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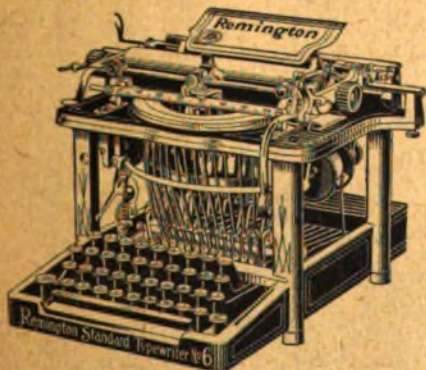
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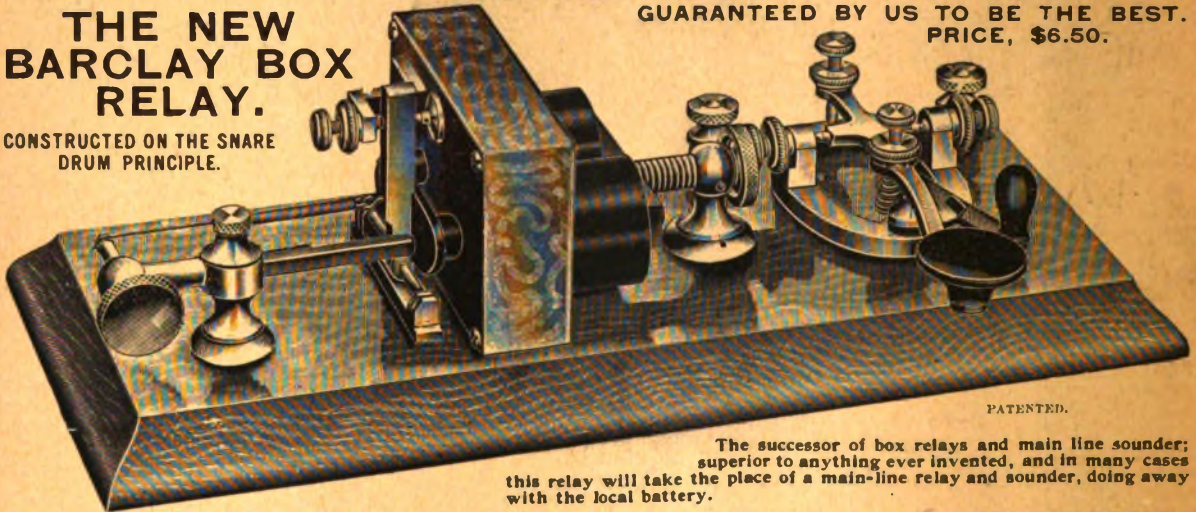
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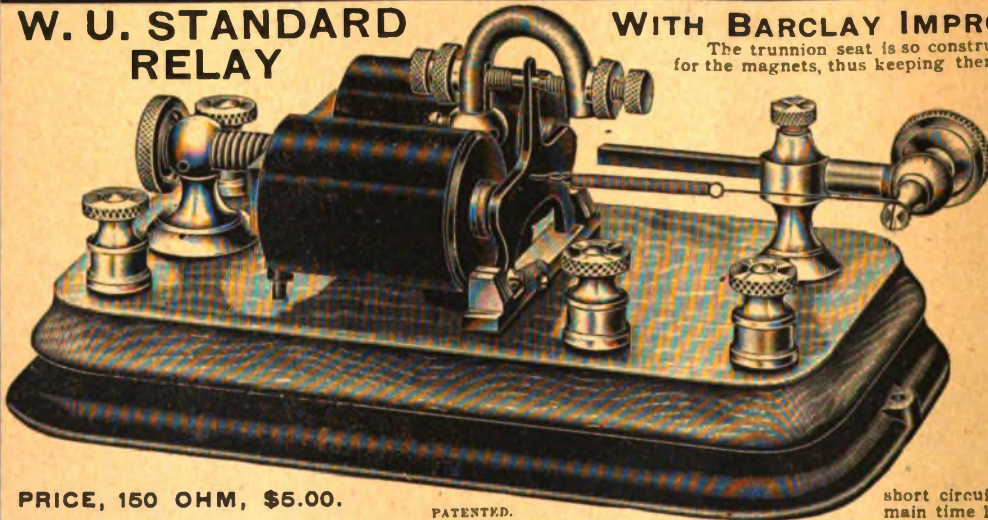
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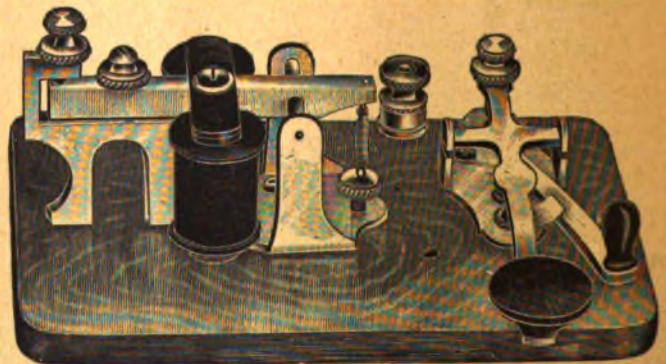
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THE TELEGRAPH AGE

No. 15.

NEW YORK, AUGUST 1, 1903.

Vol. XX.

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SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

Defective Quadruplex Apparatus.

When a wire fails to yield "four corners," as the quadruplex chief usually expresses the fact, that official at first naturally suspects that the wire itself is at fault and accordingly reports the matter to the wire chief for a test. If as a result of an examination, it should appear that the wire is OK, it then becomes the duty of the quadruplex attendant to locate the trouble either in his own set or in that at the distant end of the circuit. This problem is not a very difficult one for an expert to solve, but is certainly very perplexing for one of limited experience. For the benefit of the latter, the writer will outline the proper method to pursue.

First, ascertain, if possible, whether the distant office feels the disturbance. If the wire "quads" at that end, the wire itself is probably in good condition, and as a matter of course, the home battery must also be all right, otherwise the operator in the far office could not get the signals properly on both sides of his apparatus.

The next procedure is to measure the current from the remote battery, both the "long" and the "short" ends of each polarity. If there is much discrepancy between the current values of the "long" ends of the positive and the negative poles, call the distant operator's attention to it. The source of the unevenness will usually be found at that point in the polechanger adjustment, or battery connections.

Should the ammeter reveal too great a value for the "short" end current; that is to say, show 25 or 30 milliamperes where the "long" end gives but 40 or 50, request the examination of the transmitter points and the leak box connections. In nearly every case the trouble will be found at one or the other of these points, usually in the transmitter.

If the distant attendant fails to reduce the "short" end value by adjusting the transmitter the home station can determine whether the disturbance really lies in that instrument by asking the distant attendant to remove the two wires connected to the tongue and the lever bar of the transmitter, respectively, and hold them together while again measuring the current. If under these conditions the value of the current drops to about 15 or 18 milliamperes, the fact will indicate positively that the transmitter is defective, and a new one should be substituted without further dispute. On the other hand, should the value of the "short" end current remain unaltered the proportion box should be removed at once and replaced by another, as the test indicates a defective leak coil.

In measuring a quadruplex battery it is not of so much importance to ascertain the total value of the current as it is to determine whether the long and the short ends arrive in the normal proportion of 3 to 1, or 4 to 1. Normally all quadruplex circuits, regardless of the length or resistance of the conductors, are arranged, when possible, to have the same value of current, say, 15 to 18 milliamperes of current for the short end and three or four times that value for the long end, according to the proportion used. When the short end falls to 10 or below the apparatus will work in a shaky manner, especially on long circuits. On very short circuits, however, 10 milliamperes frequently give good results. A great deal depends upon the amount of inductance due to parallel circuit, affecting it. Where this factor is formidable, 10 milliamperes will hardly give satisfactory results for the polar side.

DEFECTIVE RELAYS.

Should the incoming current measure properly, the next move is to suspect the relays. It is not

always an easy matter to determine at once which relay is affected, but there are certain symptoms always present which will serve as a pretty sure guide. In the first place an expert will know almost instantly by the general indications present when a relay is crossed without going through the battery test described. If the main and the artificial line coils are crossed together through defective insulation he will almost invariably find it impossible to remove what appears to be "static," because of the double discharge of the two coils. No adjustment of the condensers will meet the emergency. Then, again, the value of the resistance unplugged in the rheostat conveys a hint. If the resistance necessary to balance is abnormally great, note the position of the polar relay armature between the two magnets. If it lies much closer to one than to the other, (assuming, of course, that the wire is clear) it indicates that that instrument is defective, and that more current is traversing one coil than the other.

Sometimes it is impossible to hear or even feel the incoming signals on the neutral relay, although the polar relay may be working properly, so far as the recording of the incoming signals is concerned. When this condition exists at a time when a meter shows that the long end incoming current is arriving in proper proportion, it is a sure indication that the polar relay is crossed; and it will be found that the main and the artificial line coils are crossed together in such a manner that practically all the current is shunted around the neutral relay coils instead of passing through them.

The fact that a defective polarized relay usually continues to record incoming signals after the neutral instruments have failed, usually misleads the inexperienced to believe that the latter is at fault, and much time is thus frequently lost by removing the wrong relay. It might be stated here that in the majority of cases the polarized relay is the one to fail first.

LOP SIDED RELAYS.

If a polarized relay becomes defective by the crossing out of a number of convolutions of wire in one coil only, either in the main or the artificial coil, it is not "crossed," properly speaking, but becomes what is called "lopsided," because in order to obtain a magnetic balance with such a relay one coil must take more current than the other and the armature lever leans or "lops" over toward one magnet after a line balance has been taken.

When this condition exists, if the fault is not too pronounced, it is still possible to work both sides of the quadruplex by balancing the neutral relay to the distant battery as in the case of a Stearns duplex. A polar relay, by proper adjustment, will operate through quite a wide margin of unevenness, hence by giving the neutral relay a true balance, both sides may be made workable in many cases.

The quickest and most reliable method of determining existence of a cross between the two

coils of a relay is, of course, to remove both wires from the two binding posts of one relay coil, say, the artificial line coil, and see whether any current can still be felt by placing a finger on one of the posts and another on a ground wire. If a shock is felt, the two coils are obviously crossed together through defective insulation within the spool.

If, however, the coil is merely "lopsided," that is, if it has some of the convolutions of wire in one coil, only, crossed out, this test will not suffice, for the reason that the two coils will have no metallic connection with each other.

FINAL HINTS.

When the neutral relay shows a small working margin, that is to say, when the tension of the retractile spring cannot be altered to any great extent without shutting off the incoming signals, suspicion of the difficulty may be directed to the short end battery of the distant apparatus. It is probably too strong. Also suspect it when the distant "reversals" break up the neutral relay signals, especially after an adjustment of the distant pole changer gives no relief.

INDICATIONS OF CROSSED RELAY.

These are inability to remove the static; an abnormal line balance, as indicated by the rheostat; relay armature nearer to one magnet than the other after balancing; inability to hear incoming signals on the neutral side of the quadruplex, and home reversals affecting both home relays.

INDICATIONS OF A LOPSIDED POLARIZED RELAY.

These are manifest in the inability to get a normal balance; relay armature not midway between the two magnets; ability to still "quad" the wire and get a normal balance by adjusting the rheostat to the incoming signals on the neutral relay.

Recent Telegraph Patents.

A patent, No. 733,999, has been obtained for a telegraph repeater by Francis W. Jones, of New York.

A patent, No. 733,556, for submarine telegraphy, has been granted to Alexander Muirhead, of Shortlands, England.

A patent, No. 734,452, for a telegraph relay, was awarded on July 21, to John C. Barclay, of New York, and by him assigned to the Western Union Telegraph Company.

A patent, No. 734,453, for a telegraph sounder, was awarded on July 21, to John C. Barclay, of New York, and by him assigned to the Western Union Telegraph Company.

A patent, No. 734,751, for a telegraph repeater, was awarded on July 21, to John C. Barclay, of New York, and by him assigned to the Western Union Telegraph Company.

A patent, No. 731,056, for an electromagnetic vibrating reed, has been taken out by S. F. Jones, of Brooklyn, N. Y. The reed is used to make and break the circuit for a telegraph transmitter used on the Wheatstone or other apparatus.

Business Notice.

Mr. W. A. Whitehead, of 36 La Salle street, Chicago, who conducts a typewriter exchange at that point, a practical repairer and rebuilder of typewriting machines, and whose advertisement appears elsewhere in this issue, offers a number of bargains in typewriters which should secure the attention of operators and others who require a good machine. He invites correspondence and says he is prepared to meet all demands for machines and at prices practically to suit. He requests that intending buyers simply state the make and quality of the machine preferred and about the price they are willing to pay. He will send machines on trial to responsible people within reasonable distance of Chicago. In a booklet, which may be had for the asking, Mr. Whitehead prints a list of references of a highly respectable character.

Personal Mention.

Mr. H. Durant Cheever, of the Okonite Company, Limited, returned on the Cedric a few days ago, after a ten weeks' sojourn in European capitals. Mrs. Cheever accompanied him, and both returned with best of health.

Mr. P. H. Alexander, well known in electrical and telegraph circles in New York, and for some time past identified with the Magneto Electric Company, has gone to Europe on a three months' pleasure trip.

Recent New York Visitors.

Mr. John F. Shorey, manager of the City Messenger and Delivery Company, Portland, Ore.

Mr. C. C. Adams, general superintendent of the Postal Telegraph-Cable Company, Atlanta, Ga.

Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company, Chicago, Ill.

Mr. Richard O'Brien, assistant superintendent, Western Union Telegraph Company, Scranton, Pa.

Mr. John F. Wallick, superintendent of the Western Union Telegraph Company, Indianapolis, Ind.

Dr. L. M. Rheem, of Minneapolis, Minn., a former well known telegrapher. Dr. Rheem was accompanied by his wife.

Mr. M. J. Purfield a well known telegrapher identified with Mr. A. H. Babb in the brokerage business at Peoria, Ill. Mr. Babb, himself, was one of the most expert telegraphers in his time.

Resignations and Appointments.

Mr. W. W. Morrison, of Chicago, Ill., has been appointed manager of the Postal Telegraph-Cable Company at Lincoln, Neb.

Mr. Wade B. Leonard, manager of the Postal Telegraph-Cable Company, Charlotte, N. C., has resigned to take a position with a cotton broker.

Mr. A. B. Olmore has been appointed manager of the Western Union Telegraph Company, at Madison, S. D., vice Miss C. M. Collins, resigned.

Miss Lucile Greene has been appointed manager of the Western Union Telegraph Company at Sauk Center, Wis., vice Miss Alfa Benster, resigned.

Mr. C. A. Comstock, manager of the Postal Telegraph-Cable Company, at El Paso, Texas, has transferred his services to Omaha, Neb., where he is employed by the same interests.

Mr. B. P. Hancock, traffic chief operator of the Postal Telegraph-Cable Company, Chicago, Ill., has been appointed city superintendent covering the main and all branch offices in that city.

Mr. E. R. Dozier, a chief operator of the Western Union at Macon, Ga., has been appointed manager of the Postal interests at the same point, vice R. L. Kemp, resigned, to enter other business.

Mr. E. E. Cord, chief operator of the Western Union Telegraph Company at Memphis, Tenn., has been promoted to the chief operatorship of the same interests at New Orleans, La., vice Frank Ross, resigned.

Mr. E. C. Martin has been appointed manager of the Western Union Telegraph Company at Charlottesville, Va., vice P. A. Walstrum, resigned, to enter the service of the Norfolk and Western Railroad Company.

Mr. W. A. Neill, formerly general foreman of the Western Division of the Western Union Telegraph Company, with headquarters at Cleveland, O., has been appointed superintendent of construction of the Southern Division, with headquarters at Atlanta, Ga.

Mr. J. Levin, inspector of the Western Union Telegraph Company, New York, has been appointed general superintendent of the Southern Division of the same interests with headquarters at Atlanta, Ga. See another page for biographical sketch of Mr. Levin.

Mr. W. H. Locke, manager of the Postal Telegraph-Cable Company at Memphis, Tenn., whose resignation was recorded in the previous issue of TELEGRAPH AGE, resigned to enter the service of a cotton broker. Mr. Locke will continue to make Memphis his headquarters.

Mr. John Gaul, manager of the Western Union Telegraph Company at Butler, Pa., has been promoted to the chief operatorship of the Pittsburg, Pa., Western Union office, vice J. A. Hackett, resigned. Mr. Hackett after taking a needed rest will re-enter the Western Union service.

Mr. W. H. Gibbons, manager of the Western Union Telegraph Company, Palestine, Texas, has resigned and will take a needed rest at his home in Sedalia, Mo. Mr. Gibbons will be succeeded by Mr. H. H. Sawyer of the San Antonio office. Mr. Sawyer was manager of the Palestine office some years ago.

Mr. L. J. Amsden, for several years past employed in the office of Mr. Theodore P. Cook, general superintendent of the Western Union Telegraph Company, Chicago, Ill., has been appointed chief clerk to Mr. J. Levin, the new general superintendent of the Southern division of the same interests. His headquarters will be at Atlanta, Ga.

General Mention.

Mr. C. W. Ott, of Danville, Ill., is now located with the New York Central Railroad Company at Hudson, N. Y.

Mr. John W. Thompson, one of the best known operators in the South, for some time past a member of the Dallas, Tex., fraternity, is spending a vacation of a few weeks at his home in Columbia, Tenn.

Mr. W. L. McLellan, an old time telegrapher, who represents McIntyre & Marshall at their Waldorf-Astoria branch, New York, has just returned from Europe, where he enjoyed a pleasant vacation.

The Telegraphers' Typewriter Company, 324 Dearborn street, Chicago, Ill., O. T. Anderson manager, is distributing among its friends and patrons a neat leather card case, further evidence of the enterprise which is shown by this wide-awake concern.

Mr. William F. Whitesides, manager of the Postal Telegraph-Cable Company, at Dunlap, Tenn., was married on July 26 to Miss Jessie Gladys Kell, of Dunlap. Mr. and Mrs. Whitesides will take up their residence in Dunlap for the present. The entire office force united in presenting the couple with a very handsome present as a token of the esteem in which Mr. Whitesides is held by the operators.

Obituary.

Charles Caldwell, aged 46 years, for the past fifteen years night chief operator of the Western Union Telegraph Company at Columbus, O., died of consumption on July 17.

Jacob L. Wilkin, one of the best known telegraphers in Washington, D. C., died on July 19. He was for years connected with the telegraphic force of the War Department.

George W. Patterson, for many years a chief operator in the main office of the Western Union Telegraph Company, New York, died of consumption at Las Vegas, N. M., on July 12. Mr. Patterson went West last September in the hope of benefitting his failing health. He was forty-four years old, a Canadian by birth, and had been in the telegraph service since 1874.

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

The Cable.

Mr. F. R. Lucas, chief engineer of the Telegraph Construction and Maintenance Company of London, England, sailed from New York on July 22 for England after finishing his work in connection with the Commercial Pacific Cable, the sections between Manila and Honolulu having been laid under his supervision.

The entire system of the Commercial Pacific Cable was opened for public traffic on July 25 from San Francisco to Manila. The rate from San Francisco to Honolulu will be reduced from 50 cents per word to 35 cents per word. The following rate per word will take effect:

From San Francisco to Midway Islands, 60 cents; Guam, 85 cents; Luzon, \$1.05; all other Philippine Islands, \$1.15; Hong Kong, \$1.10; China, \$1.10; Macao, \$1.15; Japan, \$1.41; Chemulpo, Fusan and Seoul in Corea, \$1.41; other places in Corea, \$1.49; Formosa, \$1.21.

In the actual work of laying the final section of the Commercial Pacific cable the cable steamer Anglia had a very remarkable trip. She started soon after noon on June 26 to pay out the section from Midway to Honolulu, and came right along without the slightest hitch or delay, taking the courses surveyed by the cable steamer Nero several years ago. The deep sea cable ended about ten miles south of the Island of Oahu, about eighteen miles from the place where the shore end was landed. The Anglia laid exactly 1,315 knots of cable from Midway to this point, and with the additional eighteen miles of shore end the actual amount of cable laid to Honolulu is 1,333 knots. There was about eight per cent. of slackage. The cable force was very proud of the making of a new record for continuous use of the wire log, which registers the distance traveled. This log is on reels of 140 knots each, which have to be renewed as fast as they run off. Heretofore the transfer of the reels has necessitated vessels slacking. The greatest run ever made before without a stop was 840 knots. The Anglia ran the entire distance of 1,221 miles without a single break or stoppage or slacking of speed. The greatest depth encountered on the trip from Midway was about twenty-seven hundred fathoms.

New Western Union Ticker.

The Western Union Telegraph Company will install at St. Louis, Cleveland, Albany and Troy, within the next few weeks, the new self-winding two wire ticker designed by Messrs. Scott, Page, Barclay and Phelps, under the Phelps patent.

This ticker is compact and is said to be the fastest that has been introduced up to the present time. In fact, few keyboard operators will be able to operate the keyboard equal to the speed of the ticker, which will work 225 revolutions per minute. When it is taken into consideration that the ticker invented by Edison, known as the old Universal, operates at 75 revolutions per minute, it will be seen that the new ticker is three times as fast as the old one.

Wireless Telegraphy.

Consul L. H. Aymé, of Guadeloupe, under date of June 10, 1903, says: "The wireless telegraph system in operation between this island and Martinique has been opened for the use of the public. Messages are transmitted from this city and other points to the station at Gosier by telephone. The tariff of rates is practically that of the French Cable Company, the lines of which have been broken for some sixteen months. The service is satisfactory, an average of sixty messages each way being transmitted daily. There are, of course, occasional interruptions, due to weather conditions, but these are not frequent."

A recent telegram from Tacoma, Wash., says: "Without depending on contractors, the United States Signal Corps itself will erect and equip Government wireless stations in Alaska. The first station will be constructed at Fort Davis, Nome, comprising one mast and quarters for three telegraphers. The next post will be at Safety Harbor, twenty miles south of Nome, where two masts and quarters for four men will be installed. Another wireless post will be placed at St. Michaels. Wireless stations to be established in Ontario will comprise masts and buildings at Fort Piggons and Bates Rapids, connecting a land line from St. Michaels with Fort Egbert, and also with a line through Copper River Valley to Valdez, where a submarine cable will connect the Alaskan system with Puget Sound."

Preliminary reports have been given out concerning space-telegraph experiments which have been conducted on board the training ships *Prairie* and *Topeka* in conjunction with shore stations by the Navy Department of the United States during the last year. They state that the Slaby-Arco system is well suited for naval purposes and will be adopted by the United States Navy. The system adopted originated in Germany. It was tested in competition with French, German and English devices, not, however, including the Marconi system. Satisfactory terms could not be made with Mr. Marconi for the installation of his instruments on the warships and further negotiations were discontinued. Twenty sets of Slaby-Arco instruments have arrived from Germany and will be installed on eight war vessels.

