations are: A. J. Fancell, Mrs. M. L. Kelly, G. E. Hinman, J. Montallo, M. J. Murphy, Miss F. Surman, W. F. Traphagen, T. F. Meaney, A. Levinson, P. Gibb, C. M. Cavanaugh and Miss D. Karlein.

The messenger boys of this company who went on strike October 10, returned to work on the day following.

At a meeting of the Commercial Telegraphers' Union, New York Local 16, October 7, the nomination of W. R. Hearst for Governor of the state of New York by the Independence League and by the Democratic party, was unanimously endorsed. The motion to endorse Mr. Hearst was seconded from all parts of the hall. The meeting was the first at which Joseph F. Ahearn presided as president. A number of sick and death benefit claims were approved and paid. A committee was appointed to hold an entertainment and reception under the auspices of the Local. The committee are Joseph F. Ahearn, Percy Thomas, F. W. Daly, R. J. Logan and James Griswold.

NEW YORK, WESTERN UNION.

The force of operators from New York assigned to assist at the Democratic state convention, held at Buffalo, N. Y., September 25-26, were the recipients of letters of praise from the Buffalo management for the systematic manner in which the immense volume of work was handled. The operating force and traffic at Convention Hall was under the supervision of R. J. Murphy. Mr. J. F. Nathan, of Manager M. W. Hamblin's office, was also commended for the splendid work which he did in forwarding the copy from the press stand. The New York contingent left for home with the kindest feelings for their Buffalo telegraphic brothers and

sisters. Foremost among those who contributed to the comfort of all were Manager W. A. Sawyer, Chief Operator T. J. Mead, Night Traffic Chief Peter Haley, Night Chief Operator W. H. Stevens, L. Leipman and the "Old War Horse" Joe Anderson. The New York operators were enabled to view the Falls through the courtesy of Superintendent Mulford and Manager Sawyer.

Miss Emily Carlotta Finn has returned from duty at Narragansett Pier, R. I., where she has been all summer.

Mr. Strachan has been assigned to traffic, nights, Long Island division, and Mr. Berry to assist on city traffic, nights.

Mr. F. D. Giles, assistant chief operator; Mr. Clampitt, traffic chief, and Loop Chief Willis H. Jones, have returned from vacations.

Traffic Chief Ramage Ferguson is absent on vacation.

The Misses Kathryne Myers and Mamie Coen, who have been journeying around the world, have returned to the office.

Miss Jennie S. Pine, manager at Tarrytown, N. Y., spent her vacation at Liberty, N. Y., and at her home in Port Jervis.

OTHER NEW YORK NEWS.

The Magnetic Club of New York will hold its regular fall dinner in the ballroom of the Hotel Astor, on the evening of Wednesday, November 21, the hour of assembly being half past six o'clock. The club will entertain as its guests on the occasion those members of the Telegraphers' Mutual Benefit Association who may be in New York at the time in attendance at the annual meeting of the same. As usual at these functions, some excellent speaking is expected, and an attractive programme for the evening is being arranged by the entertainment committee.

The annual entertainment and reception of the New York Telegraphers' Aid Society will take place at Terrace Garden and Lexington Avenue Opera House, Fifty-eighth street, near Third avenue, on Wednesday evening, November 14. The entertainment committee is striving hard to make the affair a very successful one, and a pleasant evening is assured to all who will attend. As in former years, the entire proceeds of the entertainment will be devoted to the relief fund, and this very worthy object should meet with a generous response from all the craft in our vicinity.

The Berlin Wireless Telegraph Conference.

A conference representing thirty-one governments assembled at Berlin on Wednesday, October 3, to endeavor to reach some understanding in the use of this means of communication. The conference was called together by the German government, which took the initiative in this matter because the Marconi company has refused to exchange messages with stations equipped with the Slaby-Arco apparatus, the system used by that government. In 1903 a simi-

lar conference was held, in which, however, only eight governments took part, these being the United States, Germany, Great Britain, France, Italy, Spain, Russia and Austria-Hungary. A protocol was agreed upon and signed at the earlier conference by the delegates of six of the governments, those from Great Britain and Italy not signing, because of contracts between their government and the Marconi Company. But little good has come of this agreement, as the Marconi Company still adheres to its old policy and receives messages only from stations and vessels equipped with Marconi apparatus. It was for this reason that the Marconi apparatus was removed from the Nantucket lightship in 1904, as the company refused to accede to the request of the government at Washington to receive messages from German vessels. The conference now in session will probably last for a number of weeks. No doubt many important matters will come up in addition to the one at present causing the most friction, but it is, of course, impossible to indicate in the least the probable trend of action.