It is announced that new inventions have been made by Mr. Marconi which will greatly facilitate the transmission and reception of long-distance wireless telegraph messages. It is stated that Mr. Marconi is expected to arrive on this side about the middle of August, when the new system will be placed in operation at Table Head and Wellfleet. It is reported that these inventions are of a very radical and revolutionary character. According to the statement of a gentleman authorized to speak for the American Marconi Company, poles and towers for use in the transmission of transatlantic messages will be unnecessary, the entire operation being conducted at the sea level. Further than this, it is stated, instru-

ments have been devised which wholly neutralize the effect of atmospheric electrical disturbances upon the apparatus used in wireless telegraphy. Syntonism, it is said, has advanced beyond the experimental stage and has entered the realm of practical certainty.

The Cunarder, *Campania*, on her late arrival at New York, attested a remarkable development of Marconi wireless telegraphy at sea. She was never "out of touch" the whole way over and back. By her log it is shown that going to the eastward she held converse with the Marconi wireless stations at Babylon, Sagaponack, steamship *Umbria* coming west, and Nantucket Lightship. These dialogues were on a Saturday. Sunday the Atlantic Transport steamship *Minnetonka*, proceeding for London, was the link; Tuesday the sister ship *Carpathia*, from Liverpool, bound this way; Tuesday and Wednesday the *Lucania* and the New York were picked up; Thursday the Cunarder *Ivernia*, bound for Boston; Friday and until the stage was reached at Liverpool, Crookhaven, Rosslare, Holyhead, Seaforth and the *Etruria*, leaving port. Returning this way the *Saxonia*, a Boston Cunarder, Seaforth, Holyhead and the *Umbria* were "on the wire." Sunday Rosslare, Roche's Point and Crookhaven; Monday the *Carpathia*, steaming in the other direction, was on the list of correspondents; Tuesday and Wednesday the *Lucania* was the connecting link; Thursday the *Philadelphia*, also steering eastward, and Friday and until arrived at her pier Saturday, the *Campania* talked with Nantucket Lightship, Sagaponack, Babylon and the *Etruria* in the North River about to sail for home. The Cunard Bulletin, published Friday, July 17, had the news transmitted through the air from Nantucket Lightship of the Pope's condition; the death, in London, of William E. Henley, the author; the execution of Dougal, the Moat House murderer, and confession on the scaffold; the death of Mrs. James G. Blaine; the record of the Great Western Railway train from London to Plymouth, which covered 246 miles in 233½ minutes; entertainment of the American fleet at Portsmouth; the Government crop report, and market reports.

Edison Says Auto Battery is Ready.

Thomas A. Edison, when questioned on July 28, about the new storage battery which the public has been expecting for over a year, said:

"The popular impression seems to be that my new storage battery was more or less a possibility, but that it began and ended there. That is not so—one of them has been in operation for the last three weeks in one of New York's automobile delivery wagons, and is doing all that I expected and claimed for it.

"There is a great deal to be said for the new battery, and all in its favor. It will average more than a third greater mileage for half the weight than will the old lead battery. It has an additional advantage, inasmuch as it can be recharged at a much faster rate than the old battery. As

much electricity as will send the motor forty miles can be put in it in less than an hour.

"Ever since I took up this problem of the greater capacity battery I have worked with the idea of using it for street locomotion—in automobiles and trolleys. And now the auto battery is finished. On July 27 three friends and myself took a trial run to Atlantic City in a car consisting of a Mors frame and one of my batteries. We wished to attain great velocities over rough surfaces, and we succeeded beyond any of our expectations. The idea was to find any defects in either the frame of the car or the battery and motor. The latter two were entirely successful, but there are a few things which can be bettered in the car.

"My experience shows me that we have much to learn from the French makers of automobiles—they have been at it longer than we have, and are still several years ahead. Several of the auto makers in this country have sent for my battery specifications and are beginning to make types of their machine in which it is to be used.

"I have been experimenting with an electric coach and it is surprising how well it showed up. We climbed Eagle Rock Mountain, at Orange, N. J., where the hill-climbing contests are held, with the greatest ease, and we really did not dare to attain our maximum speed.

"We cannot put the new battery on the market in any quantity as yet. The best we can do now is to make one a day. By October we will make at least six daily, and about Christmas we will be in shape to meet any demand. The trouble has been that special machines had to be built, but the last of these will be completed in a few days. Another disadvantage I have to contend with is paying 40 per cent. duty on a certain sheet steel that must be imported from England or Germany, and then in only limited quantities. By Christmas three rolling mills will be able to make it for me here in this country, and then the present high price for the batteries will be reduced.

"Next year I will wager that I can take a car of my own design, fitted with my motor and battery, and go to Chicago and return in less time and with more pleasure than any other machine in existence. There will be no break-down, no explosion of gas or gasoline, and the trip will be made at an even twenty-five miles an hour.

"Another thing, the battery will be made in four sizes, so that when fully charged it will run 25, 50, 75 or 100 miles, and if wanted, they will be made any size larger or smaller. Of course, the running power of the battery will depend to a certain extent on the work it is called upon to do. If the roads are rough and there are many hills, a charge will last a shorter time than if the conditions were such as are found in the city. But taking the maximum of bad going, the battery will only be exhausted about 25 per cent. sooner than it would be under favorable conditions."

Operators may talk at long range, but it does not produce hoarseness.

The New Barclay Telegraph Instruments.

The Bunnell Telegraphic and Electrical Company, of 110-120 Beekman street, New York, the manufacturers of the new Barclay box relay and the Western Union Standard relay with the Barclay improvements, are giving special prominence to the merits of these fine instruments in a page advertising announcement which appears on the inside front cover of this issue. The patentee of these superior new devices, as is well known, is Mr. John C. Barclay, the assistant general manager of the Western Union Telegraph Company, New York, and they embody in their carefully constructed parts a distinct improvement in goods of this character.

The mechanism of the box relay is of a high grade, all parts being readily accessible and standard, the same as are used in main line relays except the extension core. The boxes are constructed on the snare drum principle and give a sound similar to that of the local sounders. The use of the steel points in place of the platinum also adds to the clearness of the sound, and the substitution of hard maple in place of the cherry or mahogany, further adds to the efficiency of the instrument as well as increasing the sound. There are no connections underneath the box, so that it is not necessary to remove the same in order to repair the relay. The brass portion of the box acts as a carrier for the magnets, and the box is attached to the base in a manner rendering it almost impossible of breakage. All screw posts are pinned, making it impossible for them to turn. The back stop armature holder is bolted to the wood in a way that makes it impossible for it to work loose.

The improvements made by Mr. Barclay in the Western Union Standard main line relay, may be summed up as follows: The abandonment of the aluminum armature lever, stamped iron being used in its place; and the abandonment of the set screws to hold the armature in position, the pin pattern armature set in solid trunion being substituted therefor. All posts have been pinned to prevent their turning. The main line wires are brought up through the centre of the base so that when the magnets are moved forward and backward the wires will turn in a circle instead of a direct line. One of the particular features is that the trunion seat is constructed with a square shoulder to act as a stop to prevent the magnets from coming in contact with the armature. A 1-16 of an inch, or any desired space between the armature and magnets can be maintained.

"Small Accumulators" is the title of an illustrated volume of eighty-one pages, by Percival Marshall, M. E. The book covers the subject of storage batteries, as indicated by its name, as fully as is possible, and it will be found a practical and trustworthy guide of the matter treated, readily understood by non-technical readers. The price of the book is fifty cents, an amount which covers the prepayment of express charges. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Telegraphic Bookkeeping.

Tenth Article.

BY W. H. DOHERTY.

The subject discussed in this article is one on which there is no doubt a wide range of opinion, and if a good lively discussion could be brought about with the different managers throughout the country taking hold of the subject, and giving it the benefit of their views, it would result in much good, not only to the novice, but old managers as well.

The subject is this: What is the best method or system to follow in making up the day's business complete? By complete, I mean having all items entered in the check ledger, the count on classes of messages made, and all records made so that the day's business can go to file.

Before entering on the subject, I desire to say that the system I will describe may not suit or fit the situation in the very large offices, as the volume of business handled may require special treatment, but I think with those exceptions the rule will hold good. The aim of a manager should be to run his office force on as close a margin as is possible, laying the work out so that every clerk is employed to their full capacity. Some offices can do better than others in this respect, chiefly because good talent can be found among aspirants for clerical positions. The layout of the main office or receiving room, in regard to counters and desks, has much to do with the amount of work performed also, and some attention should be given it.

We find in the telegraph business two classes of messages, speaking generally, namely, "cash" and "charge". I will treat the cash side first. To readily check up the cash messages of one day, a record of all such should be kept, forms for that purpose being furnished by the supply department of the company. Every cash message taken over the counter should be recorded on Form 69, the entry being its destination and the amount of tolls taken on it. The message should even be given a number in the space provided therefor at the upper left corner; a corresponding number to be entered on the form or sheet, starting with number one and so continuing in numerical order through the day.

I have heard it said that this detail required too much of a receiver's time, that a number simply was all that is necessary. Not so, for so far as my own experience goes it takes the bookkeeper much longer to find an error, without the aid of this definite record and in the end time is lost instead of gained by not making it. Another reason favoring the practice and I think a good one, is that by its observance you practically have a skeleton of the message so recorded, and if lost or mislaid, a stub can be put in its place until it shows up. Without such a record where would you be? What office would you check? And the subsequent trouble in "check error report," etc., is thereby avoided.

Form 68 is used by the delivery clerk in recording

messages received collect, on which cash is collected.

If there are branch offices they should sheet their cash business each day, and for their use a form, No. 40, is printed, which when folded furnishes a very convenient form to enter business on, and which if the business is not sufficient to fill a sheet daily, the sheet can be torn or cut in halves or quarters as may be required. Branch office managers usually have dull moments during the day and can easily find time at such intervals to enter their daily cash receipts, and in a manner similar to that described for the receiver. At the close of the day, the sheet should be enclosed with the cash and left at the main office, addressed to the person whose duty it is to open it. The amount of money enclosed should be the same as the total named on the sheet.

We have shown how the preliminary bookkeeping work done by the several persons who have handled messages during the day, is performed, with the result that the cash business goes to the bookkeeper in nice shape.

The bookkeeper, starting in the morning, takes the cash sheets for the day previous and checks off the messages, correcting the rates as he goes and carefully noting any error on the sheet on which they occur. He should go over the footings to see that there are no mistakes there. The message represented on the several sheets should be filed in their order in a convenient place, and not disturbed until the bookkeeper has checked them off. One necessary precaution should be taken by all concerned, especially where quite a volume of business is handled, and that is to see that every message bears the stamp of the clerk who handles it, and that the sheet also bears the same stamp. After all sheets have been checked off and corrected by the bookkeeper, a recapitulation should be made, the total of which will be the cash business of the day on which the work is being done.

Quite a volume of business can be readily handled by the bookkeeper if this preliminary work referred to is performed by the several clerks who may have the handling of messages and cash. By parceling out to the office clerks, or branch office operators, work that can be done by them during their idle moments during the day, labor that otherwise would naturally fall to a bookkeeper, would be expedited and performed with less expense.

In offices that do not employ a regular cashier, the duty of handling the cash falls to the manager or head bookkeeper, and as will be found in all offices of this nature, there are many sources from which cash is turned in, and which will cause more or less confusion in crediting to the proper place, unless some sort of system is followed. My method has been, first, to learn from what sources I might expect cash every day, then make a list of all such, and as the cash came in credit the person so reporting with turning in a certain amount. For this record I used a common every day cash book, furnished by the company, entering the

names, or letter, of those from whom cash was received on the left page, and down along the left side of that page. Opposite the name or letter, on the right of this page, and in the column lined off, enter the amounts of cash remitted by each person. The total of this column at the close of day, can be carried into the day book, as described in a previous article, and entered as "cash from branch offices", "cash from clerks," or from whatever source it may be. On the right page of this book, and at the left side of page, is found another column lined off. In this column should be entered the corrected figures as they come from the bookkeeper, after he has checked off the several lists, as turned in by the different clerks. On the left page the entries will show what the different clerks did turn in, and on the right page are the correct figures, or what the different clerks should turn in. By comparing the amounts any shortage by any of the clerks, will be easily discovered, and the amount can be set out in the column on the right side of the right page. This enables one to look after the cash shortage of each clerk in an intelligent manner, and be able to show the individuals what the amount is each day, also enabling the proper credit to be made when paid, as there is still room left on the margin of the book to use a date stamp. Pains should be taken to balance this book every day. This may be done by taking the column of figures on the left page, (there is only one column) and to it add the total of the shortages, as set out, on the right page; these two should foot the same as the corrected column. All the money taken in excess of tolls is supposed to be left in, so there will never be any money over. Thirty minutes spent on this book each day will keep this record in fine shape, and it will be found to be one of the most satisfactory books in the office, as it furnishes a check on every clerk that handles cash. One can tell at a glance whether his accounts are satisfactory or not, besides having a good record of all moneys due from every clerk in the office.

I have rambled a little from the subject, but as a bookkeeper's duties are very numerous, it is well that the whole field should be covered, rather than that some important point be omitted. In the next article the "charge" side will be considered.

Electric Girdle Around the Earth.

BY FRANCIS W. JONES.

The recent wonderful culmination of the gigantic cable enterprise of the late John W. Mackay, by the transmission of a message from Oyster Bay, New York, on July 4, last, around the world in less than twelve minutes, incidentally directed attention to the variation of time between the places through which the message was flashed. Several of our leading journals gave a correct time table of a supposititious message, but all of them incorrectly dated Governor Taft's reply to President Roosevelt, viz: July 4, when it should have been dated July 5.

Mr. John F. Cleverdon, a well known electrician, recently overheard on a Boston train a boy ask his father how it was possible for a message to leave New York today and pass through the Sandwich Islands yesterday, and the intelligent looking father could not tell. He evidently had not read Mark Twain's humorous account of changing the day at the 180th meridian in "Following the Equator", much less having studied "Calendars." For those similarly situated it should be explained that at the 180th meridian east and west of Greenwich a day dies and a day is born simultaneously every twenty-four hours, namely, when it is exactly noon in Greenwich. Thus, on Saturday noon, July 4, it was 7 A. M. the 4th in New York, 7 P. M. the 4th in Batavia, Java, and midnight, the 4th at the 180° meridian. At 1 P. M. the 4th in Greenwich, it was 1 A. M., Sunday, the 5th at 180° meridian, and Saturday, midnight, 15 degrees west, and Saturday, 2 A. M., 15 degrees east of there.

The President's message that left New York via San Francisco, the 4th, at 10.50 P. M., passed San Francisco the 4th, 8 P. M., Honolulu, the 4th, 5.30 P. M., 180° meridian, Sunday, 5th, 4 P. M., and arrived at Manila at noon, the 5th. The answer being started eastward immediately by Governor Taft of course reversed the above order of time, excepting the loss of time consumed in its manipulation by the highly skilled operators.

A message was started westward around the world at 11.23 P. M., July 4, by President Roosevelt addressed to Clarence H. Mackay, president of the great system of commercial cables, at his residence at Roslyn, Long Island, N. Y., and reached him after traversing over 25,000 miles of land and sea (at one place for many miles under the sea, at a depth of about 6 miles), reached Mr. Mackay in twelve minutes. It passed Honolulu about 5.30 P. M., the 4th, 180° meridian 4 P. M. 5th, Manila noon of 5th, Calcutta 10 A. M. of 5th, Cairo 7 A. M. of 5th, Italy 5 A. M. of 5th, London 4 A. M. of 5th, and passed from Sunday, 5th, to Saturday the 4th, in the Atlantic Ocean 15° east of New York, arriving at Roslyn at 11.33 P. M., the 4th. When it was 12 P. M., Saturday, July 4, in London it was both Saturday and Sunday noon simultaneously at the 180° meridian a little west of Midway Islands, which are generally reckoned as being west instead of east from Greenwich.

Telegraphs in East Africa.

The telegraph system in the East African British Protectorate of Uganda now extends to the shore of the Albert Nyanza, says the Electrical World. The trunk line from Mombasa, with its branches, is over 1,034 miles in length, and the charge over the whole distance is 4 cents a word, with a minimum of 33 cents for a message of eight words. There is also a telephone service along the whole distance, which may be used at 33 cents a conversation. The pole line consists of living trees.

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Hon. L. S. Coffin

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NEW YORK, August 1, 1903.

The Organized Telegraphers.

The convention of the Commercial Telegraphers' Union of America, having met in New York, its initial meeting, an account of which is printed elsewhere in this issue, is now an event of the past and has become a matter of record. While many diverse ideas found expression on the occasion, it may be said that on the whole, counselled by moderation, conservatism of utterance was fairly well observed. The resolution, however, adopted relative to the Western Union Telegraph Company, shows an unfortunate animus of feeling against that corporation on the part of the Union, the formal expression of which we cannot but regard as exceedingly ill-advised, an action which we believe the Union will yet come to regret. It would not have injured the Union to have suppressed any antagonism it may have felt towards any particular body or corporation.

Now that the new telegraphic order is fairly launched through the instrumentality of meeting in representative conventional form, and in its organization standing more clearly defined in its intents and purposes before the country, it is not out of place for TELEGRAPH AGE to speak a few words of friendly council, not unmingled with warning, perhaps, to those engaged in the undertaking.

The right of organization in any industry, or among any body of men, cannot be doubted. Conceding this, the wisdom of organization may sometimes be questioned. But if organization, for whatever cause, be effected to redress real or supposed wrongs, to promote business welfare, the need of a careful guidance of its affairs on the part of those so engaged becomes of paramount im-

portance to insure its success and prosperity. There are always two sides to a case, and a simple, reasonable and honest policy should always be pursued in administering affairs.

It should ever be borne in mind that employers, individual or corporate, have a right to manage their own business and to determine the rate of wages that they can afford to pay, and the man seeking employment has a right to sell his labor where he pleases and at the best rate he can command. If differences arise friendly conference and discussion will accomplish more in the way of a settlement than can be gained by fighting. Union organizations, therefore, should be controlled by the older heads, men who by their years, discretion and experience have learned to be conservative in their estimate of things. Especially is this so in the telegraph profession which is made up of two elements; first, the young men who have no responsibilities resting upon them; and, second, the conservative members of the profession, mostly men of family, who realize that a strike would result in disaster to not only themselves but to those who are dependent upon them.

A man who is struggling to pay for a home, and there are thousands such engaged in the telegraph profession, would be slow to engage in a movement so rash as a strike, for strikes are always fraught with peril. Strikes should be scrupulously guarded against and all unnecessary irritations leading up to such outbreaks, including extravagant demands, should be avoided. No organization has ever yet achieved success by striking. It pays to be conservative. Conservatism is the part of wisdom. The remembrance of the ill-starred strikes among the telegraphers in 1870 and 1883 should serve to check any disposition to repeat those stupendous follies.

Organizations should trust the management and direction of their affairs to wise leaders, men who command confidence and affection, and who will work for their associates and fellow laborers in a way to accomplish desired results without breaking the bonds of peace and good will between employers and employed. As it has been well said, organized labor is in need of calm, conservative, unselfish leadership, a leadership that seeks not merely to get higher pay for work, but to make work worthy of higher pay. Employers of labor also have need of men whom they can respect and trust, and with whom they can negotiate on reasonable terms instead of fighting as with savages. Friendship and co-operation, rather, should rule between labor and capital, a force making for peace and not for strife.

An Educational Standard in Telegraphy.

That the utterances of TELEGRAPH AGE respecting the need of education in the ranks of telegraphers are bearing fruit is evident from the letters which find their way in increasing numbers to this journal from many sections of the country,

and which, as a rule, commend the course of the paper.

It would appear, however, that telegraphers who have passed beyond the grade of an operator, who have gained recognition and advancement, and whose ambition would carry them still higher, are, generally speaking, those who have evinced the profoundest interest in the subject. This may be accredited to the stimulation of purpose to which they have given heed, and to the benefits they have derived from our admonitions to study and perfect themselves in the profession they are following.

At the same time it has been declared by some that telegraphic employment early in life, covering a period of, say, five years, is without doubt beneficial to the average individuals, inasmuch as the experience thus gained is in effect a peculiarly good schooling, teaching quickness of thought and action and accuracy of statement, fundamentals of value in any business or profession. Yet beyond this comparatively narrow limit, which after all permits the gaining of but rudimentary knowledge, telegraphy does not offer much else to tempt an operator to remain permanently in its service, so that technical study, it is further urged, does not become of material advantage if at the close of a five-year course, the key and sounder are to be abandoned for other pursuits.

This seems to us to be a make-shift argument, evincing a lack of stamina in one who would give it expression. Life is too short and time is too precious to waste it in any such "schooling" process, simply, as here referred to. If a probationary term, if we may so say, of five years, devoted to the practice of telegraphy is calculated to stimulate mentality, the habit thus gained under presumably congenial influences, ought, for obvious reasons, to serve the individual more advantageously in the telegraph itself, in which he has commenced life, and to which he has given some of his best years, than in any other avocation. This being so the argument becomes all the stronger that during the five-year period the mind, more receptive in the formative years of youth, should be further strengthened and informed by a course of judicious study, and so prepare and fit the individual for advancement in his profession.

As we have often pointed out, the field of the telegraph holds out inducements to the practical telegrapher of intelligence that will broaden with the years to come rather than lessen in its attractions. If prepared to meet the demands always calling from higher up there is no reason why competent and resolute men should not rise steadily in their profession. Such men are needed and are continually being sought for. Diligence, application, studiousness and perseverance are required on the part of every one who would make a success of life. There is room at the top in telegraphy for all who are adequate to reach that goal.

The Western Union Adopts a Bonus Circuit.

A paragraph appearing in the New York Western Union notes, printed on another page of this issue, makes the interesting announcement that that company has initiated a system of piece work in its New York office. While, as it appears, the plan at present is limited in its operations to but a single Philadelphia circuit, the fact that a beginning has been made in the direction of granting bonus work may be looked upon as an innovation in old methods, one that will meet with hearty appreciation on the part of many who will derive benefit therefrom through the increased financial opportunities afforded. Once the advantages of the plan become apparent through successful operation, which we believe will be the outcome of the experiment, we venture the opinion that the bonus system, which has so much to recommend it to the ambitious members of the craft, will no doubt eventually be extended so as to cover all of the heavy circuits leading out from the New York office. For, not only will its adoption confer benefit on the men, but the company itself should also derive an increased return in the more prompt despatch of business and in the saving of wires. It may be surmised that the latter object is the governing cause actuating the Western Union in this move, as in the past it also determined a similar action by the Postal. But it is a poor rule that will not work both ways, and benefit to the company will likewise inure to the welfare of the men.

It is now just five years since the Postal Telegraph-Cable Company inaugurated its bonus system, a move which has met with success from the start. At the outset the proposition was regarded with more or less suspicion on the part of some, and the good faith of the company in its action was even impugned to the extent that when the plan should have become fully established the company would then take advantage of the situation and not only stop the extra pay, but demand of the men as a full day's labor the amount of maximum work they had performed under the stimulus of additional pay. But there was no cause for distrust, and now after all these years of successful operation the piece work system has become a settled and distinct feature in the Postal's scheme of employment.

The only criticism that can be brought against the plan, so far as we can see, is that it might impel operators to become over anxious in their efforts to make larger earnings and to overcome previous records, and so cause them to break down.

The Western Union Telegraph Company has fixed the rule that the handling of 325 messages on the Philadelphia wire shall constitute a day's work. All business in excess of that number executed by the same operator will be paid for at the rate of one cent per message. At the same time the operator has the privilege, if he so chooses, of stopping work for the day when he

has reached the message limit named, and for which he will receive full salary credit.

While the adoption of the bonus system has been inaugurated in but a limited way by the Western Union Telegraph Company, for the idea is to first carefully test the measure, Mr. Barclay, the assistant general manager, as well as Mr. Brooks, the general superintendent, state that the entire good faith of the company is pledged in the matter.

Convention of the Commercial Telegraphers' Union.

The first annual convention of the Commercial Telegraphers' Union of America met in New York at the Teutonia Assembly rooms on July 19, a date selected because of its being the anniversary of the telegraphers' strike of 1883. Discovering that the hall chosen was non-union, headquarters were transferred to Arlington Hall. At this point the session was continued until the 25th inst., when, all business being concluded, an adjournment was had to meet at St. Paul, Minn., on July 19, 1904. The call for the convention was generously responded to, seventy-nine delegates being the largest number in attendance at any one time, and these came from all parts of the United States and Canada.

The visiting delegates, their wives and others accompanying them, were generously entertained during the week of the convention by their affiliating New York brethren, and in various ways were the recipients of many courtesies, including a banquet.

Mr. I. J. McDonald, of Chicago, associate president, was elected permanent chairman of the convention, and E. B. Faust, of Augusta, Ga., secretary. The proceedings on the whole showed a general unanimity of spirit on the part of the members in advancing the interests of their order, and, as a rule, were marked by temperate expressions of opinion. In the selection of officers for the coming year, considerable feeling was shown between candidates, the nominations being closely contested, except in the case of Wilbur Eastlake, the secretary-treasurer, who was renamed for his post by acclamation. The result was as follows: Will C. Long, of Dallas, Tex., president; Wilbur Eastlake, of New York, secretary-treasurer; Elmer H. Linguist, of Chicago, first vice-president; J. J. Dunn, of Montreal, Que., second vice-president, and A. T. Baum, of San Francisco, Cal., third vice-president. An executive board, comprised of nine members, was also elected as follows:

M. J. Reidy, of Boston; A. A. Davis, of Memphis; Percy Thomas and D. L. Russell, of New York; A. L. Boyer, of St. Louis; C. K. Cralle, of Chicago; E. C. Heasley, of Washington, D. C.; A. E. Bates, of Chicago, and J. L. Fitzgerald, of St. Paul.

It was voted that the president and secretary-treasurer of the association should not work for any telegraph company, and that they must de-

vote their entire time to the interests of the order.

A protective fund was provided for and a minimum initiation fee of two dollars was fixed upon. The annual dues, which were six dollars, were increased one dollar in amount in order to cover the subscription price of the official monthly publication lately instituted by the order. Mr. A. G. Douglass, of Milwaukee, was elected to continue the editorship of the paper.

A resolution was adopted requesting all private, leased wire and broker operators not to work for either of the telegraph companies for an amount less than fifty cents an hour.

The following preamble and resolution was also adopted:

Whereas, the Western Union Telegraph Company has dismissed from its employ many efficient telegraphers throughout the United States because of their affiliation with the Commercial Telegraphers' Union of America, and has endeavored in many reprehensible ways to destroy the said union, and

Whereas, the said union is being built up solely for the purpose of bettering the conditions of telegraphers and thereby to improve the telegraph service rendered to the public, and

Whereas, the American Federation of Labor has by resolution placed the Western Union Telegraph Company on its list of unfair employers, therefore be it

Resolved, that all fair-minded American Trade Unionists, Workingmen, Employers and Manufacturers be, and they are hereby notified of the despicable actions of the said Western Union Telegraph Company and its officers, and the public is most urgently requested to rebuke the said Western Union Telegraph Company in the most effective way possible.

The Executive Committee is hereby instructed to have this resolution published, printed and distributed throughout the United States and Canada.

The new president of the Commercial Telegraphers' Union of America, Mr. W. C. Long, is a native of Pennsylvania and began his telegraphic career on the Pennsylvania Railroad. He has worked as a telegrapher in many sections of the country. He has also been an actor and interested in traveling musical organization. A more extended sketch of Mr. Long, together with his photograph, will appear in the next issue.

T. M. B. ASSOCIATION: Assessment, number 410, has been levied by the Telegraphers' Mutual Benefit Association to meet the claims arising from the deaths of Daniel M. O'Driscoll at Charleston, S. C.; James S. Hall at Worcester, Mass.; Charles R. Allen at Springboro, Pa., and Charles E. Buell at Atlantic City, N. J.

"Pocket Edition of Diagrams," etc., 260 pages and 126 illustrations, published by TELEGRAPH AGE, contains just the information that every telegrapher requires, irrespective of his position.

The Yetman Transmitter.

The announcement that the transmitting typewriter is ready for market will, we feel sure, be welcome news to the readers of TELEGRAPH AGE. That this device will prove to be a great aid in simplifying transmission of Morse signals and that it will do much to improve the condition of the individual telegraph operator, no one who thoroughly understands it will attempt to deny.

The Morse key now used the world over in transmitting telegrams is exceedingly crude. It accomplishes its special work with as much difficulty and as inefficiently as did the sickle in the harvest field. It is fifty years behind the times. Speaking of it as a mechanical contrivance nothing whatever can be said in its favor. That it has remained for so many years in general use in telegraph work is impossible of explanation. The transmitting typewriter provides a mechanism for transmitting telegrams which is constructed on new and radically different principles. These new methods accomplish this work in an easy, simple, efficient and accurate manner and place this most important branch of telegraph work on a par with other branches of telegraph service which have long since been revolutionized by the introduction of up-to-date electrical and mechanical appliances.

Those who have had charge of the work of introducing and popularizing this new device deserve a large measure of praise for the thorough and conservative manner in which the work has been accomplished. The history of the marketing of almost every new invention shows that the demands of capital for quick returns cause it to be sold before it has been thoroughly tested in actual work, thus placing upon the public the burden of the expense of correcting weaknesses in developing the new machine to a point where it is practical and reliable. To be right rather than rapid has been the watchword in the work which has been done thus far with the transmitting typewriter and to this fact the remarkable success of the new device is largely due.

The exhaustive tests to which the transmitting typewriter has been subjected during the last few months in every branch of telegraph work, and the extremely critical attitude of those who had charge of the work, has brought this device to a state of perfection unusual in the history of similar undertakings. In carrying out this policy of doing the work thoroughly rather than quickly, those interested have up to the present time been unwilling to permit any extended public announcement to be made concerning it. Many orders for the new machine which were received from the telegraph companies and from telegraph operators during the time of the earlier tests were not filled until all trials bearing upon the reliability of the mechanism had been completed. The adoption of the new device and its introduction into the telegraph service of many of the largest and most important telegraph systems in this country has been brought about as

a direct result of the trial of the machine covering a period of many months of actual service. The time has arrived, however, when it is proper to announce that the transmitting typewriter is an established success and is now ready for the market.

It is a fact which has become firmly fixed in the minds of all enterprising telegraph operators that the typewriter has come into telegraph work to stay. It is equally true that no ambitious telegrapher can claim to occupy a place directly in line for promotion unless he can use the typewriter in receiving telegrams. We might safely go still farther and say that nothing except his ability to send beautiful Morse will push an operator to the front more rapidly than his typewriter skill.

Since the typewriter which effects only the work of the receiving end of a wire has proved so valuable, of how much greater value will be the transmitting typewriter, which not only offers greatly improved typewriter features for the receiver, but does a still greater work for the sender?

The transmitting typewriter in size and general appearance is not unlike that of other typewriters of its class. As a matter of fact it is two machines in one; a complete typewriter and a telegraph transmitter. When the machine is not in use it may really be said to consist of three parts, the typewriter, the transmitter and the keyboard. If the typewriter part of the machine is to be used, the depression of a lever at the right of the frame connects it with the keyboard, and when the work is complete the raising of this lever again disconnects it. If the transmitter is to be used the depression of a lever at the left of the frame connects it with the keyboard and opens the telegraph circuit; the raising of this lever at the completion of the work of transmitting again disconnects the transmitter and closes the telegraph circuit. The typewriter and the transmitter may be connected with the keyboard at the same time by the depression of both the levers above referred to, so that a mechanically correct copy of the matter transmitted may be secured.

The machine may be permanently connected into a telegraph circuit by simply cutting the wire and inserting the two cut ends into binding posts fixed in the frame at the rear. Temporary connection into any circuit may be made by the use of a cord and jack placed under the spring of the Morse key circuit closer, so that the machine can be moved quickly from one wire to another like any ordinary typewriter.

The typewriter part of the machine has been subjected to the severest possible tests, covering a period of many months of practical work. In all of these it has proved itself to be superior to anything of the kind yet put upon the market. Every letter, every word and every line written is in plain sight from the time the first letter is struck until the paper has been removed from the



THE TRANSMITTING
CHARLES E. YETMAN, 21



ING TYPEWRITER.

20 BROADWAY, NEW YORK.

machine. That this feature of "visible" writing is invaluable in a typewriter to be used for telegraph purposes is admitted by all.

The carriage is returned by one direct downward movement of a lever at the right of the keyboard; the line spacing is accomplished automatically at the same time by the same motion. The paper feed has been constructed with special reference to the rapid handling of telegraph blanks. The carriage moves upon ball bearings and the typebars, which are the real life of a typewriter, are connected into their hangers by ball bearings. The touch is exceedingly light and is absolutely uniform in every part of the keyboard. It is not too much to say that the transmitting typewriter excels all others in speed, ease and uniformity of touch, permanence of alignment, manifolding and durability.

The transmitter part of the transmitting typewriter makes it possible for a telegraph operator to transmit Morse signals which are absolutely perfect by touching the keys of the keyboard. The touch used is the ordinary quick staccato typewriter touch. Each Morse signal and the elements of which it is made up, namely, the dot, dash and space, are transmitted by the mechanism of the transmitter with absolute accuracy and uniformity, independently of the skill of the operator. The space between the signals, however, is entirely within his control so that he can space the letters in difficult words more widely than in others and use that fine judgment possessed by all intelligent operators, which is absolutely inseparable from efficient telegraph work, and which it is asserted no mechanism will ever be able to supply.

The rate of speed at which each signal is transmitted is also governed by the mechanism of the transmitter and is always uniform. All rates of speed from very slow to very fast are secured by turning a button at the right of the transmitter. The proportion between the length of the dot, dash and space, however, always remains the same and is so arranged as to make the signal firm, or as firm as it is possible for a signal to be made at the rate of speed used. This firmness and the absolute uniformity of the transmitter made signals insure their carrying through the longest circuits and through the largest number of sets of repeaters at a much higher rate of speed than is possible by hand.

Of the transmitter it is sometimes asked will it carry over long circuits? On Friday morning, April 17, the entire early morning report of The Associated Press, about six thousand words, was sent from the Chicago office of that association with a transmitting typewriter over a circuit made up as follows: Chicago, Louisville, Cincinnati, Nashville, Atlanta, Memphis, Little Rock, Dallas, Houston, San Antonio, Galveston, St. Louis, Kansas City, St. Joseph, Denver, Pueblo, Salt Lake City, Reno and San Francisco. In this circuit there were seventeen sets of repeaters; two at Cincinnati, two at Nashville, one at Memphis, one at Little Rock, two at Dallas, one at

Chicago, one at St. Louis, two at Kansas City, one at Elliot, two at Denver, one at Salt Lake and one at Reno, Nev. This work was commenced at 3 A. M. and finished at 6 o'clock A. M. There was one break from Salt Lake; none from San Francisco. This work was done, not as a test made under favorable conditions created for the purpose, but under conditions which regularly prevail on all telegraph circuits. From this result it would seem that nothing further need be said concerning the carrying qualities of the work done by the transmitting typewriter. The company challenges any hand sender to send over any circuit signals equal in firmness and speed to those produced by this transmitter.

The transmitting part of this machine and the ideas embodied in it are entirely new. It has been invented, perfected and manufactured by a practical telegrapher, and is now being placed upon the market by practical telegraphers. The purpose of the inventor from the very start was to provide for telegraph operators a mechanism for transmitting Morse signals, which would relieve them from the terrible nervous and physical strain to which they are subjected by hand sending. What telegraphers suffer from the effects of the strain of hand work is too well known to require mention here. All operators have suffered more or less from it. Thousands have been totally disabled by it. The transmitting typewriter might almost be said to work miracles for telegraphers. It gives to all those who are enterprising and intelligent the power to become expert senders as well as expert receivers, no matter how badly disabled they may be. It furnishes them with a kind of sending skill which the heaviest work cannot injure or destroy, and which no hand sender ever did or ever can equal.

From the foregoing description it will be evident that the transmitting typewriter cannot be operated by those unskilled in the art of telegraphy. The expert "transmitter operator" must be an intelligent telegraph operator and, to properly operate the new machine and accomplish the beautiful work of which it is capable, he must acquire a special kind of keyboard skill. That the transmitting typewriter would thus create a special class of telegraph operators of extraordinary ability was foreseen by those interested in the enterprise. To provide all operators with the necessary information as to how this special skill may be acquired, a complete instruction book has been published, entitled, "Typewriter Wisdom for Telegraph Operators."

This book will be mailed free to any telegraph operator who wishes it; thousands of copies have already been sent out and a new edition is now ready for distribution. The eight finger method, as it is called, of operating the keyboard of a typewriter, which is taught by this little book, is exactly adapted to develop in those who are willing to follow its teachings that special skill before referred to. The instruction book is complete in every particular

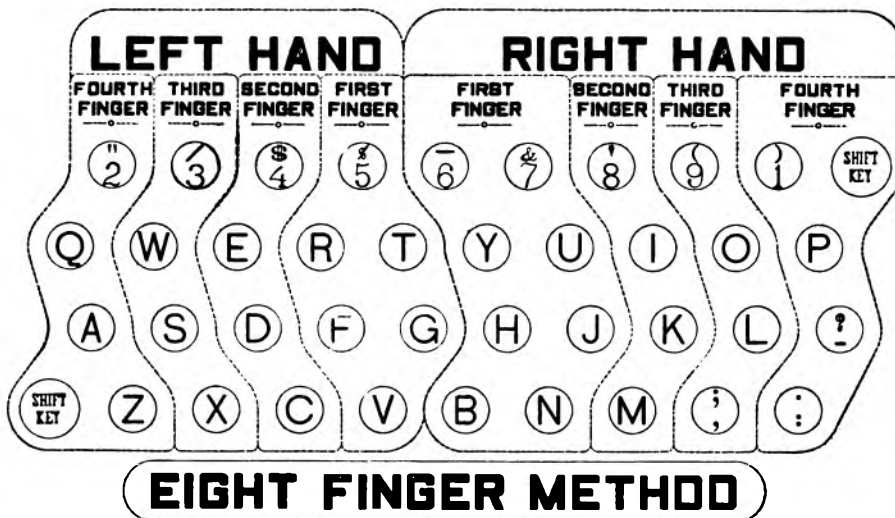
and its lessons are so arranged as to take the learner through a course of practice that will fit him for expert transmitter work in a remarkably short time. It will make him not only an expert sending operator but will increase at least fifty per cent. his skill in the use of the typewriter for receiving telegraph work.

The eight finger method is shown in illustration by the accompanying diagram. The method is scientific; it is simple and its adoption means the acquisition of correct finger habits, securing to the operator ease, speed and accuracy in his work, and relieves him of the intense nervous strain incidental to his peculiar labor. Those operators who have adopted the Yetman Transmitter are highly eulogistic of its splendid practical qualities. Thousands of letters have been received by the company expressive of praise of the transmitter and of the thanks of operators who, by its use, have not only been enabled to resume their old time places in the ranks of fast senders, but are capable of doing even better work than ever before in their lives.

Plate Company; by the National Transit Company and other great corporate interests.

Offices for the exploitation and sale of the transmitting typewriter have been opened in New York, Chicago, Pittsburg and Washington. In connection with them practice rooms have been established, which are completely equipped with telegraph circuits and transmitting typewriters. These rooms are in charge of expert instructors who devote their entire time to the training of operators who wish to master the eight finger method and become expert in the use of the new machine. These rooms and the services of the skilled instructors are furnished to operators absolutely free of charge. All operators who are so located as to be able to do practice work at the points above mentioned should hasten to avail themselves of this opportunity.

The general offices of the company are at 220 Broadway, New York, where Mr. Charles E. Yetman, the general manager, may be found, and where he is assisted by Mr. G. W. Conkling, manager of the sales department; Mr. G. R. Allhands,



One of the best endorsements of the transmitting typewriter is that it has been officially adopted by The Associated Press and has been in successful operation upon their heaviest circuits for many months. This association has purchased a complete equipment of transmitting typewriters for its offices at New York, Chicago, Washington, Philadelphia and Pittsburg; other offices are being supplied as rapidly as the necessary machines can be secured. The entire office force at the points above mentioned, among whom are to be found the most skillful telegraphers in the profession, have mastered the eight finger method and are now able to accomplish easily, accurately and beautifully, the heavy work which press service always makes necessary.

The Yetman Transmitter has also been adopted by the Pennsylvania Railroad Company, west of Pittsburg; by the Delaware, Lackawanna and Western Railroad Company; by the American Tin

manager of the department of instruction, and Mr. H. R. Clark, also of the sales department.

At Chicago, Ill., Mr. W. F. McDonald is the manager, National Life Building; at Pittsburg, Pa., Mr. G. W. Garland, in the Frick Building, manages the interests, and the manager at Washington, D. C., is Mr. E. E. Cole.

Charles E. Yetman, Inventor.

Mr. Charles Elmer Yetman, who has gained a wide recognition in the telegraphic world by reason of his connection with the transmitter popularly bearing his name, is a native of Pennsylvania, having been born at Darlington, Beaver County, that State, December 9, 1863. In person Mr. Yetman is tall of stature, with a face thoughtful of expression and indicative of force of character, whose ways impress one as being quiet, methodical and thorough—a man in the prime of

life, in full health and whose mind is firmly imbued with the belief of the great utility of the simple, yet marvelously correct and fast-sending device in the manufacture and sale of which he is now engaged. He was a student at Oberlin College, Ohio, where he took the classical course, and for six years practiced at the key as a telegraph operator, an art in which he speedily became expert both in theory and in practice. In truth it is due to his practical knowledge of telegraphy, coupled with the fact that he is what may be termed a "born inventor," that he has been enabled to develop and work out the idea embodied in his transmitting instrument. His first ex-



CHARLES E. YETMAN,
Inventor of the Yetman Transmitter.

perience as a telegrapher was gained in the railroad service at Claridon, Geauga County, Ohio, as an operator and station agent of the Painesville and Youngstown Railway, now a part of the Baltimore and Ohio Railroad system. This post he held for a year, the four years following filling a similar position at Madison, Ohio, for the New York, Chicago and St. Louis Railroad, (Nickel Plate), finally serving another year as station agent of the Baltimore and Ohio Railroad, at Painesville, Ohio. Abandoning the telegraph for mercantile pursuits, he spent five years in Chicago, since which time he has been interested, first in inventing, perfecting and manufacturing, and now in selling the Transmitting Typewriter.

The Telegraphic Tournament.

Between the activity of the executive committee and the enthusiasm of the Philadelphia operators it is pretty clearly indicated that the tournament will be more than a red letter event in the history of the telegraph. Confidence in the affair appears to be firmly established by the cooperation of a number of the most prominent figures in the telegraphic world.

The Tournament will be held in the great auditorium of the Exposition Buildings, Philadelphia.

the same in which Mr. McKinley was nominated and which has a seating capacity of 20,000.

The executive committee is making an effort to secure an exposition of electrical apparatus, a display which will be as interesting and attractive to outsiders as the contests will be to the fraternity.

The auditorium has been secured for October 30 and 31, as it is anticipated that the entries for the many contests will be so numerous that it will require two sessions on each of the two days.

A ladies' auxiliary has been organized to provide for the hospitable entertainment of the ladies who may accompany visitors from distant places. If possible the wireless telegraph will be one of the great attractions, while the exemplification of cable work on the siphon recorder will, no doubt, be an interesting feature to those who have never had an opportunity of witnessing it.

The committee has decided upon the following classification of contests:

Class A—First prize for all around work, including sending and receiving commercial messages, code and press.

Class B—Phillips code; sending and receiving.

Class C—Siphon recorder; sending and receiving.

Class D—Ladies' prize for sending and receiving (commercial).

Class E—Yetman Transmitter; sending and receiving. Contestants to have choice of typewriter.

Class F—Railroad work; sending and receiving.

Class G—Old timers; sending and receiving.

Class H—For broker operators. (Orders and quotations).

Class I—Champion class; sending and receiving.

Class J—For the most rapid elimination of trouble on the quadruplex.

Several of the prizes will include Yetman Transmitters and typewriters, but the committee hopes the money realized will permit them to add valuable cash prizes for each contest; likewise to give a second prize for most of the contests. At present it is premature to suggest the value of the prizes. That will be done, however, at the earliest possible moment.

It is safe to say that the tournament will be a credit, not only to the prominent gentlemen who are so generously supporting it, but as well to the operators at large, and it is hoped that the entire fraternity will, by their representative presence, show their appreciation of the conspicuous efforts of the operators of Philadelphia to exalt their profession.

No telegrapher, no matter what his position may be, who values his place and aspires for promotion based on all-around practical knowledge, can afford to be without "Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students." See advertisement.

The Passing of the Quadruplex.

BY STEPHEN DUDLEY FIELD.

I have been much interested and many times greatly enlightened by the series of interesting articles in TELEGRAPH AGE contributed by Willis H. Jones. His article appearing July 16 tempts me to enter a protest.

"The Passing of the Quadruplex!" The quadruplex has not yet arrived.

Many years ago Edison tried to make a quad, but hardly succeeded in making a satisfactory installation, and it was not until F. W. Jones showed how to work a differential quad by the insertion of his bridging condenser that the apparatus became much more than a beautiful experiment. The "bug" was still there, however, only not quite so prominent.

When the dynamo quad was introduced on long circuits the sparking at contacts rendered a make and break polechanger a necessity. We did not then know that this spark originated in the straight wound battery resistances. When these battery resistances were replaced by non-inductive carbon lamps, continuity polechangers became possible. But these carbon lamps change their resistance from 20% to 30% under a current of 50 milliamperes.

This is modern trouble No. 1. I regard the modern innovations, such as the Frear relay, the Jones inductorium, etc., as distinct misimprovements; as mechanisms they are highly ingenious, but they conceal the "bug" without removing the same.

Referring to Mr. Jones' article, I think you will find that the north and south quads more generally find a battery terminal equipped with old style apparatus. The east and west generally meet dynamos and modern innovations. There has rarely been a greater electrical fallacy than the idea that the "no current" period on any practical circuit exists to a damaging extent. This is proved by the fact that a line of No. 8 wire from New York to Toledo will clear itself during the time that an ordinary continuity polechanger is passing contacts. This was demonstrated on the Mutual Union lines repeatedly.

Again referring to the article in question: In telephone installation it is found that the more varied the extraneous disturbances the less troublesome they become. Thus, ten wires "grounded circuits" on one pole line can be independently utilized for quite long distances, while two wires under the same conditions cannot be dependent on for a single mile; mutual neutralization takes place in the case of a multiplicity of conductors. In the West we could not work two wires Morse on the same set of poles without grounding each pole, but when the number of wires increased to eight or ten the trouble completely disappeared.