At another conference, held the latter part of September at Ghent, the use of wireless telegraphy in time of war was taken up and a number of articles adopted. In general, these articles concern only the belligerents, but one of them may cause great inconvenience to non-combatants. This is the one which gives belligerents the right to prevent the transmission of Hertzian waves by a neutral state over the high seas within the sphere of their military operations. The high seas—that is to say, waters lying beyond the three-mile limit—have always been considered free to all, but this article would deny non-combatants the right to make use of wireless telegraphy if the fleets of the states at war should choose or happen to come within range of the sending stations. At the present time, when no attempt is made to direct Hertzian waves, an unfriendly fleet might deny the right of a neutral state to send messages along its own coast or even inland, because the waves, which spread out in all directions, might be thought to interfere with the fleet's own apparatus. In other words, two quarreling countries might take it upon themselves to throw out of service a system of communication of world-wide importance, and it would be intolerable if this should be allowed to become the general practice. Wireless telegraphy is becoming of too much importance to put it under this limitation.—New York Electrical Review.

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General Mention.

Mr. P. L. Mounce, manager at Terre Haute, Ind., has been appointed manager of the Indianapolis, Ind., office, vice Mr. W. H. Butler resigned.

A concession has been granted to the Compania del Telegrafo Commercial of Concepcion, Chili, for the installation and exploitation of a telegraph line between Concepcion, Valparaiso and Los Andes.

The New England Telephone and Telegraph Company is prosecuting five wire thieves who managed to secure \$30,000 worth of copper wire in Maine after the wrecking of the wires by the heavy storms of last winter.

The German Consul at Valparaiso, Chili, reports that at the end of 1905 there were in that country 12,579 kilometres of state telegraph line, with 287 stations and 896 officers—501 male and 395 female. Besides this there are a number of private Chilian and English telegraph companies, notably the West Coast Telegraph Company, which is very prosperous. Uninterrupted telegraphic communication between the Magellan district and Northern Chile is, however, sadly needed. It may be stated that experiments have been made on board Chilian men-of-war with wireless telegraphy, and the Marconi Wireless Telegraph Company has taken out patent rights in Chile for a period of five years.

The red Indian is still supposed to maintain his old system of signals, but the wigwag or the tomtom is no longer the only resort of the wigwam. In a little village near Seattle, Wash., remarks the *Electrical World*, lives an old Siwash Indian, who has equipped his wigwam with a telephone. His wigwam is nothing more than bark, gunny sacks and cast-off pieces of sail, surmounted by a lot of flattened old tin cans for a roof. But in spite of the primitive nature of the premises there is a telephone inside. The old warrior is a dealer in wickerware, and when it comes to quoting prices and taking advantage of the ups and downs of the market he is keen to appreciate the value of the telephone and is not above letting other braves use it as a pay station.

Mr. Charles F. Brush says: "The inventor's lot is not always a happy one. In defending my patents at first there was spent from \$75,000 to \$100,000 a year, and I paid half of it out of my own pocket. As it happened we ran right into a most extraordinary period of patent litigation and decisions. Patent rights had been shamefully abused in all directions. Farmers especially had suffered. A churn agent would come along, to be followed in a little while by a man who blackmailed the farmer into paying damages for infringement. Accordingly, the judges of the United States courts went to the other extreme, and for ten years, so far as I knew, not a single patent was sustained on a trial of the case. The Brush Company got into the very midst of this

orgy of injustice, and we had to fight infringements every inch of the way."

Advices from Seattle, Wash., state that Captain Amundsen, who made the Northwest Passage, and is believed to have located the north magnetic pole, reached there on the steamship *Sarotoga* from Nome. A committee of the Chamber of Commerce and the local Norwegian societies met him. Owing to his desire to reach the Government observatory at Sitka to complete his magnetic observations, Captain Amundsen sailed for Sitka on the steamer *Jefferson* a short time after his arrival. "My observations extend over a period of three years, and it will take three years to calculate them," he said. "Until that time it is utterly impossible to say positively what I have accomplished by my observations. I believe, however, that I have found the north magnetic pole. I cannot say as yet whether it is a shifting point or extends over a large area. We also took careful observations of the aurora borealis, and I believe that my observations will show that this phenomenon has a marked effect on the compass. Our zoological and ethnological collection is fairly complete."

Mr. Frederick P. Fish, president of the American Telephone and Telegraph Company, Boston, Mass., returned from Europe a few days since in time to attend the annual meeting of his company.

[Advertising will be accepted to appear in this column at the rate of three cents a word, estimating nine words to the line.]