The so-called quadruplex "is passing;" it has been improved out of existence; it has been doctored for the wrong disease under a mistaken diagnosis.

The potentials at present used are more than double what they should be and the more they are increased the greater will be the damage. The battery resistance per volt is double what it should be; one ohm per volt is enough—it can safely be made less. The relay resistance is double what it should be.

The "bug" is caused by that portion of the arriving current which finds its way into the condenser of the equating circuit during the passing of contacts in the continuity polechanger and during the breaking of contacts in make and break apparatus.

Throw any quad to ground and get diplex from the distant station and it will be found that the home polechanger, when operated, will break up the signals by short circuiting the resistance used to replace the battery.

Figure it out: Take a quad on a 2,500 ohm circuit, 250 volts, 500 ohms battery R, requiring 2,500 to 3,000 ohms to balance. The arriving current will now divide and approximately one-fifth go to earth through the rheostat placing a proportionate charge in the condenser. When the home polechanger passes contacts the charge due to this one-fifth of the arriving current is emptied to earth through but one coil of the relays. When the contacts separate a fresh false charge rushes into the condenser. This false charge and discharge makes the "bug."

The Jones condenser has a tendency to keep both poles of the neutral relay at the same potential for a brief instant and thus eliminate about one-half of the disturbance. Increase of battery brings an increase of battery resistance with consequent increase of disturbance. These are not theories; I have proved them again and again, and can demonstrate them at any time in my laboratory.

Finally, the quadruplex has not yet arrived. It is "en route." An elimination of battery resistance residual magnetism, unbalanced relay windings and a general lowering of potentials all along the lines will do much toward hastening its advent.

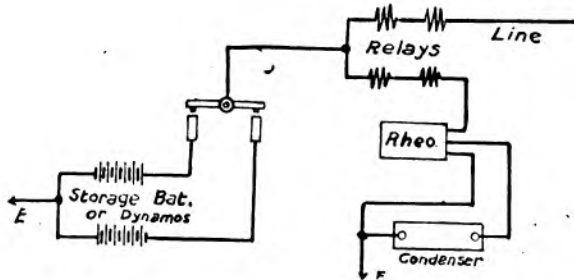
BY E. L. BUGBEE.

I was much interested in the article in your issue of July 16, on "The Passing of the Quadruplex for Long Circuit Work", as I have spent considerable time and thought on the "why". It certainly does seem as though with better conductivity and less static in the copper wires now in use, together with the experience of years and supposed improvements in apparatus, the working of the quadruplex should have been greatly improved, but the cold facts are to the contrary, as you say. Circuits that were once worked successfully four cornered are now worked only on one side, and the overflow of business is "routed".

You are no doubt correct in ascribing a large part of the difficulty to the influence of magnetic fields and parallel currents in the air; and the disturbed conditions of the earth at the terminals by lighting and power plants probably add great-

ly to the confusion; but I have been inclined to lay the blame mostly to the system and the conditions under which we are now laboring. There is probably a limit to the length of a workable quadruplex under perfect conditions, but I think many have been abandoned which are decidedly under the limit because of the conditions.

First a word as to the system. In former times when each set had its separate battery and the old circular-back polechanger was in use, the reversals were practically instantaneous. There was no gap except from worn or imperfectly adjusted points. Now with the two poles from grounded batteries, there must necessarily be a gap in the polechanger points, and there is a perceptible interval of time between one pole and the other, even with the best possible adjustment of points. After the first reversal the points are no longer perfect, as the spark has started the action of cupping one point and coning the other. This continues and grows worse, sometimes, until the receiving operator can no longer even guess at the letters the sender makes. They use up a good deal of time in breaking and quarreling and the receiver finally threatens to throw up his job rather than to work with such a "ham" sender. (This is laboring under a condition.)



MR. BUGBEE'S ARRANGEMENT FOR A QUADRU-
PLEX MAIN BATTERY.

It takes a measurable space of time for the neutral relay to reverse its magnetic polarity, also a brief time for the current to traverse the line, varying according to the length, voltage, resistance of relays, amount of under-ground cable in circuit and possibly other conditions, and when there is a considerable gap in the polechanger points, added to the above, the armature of the neutral relay is not recovered after a reversal in time to record the signal the sending operator makes.

The polechanger gap must necessarily be wider for a 420 volt current than for smaller voltages, and twice as wide for grounded batteries of 420X and 420—as for the two terminals of a 420 volt separate battery, because in the former the difference in potential is 840 volts.

The polechanger gap is to my mind a complex and troublesome feature, and the last straw that breaks the camel's back.

Here is the combination as it appears to me:

When the polechanger leaves one pole for a reversal, the static discharge of the line is met in the home relays by an equal discharge from the

rheostat and condenser. If there was a path to the earth through the polechanger, both discharges would go to the earth at the home station, but that path is temporarily open and the discharge from the line must be through the distant relays, accelerated by the action of the home rheostat and condenser in neutralizing it in the home relays.

On a long line, the discharge must occupy a perceptible interval of time and be of varying intensity. The effect upon the distant neutral relay armature is like that upon a person being suddenly dropped, causing a hopeless clutch at nothing, a gasp and a shudder. If you will look at a neutral armature at the moment of reversal you will see that it appears to experience a variety of emotions.

Prominent among the conditions under which we are now laboring is "strenuosity." Everybody must be kept busy. Every one has just as much apportioned to him as under ordinary circumstances he can stand. Consequently when anything out of the ordinary happens, there is nobody who can attend to it, and the only other thing to do is to give it up, unless possibly some one can be diverted and the ordinary left to take care of itself. In former times provision was made for the maximum of ordinary business; now it is calculated for the average.

Another of the conditions is the removal, in many places, of the quadruplex instruments to a quad room, with a separate force to look after them, who cannot very well always know what wire changes occur. If, for instance, upon recovering the distant station after a temporary interruption, the quad man knew that his wire was crossed with two others, which were opened to clear it between F and G, he would increase his condenser and vary the resistance between the condenser and relay accordingly. Not knowing it, he has to experiment until he finds a balance, or failing, gives it up. Not infrequently he must give it up because he is wanted elsewhere and has not time to "fool with it any longer."

Upon cables, the individual characteristics of each circuit are studied and apparatus provided to suit the especial needs. Perhaps stronger relays or other special arrangements might again start up some of the dormant quadruplexes.

The International Conference.

The International Telegraph Conference, which has been in session of over a months' duration in London, England, has adjourned and the revised "International Service Regulations" have been signed by the representatives of the various Governments. The revision has to be ratified by each contracting State, consequently, the changes to be introduced cannot take effect for some months at the earliest. The conference has arranged for considerable reductions in rates and has decided that any pronounceable combination of ten letters will be accepted as a word in code messages.

The Rapid Growth of a New Messenger Company at Portland, Oregon.

Mr. John F. Shorey, a former telegrapher, and who for nearly thirty years was in the employ of the Western Union Telegraph Company, the latter portion of which time filling the position of manager of the service bureau, at New York, and more recently engaged in other business in the metropolis, has become the managing head of the City Messenger and Delivery Company, of Portland, Oregon. Here he has established and built up within a comparatively short period a mercantile delivery system which is at once comprehensive of purpose and thorough in its working detail.



JOHN F. SHOREY.
Manager of the City Messenger and Delivery Co.
Portland, Oregon.



TYPE OF
MESSENGER
BOY

A local paper of the city of Portland in referring lately to this undertaking had this to say:

"From a very meager beginning the business of the City Messenger and Delivery Company has grown to one of vast proportions. Its scope has extended into every section of Portland and the outlying towns, and, in fact, become one of the factors in our mercantile life. Perhaps no enterprise has shown such a steady and wonderful growth as this and it is safe to say that the increase of business is a record-maker for the Pacific Coast. Well informed in every branch of the business, the management has made it a special duty to please the public.

"The city extends far out in every direction, embracing towns and villages of great importance and magnitude. In these places there is a great mass of people who depend upon the city merchants and business men for their every day needs. To supply these promptly has been the study for years, but Mr. John F. Shorey, who established the business, has solved the mystery and made a connecting link between the homes and business houses that is one of the best and strongest factors in Portland life. He has arranged a system of messenger deliveries and wagons that is complete in equipment and detail, in

fact so complete that it has been adopted by the leading department stores in preference to their own, and express companies have accepted this service in preference to all others."

The headquarters of the City Messenger and Delivery Company are located at 106 Sixth street, a central point of the city, and where it occupies the entire lower floor of the spacious building. The various offices and departments are attractively fitted up and active employment is given to a large staff. The company at present employs a force of 22 messenger boys who are neatly uniformed and each of whom is provided with a bicycle. This number will, it is said, be increased to sixty when the plans of the company, now in process of execution, are carried out. Altogether the company employs a total of from one hundred and fifty to one hundred and seventy-five persons.

The stables of the company are situated at 108 13th street. These originally were considered large, being 75x75 feet in size. Further improvements are now projected which, when completed, will provide room for one hundred and fifty horses and one hundred wagons. These wagons vary in size from the light run-about two-wheeled affairs to the ponderous four-wheeler comparing in size to the biggest delivery wagons to be seen in the streets of large cities.

When it is remembered that Portland, although a place of much business activity and fast growing, has not yet 150,000 inhabitants, it will be seen to what an extent the company has gained the good will, confidence and the business of the town to warrant such an extensive and costly plant as has already been found necessary to meet the demands made upon it.

The business of the company has grown to large proportions. To convey an idea of the close touch it has with the community, it is said that



TYPE OF DELIVERY WAGON.

there are from 2,000 to 3,000 packages delivered daily in addition to the ordinary routine of messenger calls. The big stores of Portland are contributing materially to the prosperity of the company, their guaranteed business alone amounting to many hundred thousand packages annually.

In all possible ways the company is offering its utilities to the citizens of Portland, and in the many requirements incident to social life it is also gaining recognition and finding increasing employment.

Mr. Shorey, while in New York recently, closed an arrangement with the Postal Telegraph-Cable Company for the entire delivery and collection service of telegrams for their Portland offices. This arrangement will immediately throw into the service of the City Messenger and Delivery Company over 800 messenger call boxes already in operation in that city.

What an Operator Has to Wrestle With.

[From the Muscatine, Iowa, Journal.]

In our thirst for knowledge we happened to look at the first page of TELEGRAPH AGE, a journal devoted to the interests of the manipulators of the brass key and the first two paragraphs in the first article read as follows:

"In the last issue of this journal the location, connections and potential values of batteries assigned to quadruplex apparatus generally, was stated and certain information given which would enable a division chief to discover at once the seat of any battery disturbance which might suddenly develop, and thus know what to do in the emergency.

"One of the suggestions as to the probable location of the source of the disturbance which accidentally opened one pole of the battery on a number of quadruplex sets was that it might possibly have been caused by a burned out fuse in the main battery fuse-box near the lamp stand. This information in itself would not enable one to remedy the fault properly unless he also possessed a knowledge of the respective melting values of different fuses, and knew approximately about how much current normally flows through them."

We were previously of the opinion that mastering the Morse alphabet was about the summum bonum of the telegraphers' art. But after glancing through this publication (not, however, with the idea of gaining any information, after that first volley) we decided that the operator had to wrestle with some pretty vague theories and was entitled to both admiration and sympathy.

The Railroad.

From station agent and telegraph operator to general manager of one of the greatest railroad systems in the country is the record which Frank Barr shows in the well-earned promotion that came to him in being placed at the head of the management of the Boston and Maine Railroad system. The services rendered by Mr. Barr as assistant general manager of the Boston and Maine during the last seven years made him a logical successor to the late general manager, T. A. MacKinnon. In addition to being elected by the directors to the position of general manager, Mr. Barr was also chosen third vice-president.

Jacob Levin Appointed General Superintendent at Atlanta, Ga.

Mr. Jacob Levin, inspector of the Eastern and Southern divisions of the Western Union Telegraph Company with headquarters at New York, has been promoted to be general superintendent of the Southern division of the same interests with headquarters at Atlanta, Ga., the same to be effective on August 1.

Mr. Levin, who left the position of assistant superintendent at Minneapolis, Minn., six months ago to accept the place of inspector at New York, where he succeeded Mr. E. P. Griffith, who became superintendent of telegraph of the Erie Railroad, has made a fine record since he established his residence in the metropolis, and this promotion coming so soon, is a graceful compliment to a man who has proved his worth and capacity.



JACOB LEVIN,

Who has been Appointed General Superintendent of the Western Union Telegraph Company, at Atlanta, Ga.

Mr. Levin is a Southerner by birth, his native State being South Carolina, although his training has been gained in the West, for he went to Atchison, Kansas, in 1872, when but twenty-one years of age, and three years after he had entered the telegraph service. Atchison remained his home for sixteen years, the first seven of which he was occupied as a press operator in the Western Union office, and the succeeding nine years he filled the position of manager. His acceptable work at this point caused his transfer in like capacity to a number of other points South and West, including the important offices of St. Joseph, Mo., and Omaha, Neb. His promotion to be assistant superintendent took him to Minneapolis in July, 1890. Mr. Levin was fifty-two years of age on January 11 last, and is in the full vigor of a well-ripened manhood.

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.

The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should constitute the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.]

DENVER, COL., WESTERN UNION.

New Arrivals: M. J. Hyland, from Lincoln, Neb., E. B. Orr, recently of Little Rock, Ark., now with Otis & Hough, brokers; P. Terre, from Postal City; Mrs. M. L. Evans, from Kansas City; Miss L. M. Guiles, formerly manager at Victor, Colo., and W. P. Brougham, recently from Chicago.

C. G. Neimyer has gone to the new gold fields at Waunita, Colo., where he will spend several weeks, prospecting. He is accompanied by Frank Trickle of The Associated Press.

Mr. C. S. Lawrence is spending a vacation of two weeks among the hills of Colorado. Albert Elberson, takes the split trick of our check boys and Old Farmer Lawton says he is the right boy in the right place.

PHILADELPHIA, PA.

My motto — honorable dealing. THERE MUST BE MERIT, and lots of it, too, in the Fay-Sholes machines when the acknowledged greatest merchant of the United States places in his Philadelphia store at one time 49 Fay-Sholes, removing a like number of other typewriters, many of the latter comparatively new. Booklet and easy monthly payment plan upon application to me. All makes typewriters rented \$3.00 per month. D. A. Mahoney, Western Union Telegraph Company, Philadelphia.

WESTERN UNION.

Messrs. McBride, Campbell, Makin and Burns were sent to Mt. Holly, N. J., to handle press matter during the Phares trial and they did it well, too.

Manager Finan, of the Bullitt Building office, sustained an injury to his foot some time ago, which refused to yield to treatment, and the injured member had to be amputated. The opera-

tion took place recently and we are glad to say Mr. Finan is doing well. Mr. Harry Hehl is the acting manager.

Messrs. Galumbeck and Barham have resigned to accept positions with this company at Richmond, Va.

Messrs. McBride and Scherer looked after press and messenger matter during the encampment at Perkasio.

Mr. Geo. M. Eitemiller, a well known old timer from Pittsburg, Pa., was a recent visitor. He was accompanied by Geo. W. Morris, district electrician from the same place.

Owing to the continued illness of his wife, Manager Robinson, of the Third and Chestnut streets office, has resigned and will return westward, again locating at Omaha. During his short sojourn here Mr. Robinson proved himself a capable manager and made many warm friends who were loth to see him depart. Mr. George Silvers takes Mr. Robinson's place and will, no doubt, prove a worthy successor.

Mr. J. H. Abdill, of this office, has gone to Butler, Pa., as manager, that place having been made an important repeating station.

Mr. H. Heidenrich has been sent to Cape May, N. J., as assistant to Manager Black.

Messrs. E. Bone and Geo. McCammon go to Atlantic City during the summer rush.

Mr. W. E. Wineland, of the "Ledger" office, is being initiated into the mysteries of the switchboard at night.

POSTAL.

The news of the death of our highly esteemed friend and co-worker, Mr. Frank S. Holloway, who, for a long time has been an able manipulator of the first New York bonus wire, was brought to the office by his sorrowing father. Mr. Holloway passed away on the 24th ult. His bereaved wife, child, and parent's household have our most sincere sympathy.

Mr. Harry Bailey, of Norristown, Pa., a former employe here, now train despatcher for the New York, New Haven and Hartford Railroad at New York city, was a recent visitor. His friends were pleased to see him.

An agreeable and pleasing change has been effected for Mr. C. W. Chapman, who was transferred from the office in the Mutual Life Building to the ninth district American District Telegraph office, at Broad street and Fairmount avenue, where he will be in charge. A complete local telephone system has been installed connecting every department of the company throughout the building. Its value and convenience are apparent.

General Manager William H. Baker, of New York, was here recently and will be especially remembered at the Broad street station office for his kindly and appreciative remarks.

Superintendent E. B. Pillsbury, of Boston, Mass., another of our recent distinguished visitors, took advantage during his short stay to enjoy the pleasure of one of Philadelphia's attractive trolley trips.

EVANSVILLE, IND., NOTES.

Superintendent John F. Wallick of the Western Union Telegraph Company, Indianapolis, reinforced the Western Union operators here the other day during the riots by sending S. G. Wallick to assist in handling the mob specials. One hundred thousand words were sent. The local papers and correspondents from other cities were much pleased by the way the press matter was handled. Superintendent Wallick remained until all was quiet, although the mercury showed the office required electric fans to cool the manager and his force.

CHICAGO, ILL.

Typewriters of all kinds; very easy payments; we handle everything a Telegrapher needs; write us for catalogue. "Mills" shipped all over the United States. Telegraphers Typewriter Company, O. T. Anderson, Manager, Member C. T. U. and O. R. T., 405 Monon Building, Chicago, Ills.

POSTAL.

Mr. B. P. Hancock, traffic chief, has been appointed superintendent of city lines, a new office. He is succeeded by Mr. Frank N. Roberts of the main office. Mr. Thomas Powers has been appointed wire chief of the Eastern Division Board, vice Mr. Roberts.

Mr. Hancock will have charge of the entire Chicago department, that is, the main and all branch offices.

WESTERN UNION.

Our former wire chief, B. F. Powell, who has been recuperating in El Paso, Tex., for the past two months, is with us again. He is much benefited from the outing.

We were all sorry to hear of the sad death at Warsaw, Ind., of the wife and infant child of W. G. Marine, of this office.

Harry Mix and wife have gone to the mountains of Colorado for a month's rest.

Mr. Arthur Galey was recently appointed assistant in the New York division. We are glad to note this promotion as it is a deserving one. Mr. Galey has business tact, coupled with a pleasant manner, and will, we believe, make a successful chief.

Former Wire Chief Jerry Mereness was a recent visitor here. Mr. Mereness, it will be remembered, was also at one time chief operator of this office.

Edward H. Lee has returned to us after a long stay of several years at Minneapolis. His tall, manly form is a familiar figure in Chicago, and he is welcomed by his many old friends and associates.

The Signal Corps boys have gone into camp at Springfield, Ill., for a few days.

Mr. Lawrence C. Cook, formerly of Atlanta, Ga., has been appointed as an assistant to Chief Gardner of the St. Louis division. Mr. Cook is an affable gentleman of the true southern type, and he has the good wishes of the entire force.

One of the most important positions on the Chicago Board of Trade is that of quotation operator, which is filled by P. L. Stevenson. Mr. Stevenson's work can be gauged when it is said that from 9 30 A. M. to 1.15 P. M. he sends out every change made in wheat, corn and oats, as well as provisions. These figures go to every important point in the United States, an average of from 1,500 to 1,800 quotations being sent during each session. The work performed each day by Mr. Stevenson is of the most intricate character.

ST. LOUIS, MO., WESTERN UNION.

Mr. Harry Horn, of Cincinnati, was a late visitor at this office.

Moe Frankel, a former employe, paid us a Fourth of July visit, coming from St. Joseph.

"Dip" McCrudden, from Chicago, paid us a two weeks' visit.

Miss Bower has returned to the main office from Madison, where she has been working for the Long Distance Telephone.

Fred Jacobson has returned to his home at Kansas City, after working with us for some eighteen months.

Mr. Charles Frey, chief of the eastern division, has been ill.

We have lost the services of one of our most charming young lady operators in Miss Ida Ernsthouser, who has gone to Chicago, where she is to be married.

OMAHA, NEB., WESTERN UNION.

Business has been very heavy here all through the spring and promises to continue so. The extra list contains about fifty names and all are making big time, many being compelled to work more extra than they wish. A new fifty wire section has just been added to our switchboard, making it a 200-wire board and enabling a new arrangement of wires to be made which is more convenient for the wire chiefs. Two handsome repeater tables have just been installed and five quads, five duplexes, five sets of single repeaters and five half sets placed thereon. Electrician Salisbury and All Night Chief Pond did the work. The tables, which are close to the switchboard, place all the overland repeaters together and convenient to the chief.

Mr. E. C. Moore surprised everyone a short time ago by announcing his marriage to a charming young lady of this city. Mr. and Mrs. Moore have the congratulations and best wishes of the force.

Lineman Mann, of this office, was recently sent to the Platte River bridge at Plattsmouth, where 200 feet of a Missouri Pacific wire was reported carried away by high water. He took along that amount of wire, but upon reaching the break, found that nearly 500 feet were required. Mr. Mann was equal to the emergency, however, and borrowed enough barb wire from neighboring fences to make the circuit good.

Recent arrivals are Denny Crowley, from Cuba; Messrs. Smith, from Cheyenne, and Resseguie,

from Sioux City; VonGillern, from Kansas City, and Stuter, from San Francisco.

PITTSBURG, PA., WESTERN UNION.

Geo. W. Morris has been appointed assistant to traffic chief Kirby.

Mr. George Kendricks has been appointed electrician of this district, presided over by Superintendent Saylor.

The salaries of operators and chiefs in this office have been raised with the result that it is hoped the new chief operator, Mr. John Gaul, may be able to secure first class operators and retain those now in the employ of the company, many of whom of late have been offered positions with outside corporations.

Mr. I. Barto is general wire chief and is making a good record.

NEW YORK CITY.

"My Old Virginia Home Upon the Farm," "Utopian Waltzes," and all popular music, 18c. each. Pianos sold \$1 per week. B. L. Brannan, 195 B'way, N. Y.

WESTERN UNION.

On July 17 this company introduced the bonus system on the "A" Philadelphia circuit. The operators are required to handle 325 messages to constitute a day's work and one cent will be paid per message for each telegram handled in excess of this number. The honor of manning the New York end of this wire was awarded to Mr. E. C. Watkins and to Mr. L. Smearer. The first day's work under the new system showed a marked increase of messages per man over the previous day's work under the old system. Mr. Watkins handled 95 messages in excess of the number required and consequently added that number of cents to his pay for his day's work. Mr. Smearer handled 102 messages in excess of the number required and thus added \$1.02 to his income. While the bonus system is only an experiment in this office it is thought likely that it will become permanent and thus enable those who are willing to work hard to add considerably to their income without increasing the number of their working hours.

Mr. Harry A. Pierce represents this company at Oyster Bay, L. I., during the sojourn of President Roosevelt at his summer home there.

Mr. John Brant, the genial secretary of the Old Time Telegraphers' and Historical Association, and a member of the operating force, has been absent for over a week, owing to illness.

Mr. C. S. Pike represents this company at the State military camp at Sea Girt, N. J.

Mr. A. E. Sink, manager of the operating department, is absent on a well-earned vacation.

Mr. R. I. Crowley, of the general superintendent's office, has been appointed to a position in the office of the general superintendent at Atlanta, Ga. Mr. Crowley will have charge of the leased wires and other important branches of the service in this newly created division.

Mr. J. W. Atkins, manager of the Key West,

Fla., office, a few days since forwarded to eleven of the employes of the general superintendent's office a corresponding number of Panama hats. The recipients are delighted with these tokens of friendship from their distant friend. Each of the eleven persons who received these valuable gifts will remember the donor every time he takes off his hat.

Following transfers have been made from this to summer offices: Miss K. Hodges, to Avon by the Sea, N. J.; Miss B. Melott, to Long Beach, L. I.; Mrs. M. C. Madden, to Belmar, N. J.; Miss H. Rosenfeld, to Bernardsville, N. J.; Miss E. Halsey, to Catskill Mountain House, N. Y.; Miss B. J. Wilson, to Arverne, L. I.; Miss J. Kraatz, to Asbury Park, N. J.; Mr. Graf Hohenstein, to Manhattan Beach, L. I.; Mr. A. R. Richardson, to Elka Park, N. Y.; Miss K. Mahoney, to Mount Arlington, N. J.; Miss M. Kendstrom, to Lake George, N. Y.; Misses A. C. Love, M. Hopkins and L. Horn, to Long Branch, N. J.; Mr. Wm. Howell, to Point O'Woods, L. I.; Miss A. J. Hartley, to Manhanset House, Shelter Island, L. I.; Miss K. M. Kingston, to Sea Bright, N. J.; Miss J. F. Powell, to Saratoga, N. Y., and Miss F. Preterre, to Tannersville, N. Y.

AMERICAN DIST. TEL. EMPLOYEES' OUTING.

The outing of the employes of the American District Telegraph Company occurred on the afternoon and evening of Saturday, July 25, when employes and their friends, numbering 150 persons, met at Cove Hotel, West New Brighton, Staten Island. The 1.30 boat took the crowd down, and on arrival at the grounds chowder and other refreshments were served. The principal event of the afternoon was the baseball game between the Uptown and Downtown teams, resulting in a score of 21 to 11 in favor of the latter. Then came a potato race, putting the shot, a quarter mile run, a broad jump and a three-legged race, sports which offered much merriment to all present.

The dinner was served at 7 P. M. There was good music, and after coffee and cigars were served, Mr. Frank A. Mullane, Mr. Wm. Redmond and Mr. Geo. L. Lindenberger entertained the company with songs well sung, and funny stories well told.

Mr. T. J. Dunning, one of the American District Telegraph Company's oldest employes, acting as master of ceremonies, then presented successively Mr. D. Skelton, superintendent, and Mr. H. E. Roberts, the former superintendent, and present assistant superintendent of the supply department of the Western Union Telegraph Company, both of whom spoke ably and were heartily received.

The winners of prizes, which were drawn for, were: T. J. Hoole, C. J. Bresnan, J. Jacobson, J. Register, S. Mateer, G. Fitzpatrick, J. Lantry, T. Marcellino, G. F. Smith, M. Green and J. Costello.

Among those present were: D. Skelton, H. E. Roberts, H. J. Schultz, A. E. MacLean, G. Mor-

A New Mechanical Wonder in Telegraphy
THE TRANSMITTING TYPEWRITER
 TWO MACHINES IN ONE

The Nerve-Destroying Slavery of Hand-Sending Forever Done Away With

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Facts Concerning This Journal.

FOR TWENTY YEARS *Telegraph Age* has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. **They have been invaluable to the active operator as a practical aid in his daily employment.** The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth many times the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of *Telegraph Age* have come to be regarded as works of reference. They will increase in value as time goes by. The very full and comprehensive cross index published each year, is a most useful supplement to the paper.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending dotes and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given *Telegraph Age* a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this large circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call the attention of others to this matter? A sample copy will be sent free to any address on application.

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NEW YORK POSTAL.

The Postal made its initial bow to the public on the floor of the old New York Produce Exchange, now the Army Building, on July 24, 1883. To gain the privilege of the floor it agreed to handle the business of the Exchange between New York and Chicago free during the continuance of the telegraphers' strike of that year. The instruments were set on a common pine table, and the way the office was deluged with this free business can be readily imagined. The new copper wires enabled the company to establish records with the pen that probably remain unbroken up to the present time.

The original force was made up of I. L. Byrne, manager; Robert W. Martin and J. J. Cochrane, operators. While on the Chicago Board of Trade H. Waters was manager, with Norman H. Perrin and Ralph D. Blumenfeld, operators. Ten years later Mr. Cochrane succeeded to the managership at New York and Mr. Perrin at Chicago. The latter is now out of the service, so that Mr. Cochrane has a continuous service of twenty years on the New York Produce Exchange for this company.

Mr. M. M. Davis, traffic manager of the company, is absent from his office enjoying a brief vacation.

Assistant Manager F. F. Norton has returned from a two weeks' vacation.

Messrs. Geo. B. Thompson and E. A. Coney, night chief, are also back again from their outings.

Night Manager J. J. Whalen and C. O. Smith are absent on vacations of two weeks each.

Geo. W. Barrett has returned from a two months' sojourn in the Adirondacks.

The following named operators have been transferred to the Commercial Cable office, 20 Broad street, to work the land line end of the Pacific cable in shifts of eight hours each: Jno. Mann, V. C. Poe, C. M. Hargis and G. O. Heath.

Mr. T. F. Masterson has been transferred to the Produce Exchange office.

Mr. J. T. Ewing has been appointed Traffic Chief, Eastern Division, vice J. F. Zeiss, transferred.

Thos. J. Jennings, aged 28 years, for several years city foreman died July 22 at his residence in Brooklyn. He was the son of Thos. F. Jennings, general foreman for the Postal. There was a beautiful display of flowers at his funeral contributed by his numerous friends and associates.

The following named operators of this office attended as delegates the convention of the Commercial Telegraphers' Union of America lately held in this city: Joseph Ahearn, J. M. Sullivan, J. J. Hope and Herbert Yoell.

Arrivals: P. H. Perry, W. Z. Musgave, G. Wichman, L. McGinnis, H. S. Newson, C. J. Messman, W. J. Reed, D. J. Sullivan, Geo. W. Ellis, C. S. St. Pierre and A. Morgan.

The Pope's Illness and Death Stimulate Telegraphing.

Some idea as to the immense amount of telegraphic traffic caused by the illness of His Holiness, the Pope, may be found from the following cable despatch from Rome: "On July 15 the number of despatches inquiring about the Pope's condition which were received at the Vatican reached 26,000, including some lengthy cablegrams from half round the world. The total cost of these telegrams is estimated at \$36,000. This enormous deluge taxes to the utmost the resources of the Vatican administration. A large force of priests and seminarians temporarily aided the officials in making responses, bearing the signature of Cardinal Rampolla." This, of course, was wholly exclusive of the enormous quantity of cable news and special cable correspondence from all parts of the world.

Medal for Col. Wm. B. Wilson.

The medal voted by act of the Pennsylvania Legislature to Colonel William Bender Wilson, of Philadelphia, for distinguished services during the War of the Rebellion, has been presented to that gentleman. It is of solid gold, slightly larger than a half dollar coin, quite thick for a medal, and bears on the obverse side the inscription: "The Commonwealth of Pennsylvania to Colonel William Bender Wilson. Act of Assembly of March 29th, 1903." On the reverse side is the inscription: "In recognition of his important and delicate services as military telegraph operator and scout during the raids and invasion into the State in 1862, 1863, 1864." The medal is suspended from a solid gold coat of arms of the State, in which the colors are of rich enamel.

In Newfoundland the Legislature has voted to expend \$50,000 during the fiscal year for the further extension of telegraph lines on that island.

Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Indianapolis, Ind., at a date in 1904 to be named.

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

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

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

International Association of Municipal Electricians meets at Atlantic City, N. J. on September 2, 3 and 4.

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

Old Time Telegraphers' and Historical Association meets at Milwaukee, Wis., September 23, 24 and 25.

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

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

Train Despatchers' Association, date and place of meeting for 1904 not yet announced.

Western Union Telegraph Company meets the second Wednesday in October at New York.

Firefly Telegraphing.

"A Venezuelan gentleman, whom I met at Caracas, told me how his life once was saved by the use of a firefly. During a revolution, being taken prisoner, he was confined in a house near the forest under a guard of soldiers. He had learned telegraphy while at school, and his friends remembered that fact when every other plan of communication with him had failed.

"But they could not imagine how to telegraph to him without exciting the suspicions of his guards, until at last they thought that, by confining a large firefly so that its light would show steadily among the trees, a telegrapher might, by alternately hiding and exposing its light, send a message to him while he sat smoking in the window of his prison.

"During the day, when he sat smoking by the window, they got a boy to ride past on a mule, singing a verse of a song.

Quando el mundo duerme,
Mirad los cucullos,
Mi Corazon!

"That is, 'When every one is asleep, look out at the fireflies, my dear.' The singer was a boy whom the prisoner knew well, and he naturally suspected that some hint was intended for him. He could not understand exactly what was meant, but, nevertheless, he watched for the fireflies.

"He saw only one, but that one spoke a silent language, and he answered it by alternately hiding and exposing his lighted cigarette. His es-

cape was planned so well that he got away that very night."

To live content with small means; to seek elegance rather than luxury, and refinement rather than fashion; to be worthy, not respectable and wealthy, not rich; to listen to stars and birds, babes and sages with open heart; to study hard; to think quietly, act frankly, talk gently, await occasions, hurry never; in a word, to let the spiritual, unbidden and unconscious grow up through the common—this is my symphony.—William Henry Channing.

[Advertising will be accepted to appear in this column at the rate of three cents a word.]

Wanted.—The Address of W. Clough, telegraph operator for the Frisco System at Oronogo, Mo., until September 18, 1902. Address, "Anxious," care Telegraph Age, New York.

Boys, if you have an old Remington, Smith or any other model machine and wish to exchange it for a Fox, Fay-Sholes, Smith, No. 2, or Remington, No. 6, wire or write giving me factory number and model. Right prices and terms to right people. D. A. Mahoney, Western Union, Philadelphia.

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Caligraph, \$25 instead of \$85.

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Jewett Typewriters, \$30; Cost, \$100.

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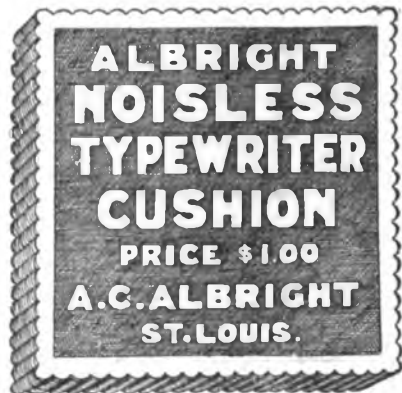


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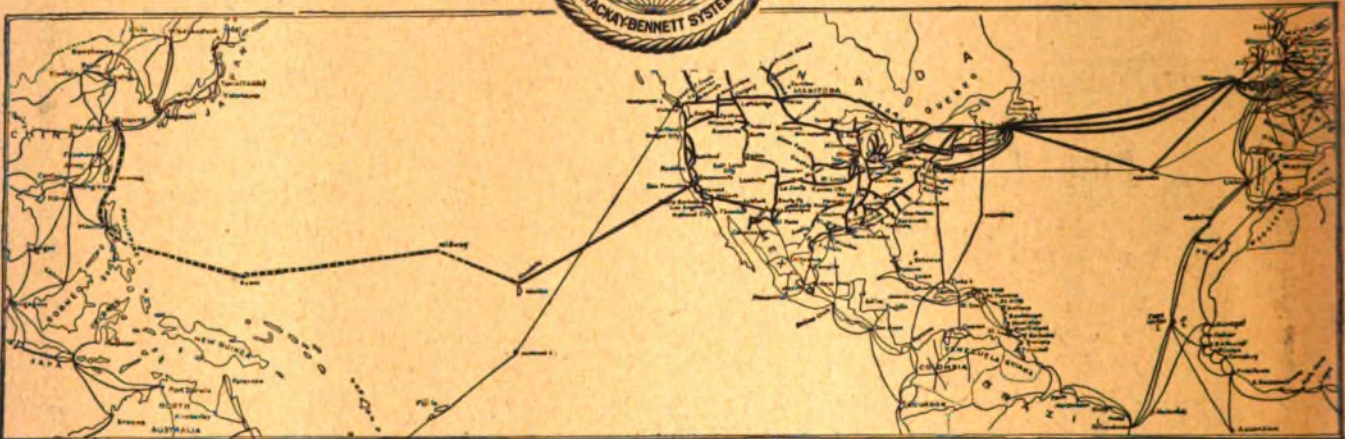
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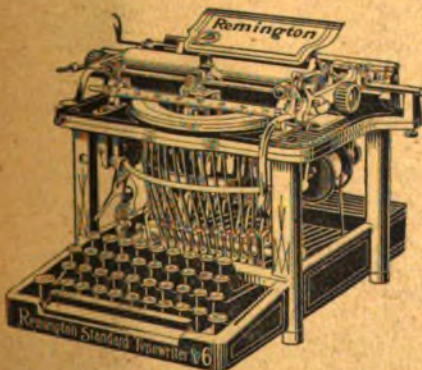
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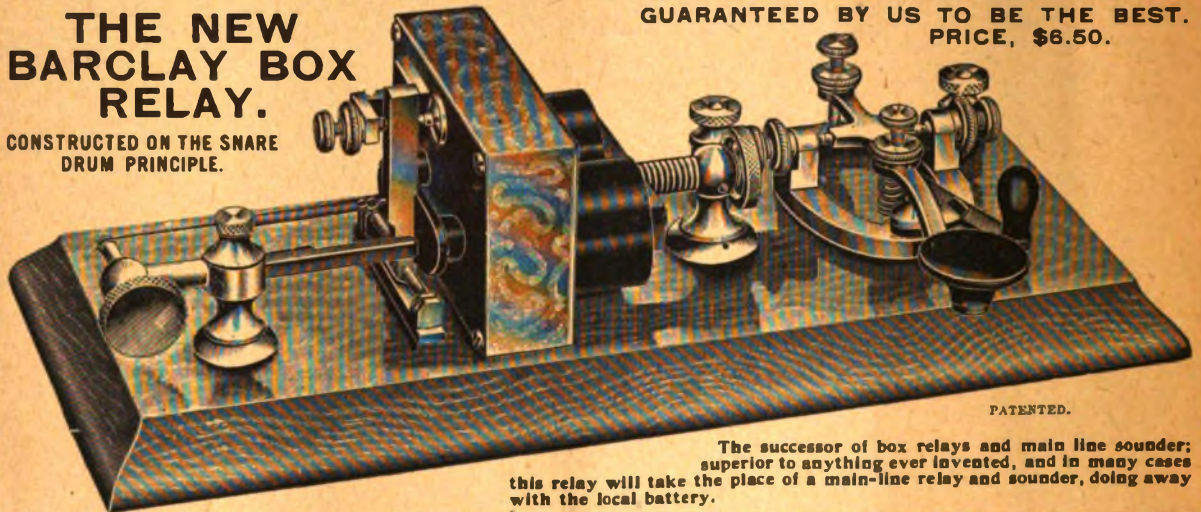
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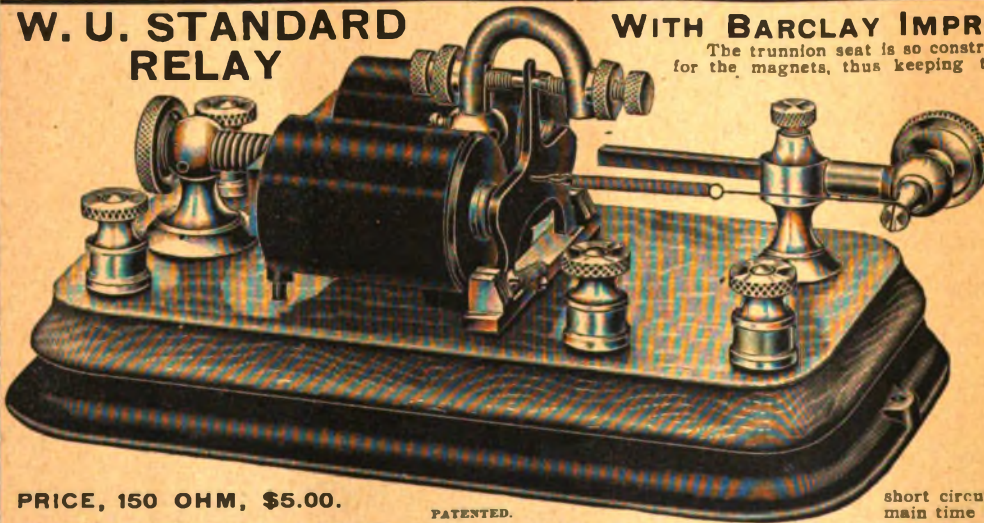


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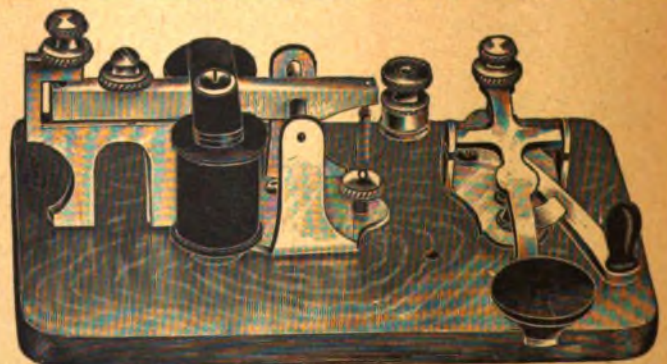
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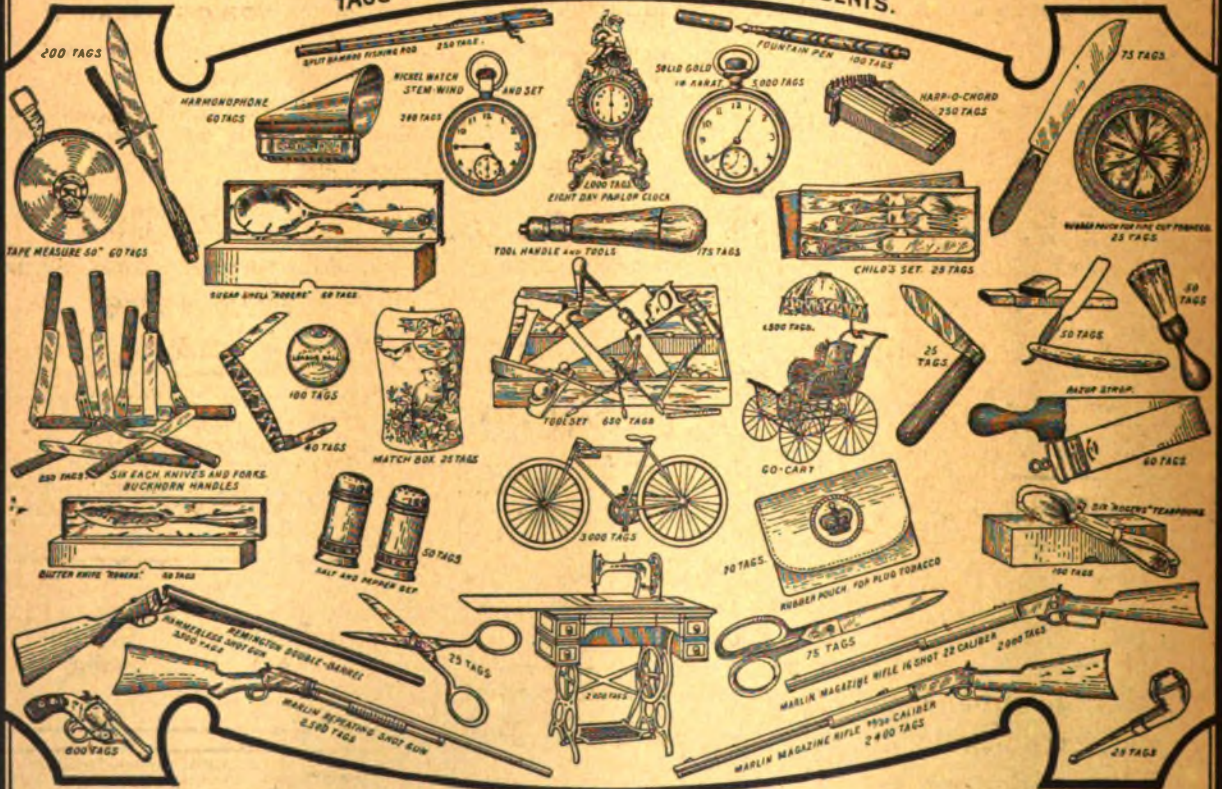
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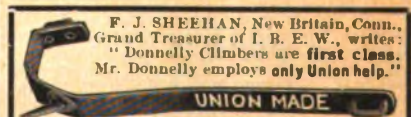
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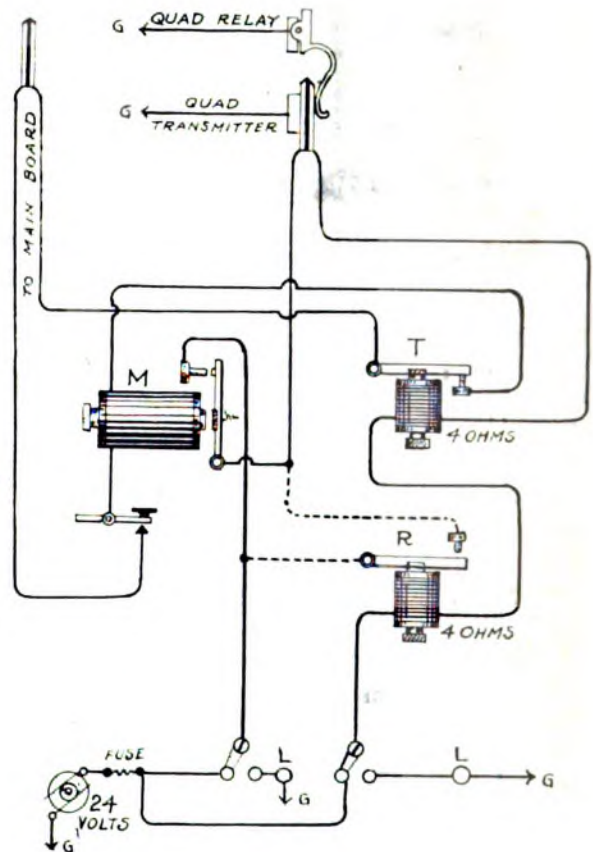
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Mr. Dillon says: "The contact points of the repeating sounder must be set very close, that is, given very little play, so that the moment the quadruplex relay points open, the lever of the former will fall off and close quickly on its back-contact points before transmitter T shall have had time to open the main line circuit at the relay points, and thereby prevent a return 'kick' from developing at the multiplex set." The single wire relay operates the quadruplex transmitter in the usual manner of half-repeaters.