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

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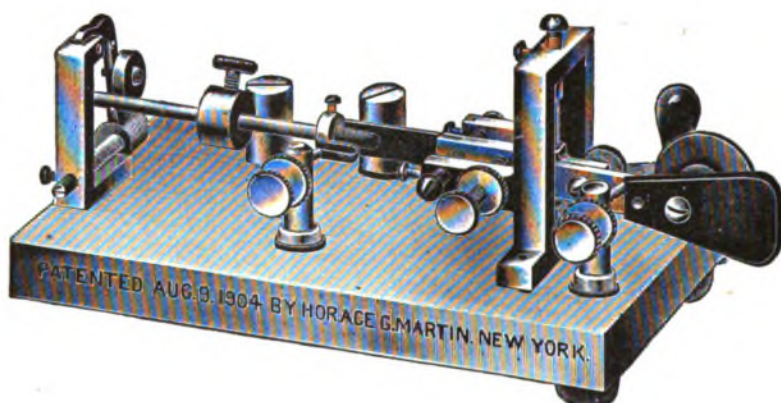
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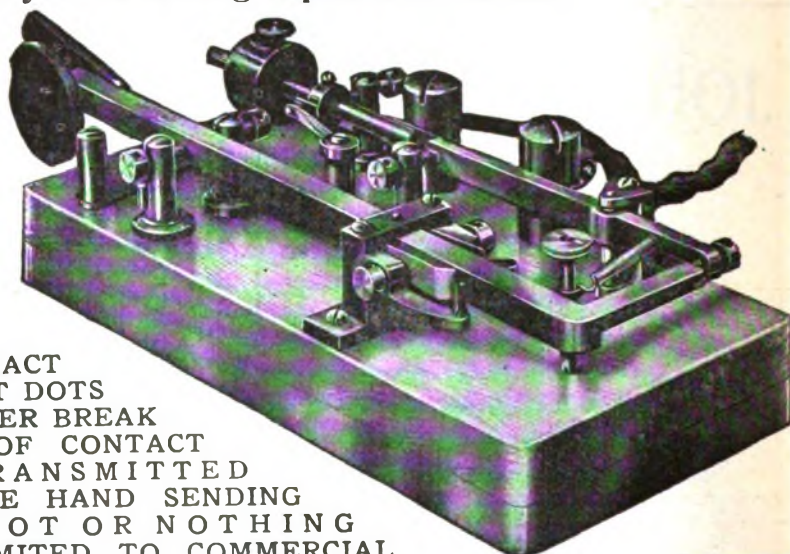
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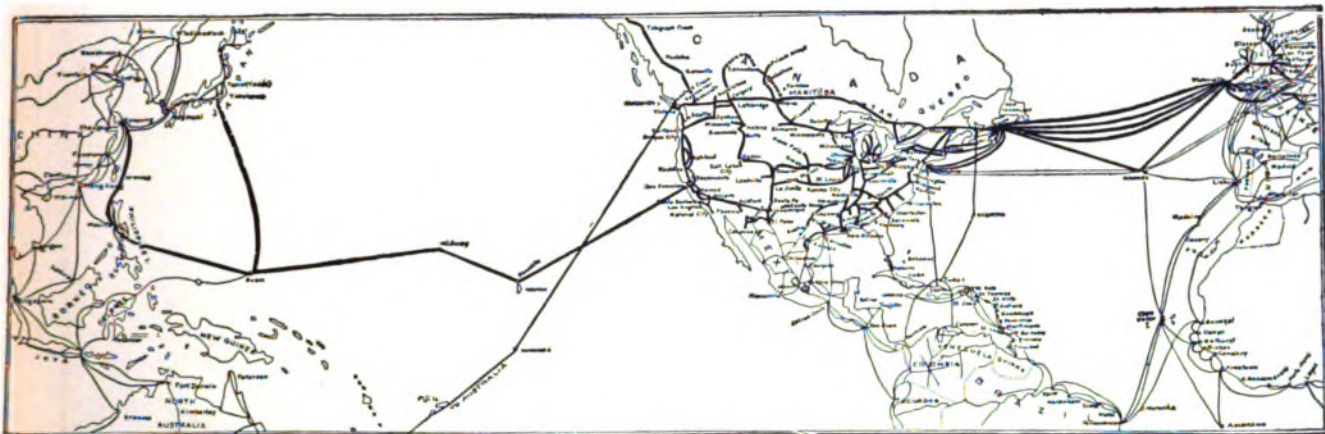
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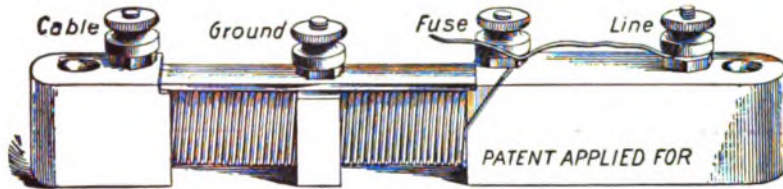
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