SOME POINTS ON ELECTRICITY.

BY WILLIS H. JONES.

A New Half-Repeater.

In view of the fact that the number of good repeaters in use today is so great, one would imagine that every method had been tried, yet Mr. James B. Dillon, of Louisville, Ky., has devised still another which, after a practical demonstration, he claims offers superior advantages. In some respects the device appears to be a modification of the Atkinson half-repeater, but in the main possesses original features.

The accompanying diagram shows the apparatus, connections and manner of operation.

The apparatus consists of a relay, a transmitter and a four-ohm repeating sounder, the coils of the transmitter and sounder magnets being connected in series with the local contact points of the quadruplex relay and controlled thereby. Instead, however, of the quadruplex local battery furnishing the current for the two magnets, this repeater employs an additional local battery for that purpose, and the quadruplex local connections must be turned to the "ground."

Mr. Dillon claims that two half-repeaters of this kind may also be used as a full repeater in the following manner, and further states:

TO USE AS A FULL SET.

"Connect the repeater springjacks together with a standard cord-wedge. Then throw the three-point switch that is in connection with magnets R and T to the right, leaving the companion, or relay connections lever, to the left. Then connect up the main switchboard wedges in the usual way and all is ready."

The question of which type of half-repeaters now in general use is the best is one that the writer has often been requested to answer.

In reply it might be said that between the standard patterns now employed there is really little choice if all are handled properly. In the New York Western Union main office where the variety employed is great, and the repeater chiefs are familiar with each type, no appreciable difference in their respective merits is observed. No doubt many good repeaters get a bad reputation through no inherent fault of their own, but because of ignorance or of oversight on the part of the repeater chief as to the source of disturbance which cause poor work. Let us suppose, for instance, that on a quadruplex circuit between New York and Albany, two single wires are connected by means of different types of half-repeaters at Albany, one on the polar and the other on the neutral side. We will further assume that between Albany and New York one side is as good as the other, and that both single wires are equally efficient as to insulation and conductivity. Now, under these conditions, if the two half-repeaters possess equal merits, the fact would at first suggest that one type should not require more attention than the other, but is this the experience of repeater chiefs? Decidedly no, in many cases.

In dry weather the attention demanded would be about evenly divided, but in wet weather everything would depend upon whether the single wire was a way, or a through circuit. If the wire on one side was a through circuit one adjustment to the terminal station would hold through a pretty severe storm, and, obviously, require a minimum amount of attention; whereas, should the companion line be a way circuit, different adjustments are usually required for the near and the terminal stations. As the New York operator cannot adjust from his end of the circuit the repeater chief at Albany must be depended upon for that work, and, as before stated, in many cases, he misjudges the relative value of the two repeaters.

This illustration brings out a point frequently overlooked, namely, that when two single wires are arranged to be worked from a quadruplex set the way wire, or at least the most troublesome of the two should invariably be assigned to the polar side. When trouble due to the natural weakness of the neutral side of a quadruplex is added to that of the way circuit variations, the total amount of work done over the two circuits must necessarily be much less than would be the case if the way circuit was assigned to the polar side on account of time lost in the operation of readjusting, and for the reason that under the reversed conditions, the neutral side of the quadruplex, itself naturally weak, will not carry so great a load as its partner, while the polar side will usually take care of the various line inequalities for a much greater length of time than its side companion.

Apropos of handling repeaters which are situated in "QD" and connected to multiplex ap-

paratus in another part of the room through the loop-switch, there is another point sometimes overlooked, and that is, the man at the repeater cannot from that point determine whether the polechanger or transmitter of the quadruplex apparatus is delivering the signals properly or not.

When it happens that the compensating resistance lamp in the repeater cord is greater than that of the desk lamp or loop removed, the weaker current resulting will demand a readjustment of the multiplex sending apparatus also before it can actuate that instrument properly. Inexperienced traffic chiefs, noting the change in the operation of the sending apparatus after a repeater has been thus substituted, often erroneously believe that the repeater itself is not properly adjusted.

When a repeater has been thus connected the chief in charge of the multiplex apparatus should invariably look after the adjustment of his sending apparatus, especially if the value of the local current is altered by the change. All that the repeater chief in "QD" can do is to see that the lever of the single line relay, acting as a key in the local circuit, operates properly. To him the multiplex sending apparatus, in another part of the room, is in the same relative position as a distant relay in a single line circuit would be, and must be adjusted separately from that point.

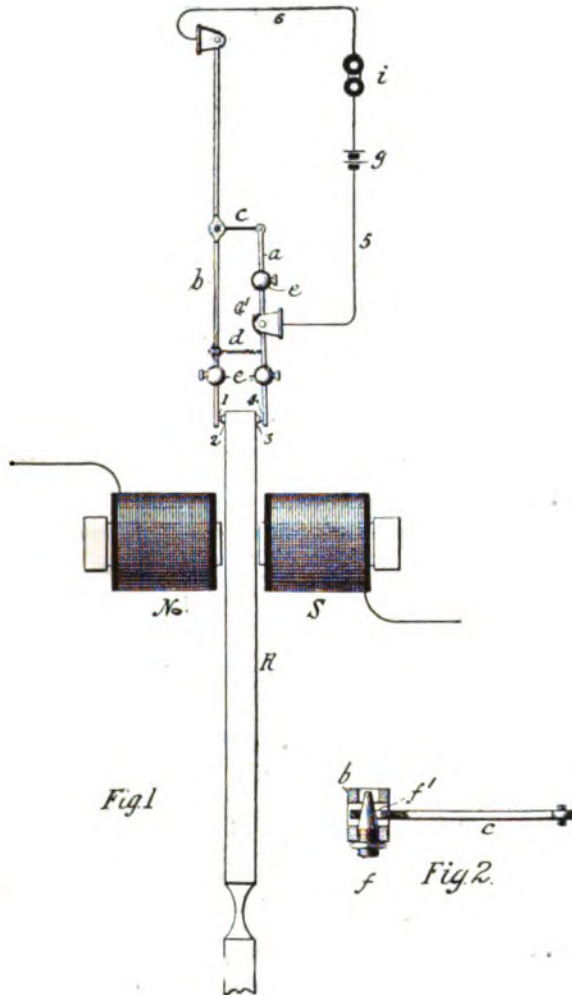
The Sandino Telegraph-Receiver.

A modification of the Morse telegraph-receiver, devised by M. Sandino for the purpose of receiving telegrams automatically, was recently put to a practical working test between Bellinzona and Lucerne, Switzerland. A small motor, deriving its current from two small primary batteries, actuates the device, a rheostat permitting the motor speed to be regulated to a nicety. Upon a preliminary current impulse being received, the paper ribbon is automatically brought close up to the inking wheel and, at the same time, the reeling off mechanism is started. Although the paper ribbon continues its motion during the short intervals between the signs, the mechanism is so arranged that it stops if the interval exceeds a predetermined limit. The inking wheel is supplied by means of capillary action from a hermetically-closed tube, filled with glycerine-ink of M. Sandino's own recipe.

"Wireless Telegraphy" is the title of a new and popular exposition on this interesting subject by G. W. Tunzelmann, B. Sc., the author of "Electricity in Modern Life." The volume has 104 pages, is fully illustrated, and includes chapters on ether and ether waves, the discovery and development of the coherer, the systems of Marconi, Popoff and others. It is a capital book, and affords just the line of information now in such demand regarding the topic treated. It will be sent on receipt of price, 75 cents, to any point in the United States or Canada, express charges prepaid. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

Vibratory Telegraph.

The receiving of telegraph messages through the agency of a vibrating reed which oscillates in harmony with the fluctuations of current sent over the line from the transmitter is by no means a new idea, and has been made use of in some types of market report "tickers." But improvements have been made which are worthy of attention.



It has been the common practice to mount near the vibrating reed, whose period of vibration is such that it will vibrate back and forth between two electro-magnets in unison with impulses sent through the magnet windings, a loosely pivoted lever. The free end of the lever collides with a contact point on the vibrating reed and serves to close the circuit of a local battery and sounder or other receiving apparatus. Under certain conditions such an arrangement of apparatus is operative; but under very delicate adjustment the contacts have a tendency to weld, while with vibrations of extreme slowness—say 16 complete waves per second—great difficulty is experienced in making an adjustment which will open during the reception of vibrations and at the same time be quick enough in action to close promptly upon their cessation.

Stephen Dudley Field of Stockbridge, Mass., has recently invented a device which is intended to obviate the difficulties. Fig. 1 shows the apparatus as a whole and Fig. 2 more in detail.

Normally both pairs of contacts (1) (2) and (3) (4) are held together by a spring (d). The levers carrying these contacts have weights (e) attached near the lower end which give to the levers a period of vibration a little longer than that of the reed. The reed, as shown, vibrates between the two electro-magnets (N) (S).

Upon receipt of vibratory currents which traverse the coils the reed vibrates. On the movement to the right, contacts (3) and (4) being together, lever (a) will transfer reverse motion to lever (b) through the link (c) and contacts (1) (2) will open a local circuit (5 6). When the reed has completed its excursion to the right and commenced its return movement, the momentum acquired by weights (e) will continue the movement of the levers, and contacts (3) (4) will separate, thus breaking the local circuit in another place and preventing its re-establishment when contacts (1) (2) collide. When the reed strikes (b), (3) and (4) are continued apart and so remain until the return of the reed, when they collide while (1) (2) are yet open. Thus as long as the vibrations continue the local circuit remains open; but when they cease the spring (d) immediately closes all contacts and completes the circuits. The receiving device (i) indicates or records the periods during which vibrations occur.

It will be obvious from the foregoing description that stray or vagrant currents, which are usually manifested in weak vibrations, will not be likely to open the local circuits, since the lost motion provided in the joint (f f') will enable the spring to keep the contacts against the reed.—*Western Electrician.*

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Wireless Telegraphy.

A recent cable dispatch from Berlin, Germany, says: The combination of German wireless telegraph systems professes its ability to frustrate every attempt of Marconi agents to receive transatlantic messages in England by erecting a strong station on the German coast and propelling electric waves in the direction of the Marconi current.

The "Block Island Wireless" is the title of a daily newspaper printed on Block Island, R. I. As its name indicates the news published by the journal, which is a small four-page sheet, is received by means of wireless telegraphy, supplied from the Providence, R. I. Journal office, by which paper it is controlled. This paper is one of two of the kind now published in this country, the other being issued on the island of Santa Catalina off the city of Los Angeles on the Pacific Coast.

THE GERMAN CONGRESS.

The first International Congress of Wireless Telegraphy, convened by the Imperial Post Office, Berlin, began on August 4. Forty-four delegates attended, representing Germany, Russia, France, Italy, Austria-Hungary, Spain and the United States. The Americans present were Brigadier General A. W. Greely, chief signal officer of the army; Captain F. M. Barber, who was attached to the United States Embassy in Paris for eighteen months, representing the Government's interests, studying developments in wireless telegraphy and buying apparatus, and J. J. Warbury, of the Department of Commerce. The congress was called upon Germany's invitation, which was issued more than a year ago, with the avowed purpose of agreeing on international regulations to control the operation of wireless telegraphy systems and prevent any one system getting a monopoly and rendering the employment of other systems impossible. The present congress does not contemplate adopting any binding agreements between the Powers, but merely a preliminary discussion with a view to clearing up the situation for future action. It will perhaps be followed later by a congress clothed with treaty making functions. At the opening session the Under Secretary for Posts, Herr Sydow, presided, and Herr Kraetke, Imperial Minister of Posts, greeted the delegates on behalf of the German Government. Herr Sydow, at the close of the session, moved that the proceedings be kept secret at present, which proposal was unanimously adopted.

The Municipal Electrician.

A patent, No. 734,906, has been awarded to Thomas A. Long, Sparrows Point, and George W. Cofrau, of Baltimore, Md., for a fire alarm mechanism.

The Gamewell Fire Alarm Telegraph Company is installing up-to-date fire alarm telegraph apparatus in the City of Philadelphia, where F.

E. Maize is superintendent. The installation, when complete, will, no doubt, be the finest of the kind in the United States.

As the time approaches for the holding of the eighth annual convention of the International Association of Municipal Electricians, which meets on Wednesday, Thursday and Friday, September 2, 3 and 4, at the Hotel Rudolf, Atlantic City, N. J., a growing and wide-spread interest in the forthcoming event is becoming everywhere manifest. It is believed that there will be a large attendance of delegates, coming from all parts of the country. Mr. Frank P. Foster, of Corning, N. Y., the energetic secretary of the association, in an advertising announcement made elsewhere in this issue, urges upon electricians and operators the importance of calling the attention of superintendents of telegraph of the fire and police departments to the convention and its date of assembly. As ample space for exhibits will be reserved, it is expected that a number of fine displays will be made. The papers to be read on the occasion embrace several of much excellence. Full information regarding the convention may be obtained by addressing Mr. Foster, as above.

The Railroad.

Mr. Thomas H. Pindell who was appointed a few days since superintendent of the Wyoming division of the Lehigh Valley Railroad, began his railroad career on the Springfield and Illinois Southeastern Railroad as an operator.

The scarcity of timber for telegraph poles has led the Pennsylvania Railroad Company to make experiments with metal poles for this purpose. A number of steel poles are being tested at one point. It is admitted that for the present at least their cost is too high for general service.

The Maine Central Railroad Company had an opportunity a few days ago to use for the first time its portable telephone and telegraph shanty in connection with a train wreck. The operation of the telephone gave entire satisfaction enabling those at the wreck to keep in immediate touch with the officers of the road.

The Pennsylvania Railroad is pushing the work of erecting telegraph poles along its lines to replace those recently destroyed for the Western Union and about one-third the number between New York and Pittsburg are in place. The entire work is expected to be completed about October 1, when they will be turned over to the Postal Telegraph-Cable Company.

The Postal Telegraph-Cable Company has entered into contract with the Mobile, Jackson and Kansas City Railroad Company to take care of the telegraph interests along this railroad now in course of construction. The road when finished will be about 500 miles in length and will open up a new territory. The Postal Telegraph-Cable Company has also made a contract with the Atlantic and Birmingham Rail-

road Company to look after its telegraph interests and open Postal offices in the various stations along the road.

It is stated that in the near future the New York, New Haven and Hartford Railroad Company will begin the enlargement of its telegraph service which at the present time is greatly overburdened and the need of new equipment and more wires is apparent. Recently the company appointed Nathaniel E. Smith as superintendent of telegraph, with an office in New Haven. It is understood the appointment was in view of the number of improvements which the road is to make in the telegraph service and that these improvements will be made under the direct supervision of Mr. Smith.

Obituary.

W. H. Morton, aged thirty-four years, an operator at Dallas, Tex., died at that place on August 8.

James F. Walsh, aged twenty-eight years, an operator in the service of the Western Union Telegraph Company at Boston, Mass., died of consumption in that city, on August 2.

Edward Dougherty, an operator at fire headquarters, Brooklyn, New York, died of apoplexy, on July 29, while on duty. He entered the fire alarm service in the City of Churches in 1869.

Louis M. Chateau, for thirty-three years captain of the Fairmount Park Guards, in Philadelphia, died on August 9. He was born in Baltimore on September 3, 1827, and, after passing his boyhood days at sea, in 1845 entered the service of the United States Telegraph Company, at Baltimore, Md., operated by the Post Office Department and the first line operated in this country. He subsequently joined Colt, the inventor of revolvers. For some time he was engaged with Mr. Colt in constructing telegraph lines between New York and City Island and Boston and Hull. These lines were used to report shipping. During the Civil War he was a member of the United States Military Telegraph Corps, and performed meritorious service.

Recent New York Visitors.

Mr. E. Y. Ouderkirk, manager of the Postal Telegraph-Cable Company, Johnstown, Pa.

Mr. John Lapey, of Buffalo, N. Y., who has charge of the commercial news department at that point.

Mr. C. G. Sholes of Chicago, Ill., formerly superintendent of telegraph of the Atchison, Topeka and Santa Fe Railroad Company.

Mr. C. M. Oliver, manager of the Canadian Pacific Telegraphs, Rossland, B. C. Mr. Oliver was accompanied by his wife and daughter.

Mr. S. S. Garwood, at one time manager of the Western Union office at Philadelphia, and now identified with the Long Distance Telephone Company at that point.

Resignations and Appointments.

Mr. James C. Marshall, manager of the Postal Telegraph-Cable Company at Bath, Me., has resigned.

Miss M. Schnatterly has been appointed manager of the Postal interests at Larned, Kansas, vice H. C. Neal, transferred.

Mr. C. O. Porter has been appointed manager of the Postal office at Emporia, Kansas, vice Z. A. Emerson, transferred.

Mr. J. E. Lance has been appointed manager of the Postal Telegraph-Cable Company at Princeton, Ind., vice F. W. Meyer, resigned.

Mr. Z. A. Emerson has been appointed manager of the Postal Telegraph-Cable Company at Topeka, Kansas, vice J. C. Thomas, resigned.

Mr. J. P. Cantrell has been appointed manager of the Postal Telegraph-Cable Company at Marysville, Kansas, vice G. B. Seeley, resigned.

Mr. George L. Morgan, formerly of Omaha, Neb., has been appointed manager of the Texas Postal Telegraph-Cable Company's office at El Paso, Tex.

Mr. H. C. Neal has recently assumed the management of the Postal Telegraph-Cable Company's Dodge City, Kansas, office, vice Paul Henkel, transferred.

Mr. A. G. Crockett, manager of the Western Union Telegraph office at Huntsville, Ala., has been transferred to a similar position in the Jackson, Tenn., office.

Mr. R. G. Stone has been appointed manager of the Western Union Telegraph Company at Thomasville, Ga., vice T. A. Rivers, who returns to the Savannah office.

Mr. J. W. Cross has been appointed manager of the Postal Telegraph-Cable Company at Reading, Kansas, to fill the vacancy occasioned by the resignation of E. M. Cross.

Mr. Salem P. Sain, chief operator of the Western Union Telegraph Company at Wheeling, W. Va., has been promoted to be night manager of the same interests at Columbus, Ohio.

Mr. F. C. Miller, manager of the Western Union Telegraph Company, at Houghton, Mich., has resigned to accept a similar position at Sioux Falls, S. D. Mr. M. R. Welsh of St. Cloud, Minn., succeeds Mr. Miller as manager at Houghton.

General Mention.

Mr. Jacob Nolan, formerly of St. Paul, Minn., is now located at Sioux City, Iowa.

Mr. Carl Truslow, formerly of Redlands, Cal., is now residing at Washington, D. C.

Mr. F. W. McRavey, for many years a member of the Western Union force at Milwaukee and the representative for TELEGRAPH AGE at that point for a long time, has resigned his position on ac-

count of ill health. He has located at Wauwatosa, Wis., where his friends hope his health will be fully restored.

Mr. C. C. Webner, of Waco, Tex., has transferred his services to the Wheeling and Lake Erie Railroad at Mogadore, O.

Mr. W. G. Barney, of the Western Union Telegraph Company, Vergennes, Vt., is now located at Grand Isle, that State, which is his home.

Mrs. A. D. Bartholomew, manager of the Postal Telegraph-Cable Company, Battle Creek, Mich., says: "I am pleased to send you another renewal of my subscription. I consider TELEGRAPH AGE a most helpful influence in the office."

"The articles on telegraphic bookkeeping are worth a five years' subscription, let alone the other many good articles which appear from time to time," is the hearty testimony to the worth of TELEGRAPH AGE, coming from North Sydney, N. S.

Mr. J. H. Jacoby, superintendent of telegraph, of the Lehigh Valley Railroad, at South Bethlehem, Pa., in a recent letter in which he renews the subscription of his road to TELEGRAPH AGE, takes occasion to say: "We esteem the paper very highly for it has been the means of furnishing us valuable information on various subjects which was very helpful."

Mr. Adolph Storch, of the Postal Telegraph-Cable Company, at Cincinnati, O., in a recent letter referring to "Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students," says: "I have studied your book as far as the duplex and find that it surpasses in thoroughness of the subject treated any book that I have yet had an opportunity to examine."

The Rowland Printing Telegraph Company is at present demonstrating the usefulness of its system on lines of the Postal Telegraph-Cable Company between New York and Boston. Mr. L. M. Potts and Mr. W. A. Houghtaling, the latter a well known telegrapher, and for some time past identified with the electrical engineers' department of the Postal Telegraph-Cable Company, New York, are in charge of the apparatus. The initial tests were made with the wire duplexed, and it is stated that fifty messages per hour were exchanged on each side of the duplex.

The Cable.

Mrs. Bonney, wife of Superintendent Bonney, of the Cuban Submarine Telegraph Company, at Cienfuegos, Cuba, passed through New York lately with her family en route to England, where she has gone for a short sojourn.

Mr. E. Grigg, of St. Croix, superintendent of the West India and Panama Telegraph Company at that point, recently visited old friends in New York, while en route to Saratoga where he will pass an extended vacation. Mr. Grigg, who is an English-

man by birth, has been superintendent at St. Croix for the past twenty-five years.

The Telegraph Construction and Maintenance Company, of London, England, when it completed laying the Commercial Pacific Cable, had successfully constructed and laid up to that time 175,000 miles of deep-sea submarine cable and had constructed 200,000 knots of gutta-percha-covered insulated wire for other submarine cable purposes.

The main office of the Anglo American Telegraph Company is now located in the Morris Building at Nos. 66 and 68 Broad street. The company maintains large branch offices both in the Stock and Maritime Exchanges. Mr. Charles Trippe, the superintendent of the Anglo cable interests in New York, is at present enjoying a month's vacation in Massachusetts.

Personal Mention.

Mr. W. E. Gilmore, general manager of the Edison interests has gone to Europe on a business trip.

Mr. P. V. DeGraw, an old time telegrapher and one of the best known men in newspaper circles in Washington, D. C., is now convalescing from an attack of typhoid fever, which has confined him to his home for several weeks past.

Mr. J. G. Splane, for twenty years manager of the telegraph department of the National Transit Company at Pittsburg, Pa., who resigned his position on July 1, to accept the presidency of the Pittsburg and Allegheny Telephone Company, was presented with a handsome loving cup by his old employees, on August 8.

Mr. Charles A. Tinker, formerly general superintendent of the Eastern division of the Western Union Telegraph Company, New York, sailed for Europe on August 4, to be absent for some months. Among other places Mr. Tinker will visit Berlin, where his son A. L. Tinker, who represents the Gamewell Fire Alarm Telegraph Company in Europe, resides.

Mr. J. C. Barclay, assistant general manager, and C. H. Bristol, general superintendent of construction, of the Western Union Telegraph Company, New York, accompanied by A. B. Smith, superintendent of construction of the Great North Western Telegraph Company, of Toronto, Ont., have just completed a tour of inspection of some of the Great North Western Telegraph Company's offices in Ontario and Quebec.

Sir William H. Preece, consulting engineer to the British Post Office, and one of the most eminent telegraph engineers in the world, is critically ill with pneumonia. His son, Mr. Llewellyn Preece, who recently arrived at New York on the steamer Lucania, found a cable message awaiting him announcing the sudden illness of his father. This was Mr. Llewellyn Preece's first visit to this country. A second message was received asking him to return at once and he left on a returning steamer two hours after his arrival.

The New York Fire Alarm Telegraph Service.

The following data relative to the fire alarm telegraph service of the fire department of the City of New York will be of interest, few probably being aware of the extent of this important feature of a great metropolitan public utility. The New York fire alarm telegraph service in connection with a system of street fire alarm boxes was first organized in the winter of 1869, and started with a force of six operators and one superintendent of telegraph. At the outset there were but forty street box circuits, eight large gong circuits, eight combination, or joker, circuits, three dial circuits and five bell tower circuits. At that time alarms averaged but one in each twenty-four hours. The present average is fifteen alarms in each twenty-four hours. During the thirty-four years since the system was first inaugurated its development has been rapid, in keeping with the enormous and exacting demands which have been increasingly made upon it.

There are now in operation fifty street box circuits, nine gong circuits, nine combination circuits, nine department telephone circuits, four public telephone circuits, two automatic telegraph circuits, two pneumatic fire alarm circuits, and six Pearce, or New York Consolidated, fire alarm circuits. There are also numerous connections with the Manhattan Fire Alarm Telegraph Company through an auxiliary attachment made at various street boxes, which now number 1,351. The salaries of operators vary from \$1,200 to \$1,500 per annum. This is about the same as the amount paid thirty-four years ago, although the labor has more than doubled.

The working office force now consists of the following staff: George Farrell, acting superintendent; E. E. Sellew, acting chief operator; Philip C. Ahern, chief of construction, and Albert Lamberson, acting secretary to superintendent. Operators: Edward S. Sims, Christopher Jones, Reuben Bouton, Frank D. Collis, Daniel C. Donohue, Winfield H. Snyder, Thomas J. Cusack, John J. Nanry, Wm. F. Hennessy, John G. Stephens, Frank A. Ganung, John F. Nolan, John J. Welsh, Wm. G. Linson, Egbert C. Chamberlin and Eusebius Murphy, a fireman detailed as an operator.

The need of late years for additional offices has been urgent. To meet this requirement an office is now being prepared for fire alarm purposes on 176th street, between Railroad and Washington avenues. This will be known as The Bronx office, and some of the men now at Department Headquarters, on 67th street, will be placed in charge. When completed it will afford partial relief, at least, to the Manhattan office.

Staten Island is also to have a new and much needed fire alarm office. This will be located at New Brighton, and will be ready for operation, it is expected, about the first of October. This office will receive all fire alarms from every part of Staten Island and transmit them to their proper destination. When completed it will be furnished with everything necessary to make it the most up-to-date fire alarm office in existence.

Mr. Henry Vining, formerly a United States Government electrical engineer, lately appointed by Fire Commissioner Sturgis, electrical engineer for the fire departments of all the Boroughs of Greater New York, has had the planning and preparing, etc., for this Staten Island office. Each Borough will be expected to attend entirely to its own alarms.

The International Telegraph Conference.

The International Telegraph Conference which has recently been sitting in London, England, has completely revised the rules as to the use of code and cipher language in international telegraphy.

The decision of the last conference that code telegraphy should, after a certain date, be limited to the words contained in the official vocabulary prepared by the International Telegraph Bureau has been rescinded; and, while all the words conforming to the existing rules will still remain available for use in code telegrams, the area of selection will be largely extended.

In future any combination of letters not exceeding ten in number will be passed as a code word, provided that it is pronounceable according to the usage of any of the languages to which code words have hitherto been limited, namely—English, French, German, Dutch, Italian, Spanish, Portuguese, and Latin. Other combinations of letters will be counted at five letters to the word, the prohibition of letter cipher which has hitherto prevailed being now removed.

The grant of these facilities will not, of course, admit of combinations being formed by the running together of bona fide words.

The public are recommended to avoid the use of letter cipher as far as possible in the compilation of their codes, as it is less easy to transmit than pronounceable groups of letters, and therefore more liable to error. In cases where such cipher may be employed it will be advisable to arrange it in groups of five letters in order to facilitate transmission.

These alterations, together with a number of other changes in the detailed regulations, which will be announced in due course, will take effect on July 1, 1904.

The United States Wants Stenographers.

The United States has experienced difficulty in finding competent stenographers who are willing to brave the climate of the Philippine Islands, and special examinations are to be held under the civil service rules for persons who desire to be certified as being eligible for such a position. The special examinations will be held in Philadelphia, Boston, New York, Chicago, Indianapolis, New Orleans, San Francisco and Washington. Applicants should address the United States Civil Service Commission in Washington, D. C.

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Remarkable Telegraph Service From Rome.

Melville E. Stone, general manager of The Associated Press, New York, has been the recipient of many congratulatory messages on account of the remarkable service rendered the bureau by its correspondents in Rome before and since the death of Pope Leo XIII.

Mr. Stone characterized the work of the correspondents as truly remarkable, and said that the quickness with which some of the cables concerning the Pontiff's condition were handled was marvelous. Of the service between New York and Rome, Mr. Stone, when asked how it was possible that it could have been maintained at such a high standard, said to a reporter of the "New York Times:"

"The telegraphic service from Rome was the result of arrangements effected by the general manager of The Associated Press during his visit to Europe last year. Upon the suggestion of Ambassador Cambon, M. Delcasse, the French minister of foreign affairs, took a lively interest in the work of expending The Associated Press service. He not only enlisted his colleagues, the minister of posts and telegraphs of France, in the work, but instructed M. Barrere, the French ambassador of Italy, to use his good offices with the Italian government.

"As a result, messages which formerly took from five to six hours from Rome to New York are now transmitted in much less than an hour. A number of the bulletins upon the Pope's condition were transmitted from the Vatican, which is over two miles from the central telegraph office in Rome, to The Associated Press office in New York in twelve, fourteen and sixteen minutes.

"This involved transmission by telephone from the Vatican to The Associated Press office adjoining the central telegraph bureau in Rome, despatch by telegraph to Paris, relay to Brest, and cabling by the French Cable Company to New York, and finally, retransmission by short wire from the New York office of the French Cable Company to the main office of The Associated Press in the Western Union Building, No. 195 Broadway.

"One bulletin thus transmitted occupied precisely nine minutes from the Vatican. When the condition of the Holy Father became critical, competent men were ordered to Rome from The Associated Press offices in London, Paris and Vienna to assist the local Italian bureau.

"Notwithstanding the formalities which must be observed, they were able to put themselves in touch with the authorities at the Vatican in such fashion as to enable them to present a graphic picture at all times, including the most minute detail, and the information was forwarded with amazing celerity.

"It is interesting to note that it frequently took less time to transmit a bulletin from the Vatican than to send one by wireless telegraphy from Sir Thomas Lipton's Erin off Sandy Hook. Finally, the bulletin announcing the Pope's death

was received in New York in time to transmit it to London and deliver it to the papers of the British capital in advance of the receipt of a like bulletin direct from Rome.

"Mr. Stone said he had cabled his appreciation of the service to the French and Italian ministers of foreign affairs, as well as to the postal authorities and chief director of the French Cable Company."

Gold and Stock Life Insurance Association.

The printed minutes of the twenty-fifth annual meeting of the Gold and Stock Life Insurance Association, held on January 19, last, are now being distributed among the members of that organization. It is a well-printed pamphlet of thirty-five pages and contains the reports for the past year of the president, secretary, treasurer and the auditor, respectively. A carefully arranged synopsis of reports follows showing interesting tabulated data covering the years since 1878. The constitution and by-laws are also incorporated in the volume, together with a list of members, the names of those who have died, as well as the names and addresses of the collectors of the association. The officers of the association are: Charles P. Bruch, president; George W. E. Atkins, vice-president; Wm. J. Dealy, secretary, and Lewis Dresdner, treasurer. The Executive Committee is made up of the officers and Michael Breslin, Charles Shirley, David B. Mitchell, Herbert Smith and Albert J. Driver. Those constituting the Auditing Committee are Frank H. Nichols, William Shone and Michael J. O'Leary.

An Electrical Congress.

An International Electrical Congress will be held at St. Louis during the Exposition period next year. A preliminary organization was effected recently, and the time selected for the Congress is the second week in September, which week has also been assigned for the annual meetings, at the Exposition, of the various national electrical organizations of the United States, such as the American Institute of Electrical Engineers, the National Electric Light Association, etc. The Electrical Congress will consist of a Chamber of Delegates, which will consider international questions such as units and standards, and a general body, which will be divided into sections representing the main departments of electricity—applied, experimental and mathematical.

One of the latest scientific discoveries, says an exchange, is, that a certain musical note, raised to a great number of vibrations per second, will completely paralyze mosquitoes. It is an intensified form of the note which mosquitos sound so merrily while searching for victims into which to force their poisoned dart.

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NEW YORK, August 16, 1903.

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

We are prepared to furnish a limited number of bound volumes of *TELEGRAPH AGE*, which embraces 536 reading pages, besides the index, for the year 1902, at the uniform rate of \$3 a volume. The binding is substantial and the lettering is done in gilt. The volume furnishes a complete record for the year named of the telegraph, the cable, wireless telegraphy and other allied interests, the whole constituting an interesting work of reference of the highest worth to all telegraphers, libraries, etc., to which the carefully prepared cross-index lends additional value. Single copies of the index for volume XIX, covering the year 1902, may be had at ten cents apiece. Our friends who require copies of the bound volume, or of the index alone, should send in their orders promptly so that they may be filled while the supply lasts.

A Cause of Discontent.

Inequalities in the amount of compensation paid in the telegraph service is a subject that continues to agitate and to appeal deeply to the operating forces. The desirability of rearranging the standard of salaries upon a more equitable basis is urged as a measure of fairness to many employees. Were this done it is held that the consequent effect would be to promote generally a better feeling of contentment, to stimulate enthusiasm, to elevate the standard of occupation and hence to improve the very personnel itself.

The status of present conditions in the service is discussed in an exceedingly practical letter received from a former manager located in the chief city of a State, who felt compelled to relinquish his post for reasons which he regretfully yet frankly avows. He complains that as a rule the difference in the fixed salary paid to managers and to operators, is too narrow. Not only that, for frequently the operators, because of the added opportunities afforded them to increase their earnings, actually are in receipt of larger incomes than their official superiors, although upon the latter falls the burden and responsibility of office. This circumstance was especially true of the office in question.

In the case of the manager quoted, he says that he resigns to accept an operatorship with a broker because the position will pay him better than the place he leaves. Our correspondent is a man of intelligence, and while his preferences are to remain with the telegraph company, yet he abandons it, reluctantly it may be observed, because, while he can do better financially as an operator serving an individual, at the same time the work is less exacting, leaving more leisure moments at his disposal for study and so to prepare himself, if need be, for some other profession in which the rewards will be more satisfactory.

The experience of this manager is, we regret to say, similar to that of many another, whose predilections for, and adaptability to, telegraph work, coupled with good records, should single them out as men whose retention in the service is especially desirable. Yet such resignations, which are too frequently occurring, show unfortunately that capable men of this class are continually dropping out of the telegraph field. Their going constitutes a distinct loss to the telegraph, a loss we think we are warranted in saying that the telegraph companies cannot afford to incur.

When men come to believe that they are being unfairly treated, as in the case of this manager, no matter what the controlling cause may be, whether due to a faulty system, or otherwise, the effect is, as our correspondent puts it, "to create discontent, which in turn means poor service and growth of labor organizations," which are, in his opinion, "great destroyers of friendship between employers and employees."

The situation as here revealed, and which has been adverted to before in these columns, is of a serious nature, and affects the telegraphs in a

vital manner. We are aware that existing conditions, the causes of which need not now be considered, make it necessary that wide economies should be practiced in telegraphic management. Yet, notwithstanding this fact, the manifest requirements of the service demand the employment of efficient men to whom all encouragement should be shown.

A Union Telegrapher States His Views.

Editor TELEGRAPH AGE:

Referring to your editorial advice of August 1, under the caption of "The Organized Telegraphers," I beg to disagree with you on some points. As to the wisdom of the resolution relative to the Western Union Company, adopted by the Commercial Telegraphers' Union, you should take into consideration the fact that the Union is made up of free-born citizens of the United States and Great Britain, not of men accustomed to take many blows without a return. The Western Union, be it remembered, "hit first," and hit us in several places. We know the attitude of that company toward this organization. We have had to apply to the courts of justice for protection of our rights as free-born men to do as we please outside of working hours, and what further harm can happen us for making protest against injustice and oppression?

You concede the right to organize, but in the next sentence say, "The wisdom of organization may sometimes be questioned." When we compare the status of telegraphers today with that of, say, twenty years ago, and then parallel it with the corresponding wage scale of any organized trade, the wisdom of a telegraphers' organization must be unquestioned. The telegraph companies are fairly prosperous; the Western Union, for instance, pays an unvarying dividend of 5%, and, while the Postal figures are never made public, it is fair to assume that that company is in at least as good a financial condition as the Western Union.

The working capacity of the operator has increased, and in increasing has reduced the expenses of the companies. The operator handles more matter in a given time, thus relieving wires for leasing or other purposes, or obviating the necessity of further construction. He furnishes his own typewriter and by its use saves the company thousands of dollars yearly in pen and ink supplies. In return, the company pays the typewriter-operator less than his pen-and-ink predecessor, and refuses to employ him without his "machine." In a word—the operator earns more, costs less, and is paid less. The general contention of labor unions has been of late years, that while the employers' prosperity has increased with that of the country, wages have stood still, and the right of the producer to a share of the general prosperity is pretty freely admitted. Why, then, should salaries of telegraphers recede—not even stand still? Again, as you say, the employer has a right to determine what he can

afford to pay, but the employee has the right to protest against being robbed; and it is robbery to reduce salaries in order to pay dividends on watered stock.

Now, is it necessary to go into details to prove that nothing but an organization can right this wrong? No local manager has authority to increase salaries; but he not only may, but must, reduce his pay-roll total. In former years an operator underpaid for his services could get an increase by removing to another town, or "going over to the opposition." Now he gets no increase by changing, but often a decrease. The manager is no longer the friend of the operator; he is the agent of the company to reduce expenses. The individual cannot appeal to a higher authority than the manager, but an organization can, and the appeal to the manager too often meets reply in this cruel and illogical formula: "If you don't like your position you know what you can do"—a reply to argument that was surely coined in Hades.

An organization can, by the respect its members compel, work for the benefit of the operator, and incident to this will come a benefit to the company. And this will obtain by peaceful methods; never, I hope, by that deplorable weapon, a strike. We are rapidly coming to the era of arbitration—and only an organization can arbitrate. The individual will never be recognized.

New York, August 8.

Yours Truly,

"UNIONIST."

[The above communication received from a Union telegrapher, while reflecting, perhaps, the general drift of opinion entertained among the organized telegraphers, does not, in our judgment, offer any especially cogent reasons why a telegraphic organization such as has come into existence, is essential as a factor in promoting the welfare of operators, whether considered in their individual or corporate sense. If we may be pardoned the expression, and we mean no offense, the tenor of the letter seems to be a pawing of the air. We are not arguing against organization per se, for our opinion in this respect is well known. What appears to us in this instance is that a grave mistake has been made. Our correspondent makes a defense of the action of the convention in promulgating the resolution denunciatory of the Western Union Telegraph Company. We fail to see the wisdom of such a move. It was intended, of course, as a blow aimed at the telegraph corporation, but those who passed it and therefore became responsible for this utterance, overlooked the fact, which should have been clearly perceived, that the act would hit their fraternal brethren, the Western Union employes, with whom there is no variance, with much greater force than it did the company against which it was levelled. No company of standing, it should be understood, is vulnerable to such an attack and the passing of a thousand such resolutions as the one referred to will do

the telegraph company no particular harm. Its effect, rather, is reactionary, it arouses antagonism, and the blow falls where least intended, to the injury of those whom the organization seek to enroll within its membership. And it will require time to overcome and heal the irritation caused by this wholly needless and ill-advised initial movement. It was a bad beginning. We wish our telegraphic friends in the organization well, but advise that more is to be gained by tactful and diplomatic approach than by the exercise of brute force and the display of a bludgeon.—Editor].

Get Out of the Ruts.

(Contributed.)

"Yesterday is dead; tomorrow is unborn; to-day is the crisis of your life."

Many telegraphers—and unfortunately, there are many—are content to follow in the footsteps of preceding generations and live within narrow limits, allowing their neighbors to surpass them. Many telegraphers are afraid to undertake anything greater or higher than they can do at present for fear of failure, which is a most unfortunate disposition. To these it can only be said that their error is serious and far-reaching and that they will lament their course in later years if they persist in it. Those who are not ambitious to rise above the level of the ordinary, or who are afraid to make an effort to rise, are certain to occupy very minor spheres of usefulness.

Conditions to-day are not what they were twenty-five years ago. In every avenue of activity competition is becoming more and more severe. Demands upon the abilities of men and women are becoming greater every year, and it is an indisputable fact that the man who desires to succeed in any business must be better educated than his father or grandfather were.

It ought not to require argument to convince a reasonable person that the more thorough and complete his education in whatever business he may engage, the more satisfactory will be his services and the larger his own salary.

Take a step out of the rut by a home study course on "Some Points on Electricity." Every issue of TELEGRAPH AGE contains a good solid week's study provided you spare thirty minutes a day to the subject.

It is absolutely essential that system be used in all your work in order that you may gain the greatest good from your study. To accomplish the best results, you should set aside a definite period every day for study, and adhere to it rigidly, and allow nothing to interrupt your work. In this way the time spent will be scarcely missed and you will be surprised at what you can accomplish, in fact it soon becomes the most pleasant period of the day. Do not be discouraged if at first it does seem hard to study at the regular time every day. Keep a note book in which to write down the points not thoroughly mastered, and make good use of whatever reference books

you may have access to and supplement your work in every way you can. It is a pedagogical law that the teacher should not tell a pupil what he can find out for himself.

The work found in each issue of TELEGRAPH AGE on electricity is not difficult, technical nor theoretical, but it is eminently practical. The fundamental principles of each subject are presented logically and concisely, and practical application of these principles is given especial attention.

Do not be discouraged by difficulties as it is by surmounting obstacles that we gain power and confidence in ourselves.

Let us look forward to a larger field of usefulness, a more extensive scholarship, a more complete self-mastery, a life filled with that which satisfies, which guarantees success and proves a blessing to the world.

New Theory for Auroras.

In a paper recently presented before the Academy of Sciences at Paris Charles Nordmann suggested that auroras may be due to Hertzian waves emitted by the sun. Observation shows that most auroras are seen during the early hours of the night in all latitudes, and their splendor, as well as their number, diminishes through the night toward the morning. Experiment proves that, owing to the diffraction of the atmosphere, Hertzian waves, especially of great wave length, "turn corners," or, in other words, pass around intervening obstacles. The waves of the space telegraph, for example, surmount the intervening convexity of the earth between two distant stations. It is not surprising, therefore, that auroras should be visible in the polar regions during winter, although the ordinary rays of the sun do not reach them. Mr. Nordmann, seeing that Hertzian waves have passed between Newfoundland and England, a distance of about 30 degrees on a great circle of the earth, argues that at the equinox polar auroras should be most frequent within 30 degrees of the pole, and that has been found the case.

It would follow from the above that auroras would be most frequent in the early hours of the night and morning, but another factor comes in. It has been proved that the luminescence of a rarefied gas is brighter the more free ions exist in it. In a small tube the free ions disappear mainly by diffusion, but in the atmosphere by recombination of positive and negative ions. The upper atmosphere is, he thinks, ionized during the day by the violet and ultra-violet rays of the sun, but through the night toward morning there are fewer free ions in the atmosphere, and so the Hertzian waves of the sun do not readily excite luminescence in the atmosphere at that time. The number and intensity of auroras ought, therefore, to be greatest in the early hours of the evening and decrease toward morning.—Western Electrician.

The New President of the Commercial Telegraphers' Union.

Will C. Long, of Dallas, Tex., who, as noted in our issue of August 1, was elected president of the Commercial Telegraphers' Union of America, at the late convention of that body, held in New York, is a native of Pennsylvania, in which State he was born at Huntington on May 18, 1844. Mr. Long's connection with the telegraph dates back



WILL C. LONG,

President of the Commercial Telegraphers' Union of America

to a period just preceding the Civil War, for he was about fifteen years of age when he first learned to be an operator. At the outbreak of the war he entered the service of the Pennsylvania Railroad as an operator. Subsequently, on the completion of the Philadelphia and Erie Railroad between Renova and Kane, Pa., in connection with which he had found employment, he was made division operator at Kane, at which point, when twenty-one years of age, he met and married his wife. After an experience in the Pithole oil fields, where his interests suffered from fire, he became chief operator in the Baltimore, Md., office of the Pacific and Atlantic Telegraph Company. Just prior to the Chicago fire he gained promotion to be assistant superintendent of the company, making his headquarters in the Western city. This post he continued to hold until the company was absorbed by the Western Union Telegraph Company, when the latter concern received him into its employment. When the telegraphers' strike occurred in 1883, Mr. Long was among those who went out. For a number of years following this event, Mr. Long's occupation was wholly divorced from that of the telegraph. At first he engaged as a reporter in Chicago, afterwards holding the position as chief clerk in a department of the New York Central Railroad, at Chicago, then becoming the advertising agent of the Union Pacific Railroad Company at Omaha. He afterwards embarked on a traveling theatrical and opera venture. This he abandoned for newspaper work, later again returning to the life of a

roving actor. About ten years ago, by reason of an accident which partially crippled him, Mr. Long sought the telegraph service once more, and drifting into Mexico, became an assistant ticket agent and operator for the Mexican National Railroad, at Monterey. Two years later he returned to this country locating at Dallas, Tex. Here for a short time he was employed by the Western Union Telegraph Company, afterwards transferring his services to the Postal, a position he held when he went to New York as a delegate to the telegraphers' convention.

Mr. Long is a member of the Order of Railroad Telegraphers, a Knight of Pythias and is a high officer of the Improved Order of Redmen in the State of Texas. His election to the presidency of the Commercial Telegraphers' Union, was, he says, wholly unexpected by him and came to him as a great surprise.

Directory of Annual Meetings.

Association of Railway Telegraph Superintendents meets at Indianapolis, Ind., at a date in 1904 to be named.

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

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

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

International Association of Municipal Electricians meets at Atlantic City, N. J. on September 2, 3 and 4.

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

Old Time Telegraphers' and Historical Association meets at Milwaukee, Wis., September 23, 24 and 25.

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

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

Train Despatchers' Association meets at St. Louis, Mo., third Tuesday in June, 1904.

Western Union Telegraph Company meets the second Wednesday in October at New York.

To Make One Typewriter Every Minute.

The immediate additions to the Remington typewriter factory at Ilion, N. Y., have been practically completed. The aim of these enlargements is to provide for the production of one typewriter every minute, a figure which the sales of the Remington typewriter is rapidly approaching.

"Pocket Edition of Diagrams," etc., 260 pages and 126 illustrations, published by TELEGRAPH AGE, contains just the information that every telegrapher requires, irrespective of his position.

B. P. Hancock a City Superintendent at Chicago.

Benjamin Palmer Hancock, traffic chief operator of the Postal Telegraph-Cable Company at Chicago, Ill., has been promoted to the position of superintendent covering the main and all branch offices in that city. This action advances a man who has gained recognition by proving his competency in the post he has filled for the past two years.

Mr. Hancock is yet a young man, having been born at Centreville, Ala., on April 20, 1868, and is showing a decided adaptability for telegraphic work in its executive branches. His telegraphic career began when as a lad of but thirteen, in 1881, he became a messenger at Corpus Christi, Tex. Acquiring the art of telegraphing he obtained a position in 1883 as an operator in the construction department of the Mexican National Railroad at Ojo Caliente, Mexico, two years later returning to this country, and entering the commercial service at Galveston, Tex. In October,



BENJAMIN P. HANCOCK,

Who Has Been Made a Postal Superintendent at Chicago.

1891, he became manager of the Postal office at Chattanooga, Tenn., but after three months' employment was transferred in the same capacity to the Nashville office. By reason of ill health he was compelled to relinquish this post, and for four years remained out of the service. In May, 1897, he reentered the Postal employ at Memphis, Tenn., as chief operator, going thence in like capacity two years after, to St. Louis, and then in August, 1901, occurred his transfer to Chicago as traffic chief operator. Mr. Hancock possesses a pleasing personality, a quick grasp of affairs and is regarded as one of the rising men in his profession.

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.

Louis S. Humes at St. Paul.

Louis S. Humes, who was recently appointed manager of the Western Union Telegraph Company, at St. Paul, Minn., is an accomplished telegrapher and one of the most progressive telegraph managers in the Western Union service in the West. He was born at Griggsville, Ill., in 1859. He entered the telegraph service at Menomonie, Wis., in 1880, with the Chicago, St. Paul, Minneapolis and Omaha Railway. Here he acquired a valuable experience as an operator, and in November, 1887, he accepted the managership of the Western Union Telegraph Company at Eau Claire, Wis. In 1890 he went as a clerk to the office of Superintendent I. Mc Michael, at Minneapolis, where he remained for a year when, on September 19, 1901, he was appointed manager at Marquette, Mich. This position he continued to hold for nearly ten years, during which time he brought the office up to a high state of efficiency. On June 24, 1901, he was transferred to



LOUIS S. HUMES,

Western Union Manager at St. Paul, Minn.

Duluth, Minn., an office which he relinquished on July 1 to accept the higher post at St. Paul.

Mr. Humes has shown fine executive ability, is possessed of congenial manners and his fair and courteous treatment exhibited towards employes has won for him the confidence and respect of all such, wherever he has been stationed, a feeling that is also shared by his official superiors.

Typesetting by Telegraph.

According to a special cable from Paris to the New York Herald, an invention has been submitted to the Academy of Science for typesetting by telegraph, the electric current being made to perforate characters on a moving band connected with a typesetting machine. It is claimed that the contrivance, which is the work of M. Rodmal, will dispense with transcription altogether for press purposes.

Simultaneous Telegraphy and Telephony*.

BY E. M. FISHER.

(The cuts in this article were furnished by courtesy of the American Telephone Journal, New York.)

Simultaneous telegraphy and telephony, or as it is commercially known, "composite" transmission, is one of the most important, and possibly, just at this time, the most interesting subject that can come to the attention of the telephone engineer. It is a subject of vital importance to wire chiefs and managers, and even toll operators will become more and more involved in the manipulation of the composite apparatus if not in its theory.

Before describing the apparatus and its arrangements by which a metallic circuit can be used

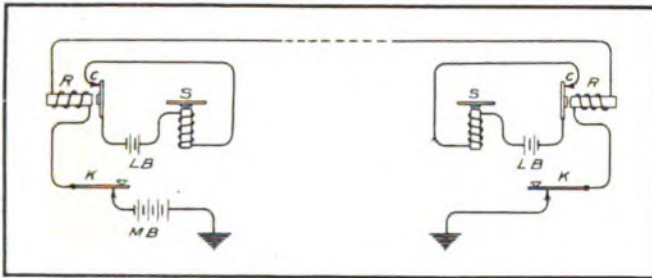


Figure 1.

simultaneously as two independent telegraph circuits and a telephone talking circuit, it would be well to consider the fundamental principles underlying the accomplishment of an undertaking apparently so impossible. First we will consider the simple "Morse" or telegraph circuit. Fig. 1 shows the apparatus and connections used in this country for the manual transmission of telegrams. In this circuit the ground is used as a return. When both keys *K* are closed, the current from the main battery *MB* flows through both relays *R, R* in the line, returning through the ground. The armatures are drawn toward the energized cores of the relays, closing the contacts *C* in the local circuit, which causes the sounders *S* to repeat or magnify the opening and closing of the relays. It is readily seen that the relay and sounder will now simply reflect the movement of the key, consequently, the Morse character will be transmitted through the key to the sounder at the distant office where it can be read by the operator.

Van Rysselberghe's composite system employs two telegraph circuits as illustrated in Fig. 1, out of which he evolves a metallic telephone circuit. Before entering on an explanation of this system, it would be well to study the characteristics of the electric waves of both the telegraph and telephone currents. The apparatus in the first system responds to a direct current, and that in the latter to an alternating current. The success of simultaneous telegraphy and telephony depends upon the non-interference of these superimposed waves of direct and alternating current, therefore the

first necessity is to understand the characteristics of the different currents and their effects upon the apparatus. In operating the telegraph circuit described above at a speed of thirty words per minute, the key would be opened and closed about six times per second, in other words, the current from the battery flows to the line and ceases to flow six times in each second, and consequently the current increases from zero to a maximum remaining there less than 1-12 of a second, the decreases from maximum to zero, remaining there less than 1-12 of a second.

The time required for the current to reach its maximum or vice versa, does not depend upon the rapidity of the opening and closing of the key, but upon the electrostatic capacity, the self-inductance and resistance of the circuit into which the current flows. In the telegraph circuit the electrostatic capacity and self-inductance are practically negligible, and the current would rise and fall almost instantly. In fact so rapid is the rate of rise from zero to maximum that it requires less than 1-50th of the time required to make a telegraph dot, even in a circuit two hundred miles long.

The lowest audible musical sound is produced by vibrations moving at the rate of about fifteen per second, and consequently any wave moving at a higher rate of speed than fifteen per second would produce a sound in a telephone receiver. It, therefore, follows that as the telegraph wave moves at a rate in excess of the lowest sound wave, it would produce a sound in a telephone receiver. Fig. 2 illustrates the characteristic of the telegraph wave. The time of the wave is plotted along the line *AT*, and the current along the line *AC*, the maximum current is represented as seventy milliamperes. The point *A* represents the period of closing the key, and the current wave rises in something like the slightly curved rising line. The current remains at maximum, until the key is opened, when it falls to zero, in a little dif-

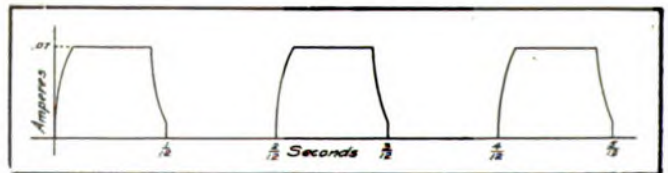


Figure 2.

ferent curve than the rising curve. It remains at zero until the key is again closed, when another wave like the first is made. The length of the crest or the maximum period of the wave depends upon the length of time the key remains closed. As explained, the telegraph wave, when the electrostatic capacity and self-inductance in the circuit are negligible, rises and falls at a rate rapid enough to produce a sound in a telephone receiver, and, therefore, to successfully operate a telephone on such a circuit we must in some way change the character of the Morse wave, and at the same time, not destroy its usefulness.

The time required for a current to reach its maximum depends upon the quantities, electro-

* Abstract of paper read by E. M. Fisher, of the Cumberland Telephone and Telegraph Company, at the Nashville, Tennessee, Convention.

static capacity, self-inductance and resistance in the circuit, or T varies as $\frac{L}{R}$ or times varies as the inductance divided by the resistance. By this equation, to increase the time, we must either increase the inductance or reduce the resistance, or do both.

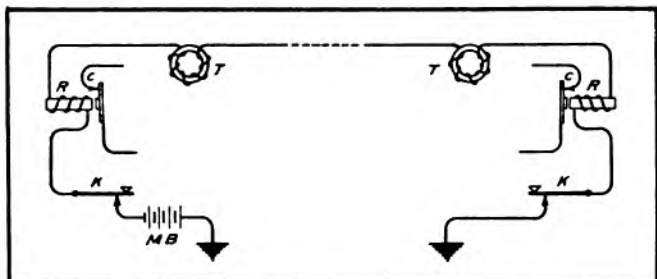


Figure 3.

In a given circuit we cannot reduce the resistance, therefore we are compelled to increase the inductance. Fig. 3 shows the introduction in the telegraph circuit of coils of wire wound on a soft iron ring. The local circuit on the relay point is omitted to simplify the illustration. Current flowing through the convolutions around the ring of iron will produce a counter or opposing current. The reason for this is as follows: The current in passing around the iron ring through the turns of wire creates in the iron ring lines of force which increase as the current increases. This increasing of the number of lines of force creates or generates in the turns of wire a counter or opposing current, which is proportional to the rate at which the lines of force are increasing, therefore the initial current and counter current reach their



Figure 4.

maximum values gradually and not instantly. When the key is opened the lines of force rapidly decrease. This rapid decrease of the lines of force in the iron ring produces a current in the coil of wire, but this time it is in the same direction as the initial current, and tends to retard its fall.

The inductance or counter E.M.F. in such a coil (called impedance retardation or choke coil) increases as the square of the number of turns of wire on the iron ring, while the resistance increases only as the number of turns, consequently

we rapidly increase the ratio $\frac{L}{R}$ and, therefore,

we are able to introduce considerable inductance in the circuit without introducing too great a resistance.

The introduction of this impedance coil in the

circuit has now changed the characteristic of the Morse wave and its rise and fall is not at so rapid a rate, being something like that in Fig. 4. It would be possible to design an impedance coil that would so distort the Morse wave as to prevent its interference with the telephone receiver, but it is also possible by introducing too much impedance to so flatten the Morse wave that its efficiency is destroyed.

Another medium used in retarding the rate of the Morse wave is the condenser. In Fig. 5 condensers are shown connected across the circuit to ground. It now remains to see what effect these condensers will have. When the key is closed the current flows to line, but the two condensers must become fully charged before the current can reach its maximum in the line, and again we introduce delay in the rise of the current. When the key is opened the condensers tend to discharge their current into the line, but the discharge is in the direction of the charging current, and like the current caused by the breaking of the circuit in which there was an impedance coil, the current tends to retard the fall of the Morse wave.

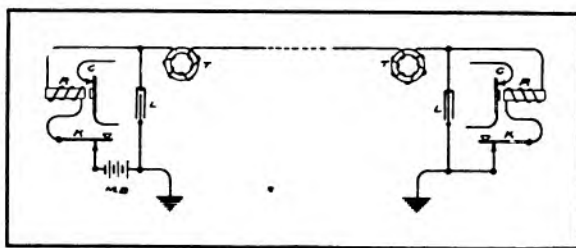


Figure 5.

Thus by the introduction of the impedance coils and condensers in the Morse circuit we have so flattened the telegraph current wave, that it assumes about the character illustrated in Fig. 6, and we have so reduced its rate of increase and decrease that at the speed of a telegraph operator the rate of vibration is below that of the lowest audible sound.

It is readily seen that it would be impossible to use the rapid automatic telegraph on a circuit wherein has been introduced such impedance to the telegraph wave, and also that there is a limit

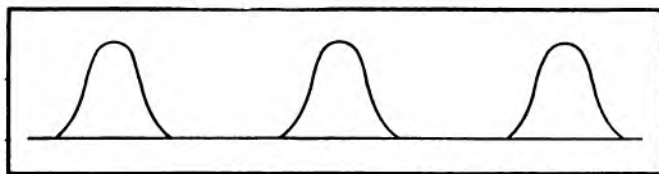


Figure 6.

to the number of stations on such a Morse circuit, even if they are worked at the speed of a telegraph operator. In the first instance not enough impedance has been introduced to interfere with manual operation, but with rapid mechanical operation the current wave would not have time

to rise to its maximum before another wave would follow and interfere. In the second instance by cutting in too many offices, each office requiring retardation coils and condensers, so much impedance would be introduced that soon even at the speed of manual operation one wave would follow too rapidly upon another.

Still another reason prohibits the use of the automatic telegraph. If it was possible for each wave to reach its maximum, the rapidity of the automatic sending would increase the rate of vibration to such a degree that possibly it would be at a rate high enough to produce an audible sound in the telephone receiver. If the telephone

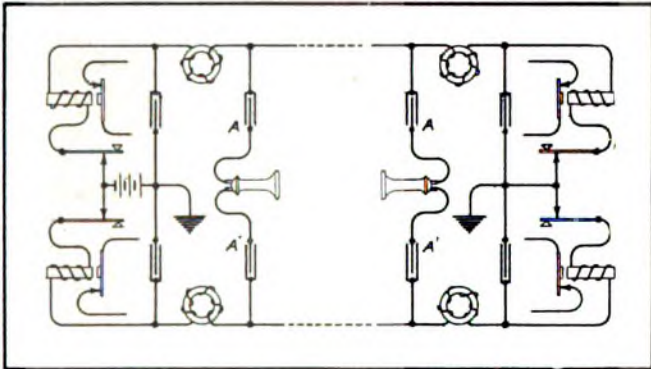


Figure 7.

was bridged directly across the two Morse circuits with a metallic connection it would form a cross between the two Morse circuits and would also allow the undulating current to pass through the receiver, causing the diaphragm to respond to the impulses just as the relay and sounder in the Morse circuit. To prevent this the telephone circuit is bridged through condensers, as in Fig. 7.

A condenser will not allow a continuous current to pass through it. Its resistance to such a current is practically infinite, consequently the condenser has made the telephone circuit an "open" circuit to the Morse current. The Morse current, however, will be constantly charging and discharging the condensers, and these charges and discharges which pass through the receiver will cause the diaphragm to move back and forth, but the rate of change of the direct current is so slow it will not produce an audible sound.

We have now considered and designed a circuit through which the direct current of the Morse system will flow which will operate the necessary relays and sounders for the transmission of telegrams, and it remains to show that also we have built a telephone circuit over which the alternating current of telephone transmission will pass, going through the necessary telephone apparatus and not interfere with the undulating current of the Morse circuit.

We can safely say that if the alternating current of the telephone did pass freely through the telegraph relays its strength would be so small that it would not effect even the most sensitive telegraph relay.

However, if the alternating current did pass freely through the telegraph relays it would have easy access to the ground and both sides of the telephone circuit being grounded this would put a "shunt" directly across the line and possibly offer a better circuit for its flow than through the wire circuit to the other telephone station. Therefore, we see that it is absolutely necessary to prevent the alternating current from passing through the relay to the ground, and now we will see how the retardation coils introduced to flatten out the Morse impulses will act as an impedance to the alternating current, and prevents its going to ground.

The resistance to the flow of an alternating current is called impedance. In a circuit over which a direct current is flowing the current is proportional to the electromotive force divided

by the resistance, $I = \frac{E}{R}$, while for a simple al-

ternating current the current is equal to

$$\frac{E}{\sqrt{R^2 + (2\pi nL)^2}}$$

where E = electromotive force, R = resistance, $\pi = 3.1416$, n = number of periods or double vibrations per second, and L = inductance in henries of the whole circuit. The value of the expression $\sqrt{R^2 + (2\pi nL)^2}$ is the impedance of the circuit. It is evident from this expression that the impedance increases with the frequency n , and with the inductance L .

In the telegraph circuit through the retardation coil there were about 6 rises and falls in current per second, while in the ordinary telephone conversation there are about three hundred complete vibrations or periods per second of the sound waves or about one hundred times as many as in the Morse current. If in designing the retardation coil to flatten out the Morse wave at a frequency of six per second we have succeeded to such an extent that it has no effect on a receiver, we can readily appreciate the great impedance this retardation coil will offer to the alternating current, and consequently the line and receiver at the other end will offer an easier path to the flow of alternating current and most of it will follow that course.

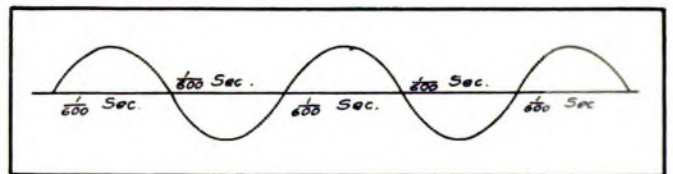


Figure 8.

To more clearly explain "impedance" some explanation will be given. Fig. 8 shows approximately the character of an alternating current wave. It will be noticed that at all points of the period or cycle the current is either rising or falling above the line or falling and rising below the line. In noting the effect of the iron ring wound with coils of wire (retardation coil) while con-

sidering the Morse circuit we saw that a counter or opposing electromotive force was created by the rising and falling of the direct current and that this counter electromotive force was greatest at the point of the greatest rapidity of rise and fall and was only momentary in its flow. If the frequencies are slow the initial flow lasts longer than the counter E.M.F. and consequently passes through the coil in a flattened form. Suppose we increase the frequency of the initial flow until it died out on each impulse as quickly as the counter E.M.F. ceased, the result would be that no current would flow through the coil if the counter E.M.F. was at all times equal to the initial E.M.F., and to all practical effects that is what happens in the composite circuit. The retardation coil effectually blocks off the rapidly alternating current so that it is forced to flow through the line and receiver at the other end, thereby transmitting the telephone sound waves. The telegraph relay offers impedance to the alternating current, its electro-magnet being coils of wire around an iron core, and it also tends to prevent the alternating sound waves from passing to ground. Through the two effective impedances very little of the

easiest course, passes through and actuates the receiver. Fig. 10 gives a graphical impression of how two current waves would pass over the line, *A* being the form of the telegraph current wave, *B* the form of the alternating voice wave, and *C* the superimposed waves.

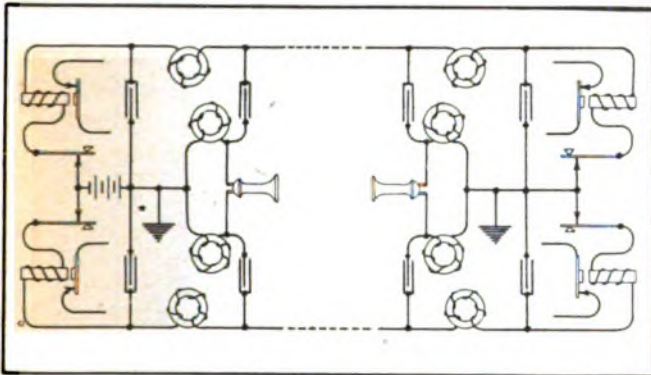


Figure 9.

alternating current passes to ground, and consequently when we "composite" a metallic circuit we lose very little of the telephonic efficiency.

Only one point now remains where there might be interference between the telegraphic and telephonic use of the same metallic line. In Fig. 7 at the points marked *A* and *A'*, it may be noted that it is possible for a high difference of potential to exist, the condenser *A* being charged from a high voltage current on the Morse circuit on its side of the line and the condenser *A'* with a high opposite potential from the Morse current on the other side. There would be a tendency for an equalization or levelling of this difference of potential through the receiver, possibly sufficient to produce a flutter in the receiver. To equalize this difference of potential we will shunt the receiver through low resistance retardation coils to ground. (See Fig. 9.) By this means the difference of potential is equalized, and at the same time the receiver is not shunted to the alternating current, as the retardation coils offer infinitely higher resistance to the alternating current than does the receiver; hence the alternating current takes the

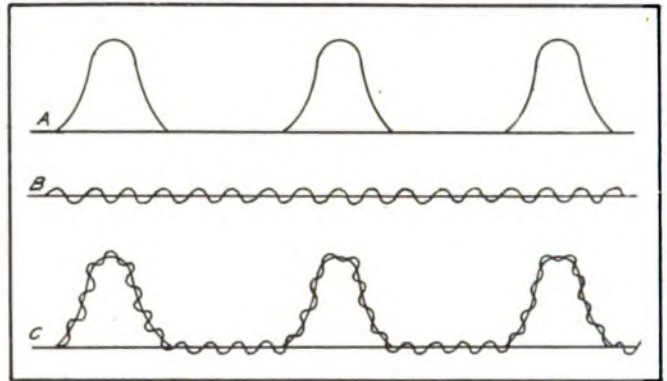


Figure 10.

An arrangement has now been provided which will make two telegraph circuits and one metallic telephone circuit from a pair of wires. It remains to see if we can "ring" over such a circuit and if not, how we can accomplish a result so necessary. There have been many schemes and patents covering methods by which this end can be accomplished. We will discuss but one. The frequency of the alternating generator current is very low as compared with the frequency of the alternating telephone current, and the generator current will easily pass through the retardation coils and telegraph relays, and it might possibly be of enough strength to actuate the telegraph relay. This would seriously interfere with the telegraph signals and at the same time the greater portion of the generator current would flow to ground

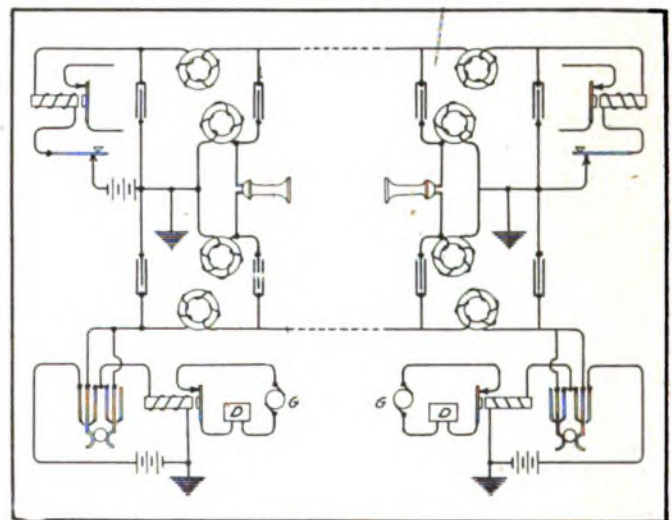


Figure 11.

through the telegraph circuits, as they offer less resistance to the flow of current. Consequently not enough current would go to the distant office to actuate the drop.

A simple way to ring over a circuit is to give up one of the telegraph circuits for the purpose. This requires very little extra apparatus, but does require a special ringing key and drop for each circuit. Fig. 11 shows how the telegraph circuit is made a ringing circuit. It will be noted that there is no battery on the ringing circuit, but that both ends are grounded through the telegraph relays. Inserted in this circuit at either end is a spring key carrying on its outside spring a grounded battery. When the key is in normal position the circuit is through the shift and inside spring to the telegraph relay. When thrown it opens the relay circuit behind it and puts the grounded battery to line. This battery finds ground and completes its circuit through the key and relay at the distant office, and the distant relay responds, closing the local contact point. Instead of a local battery and sounder being in series with this contact point as in the telegraph circuit, a power generator and drop are inserted. When the contact point closes the generator circuit is completed, and the drop falls. When the key is released it again closes the relay circuit, making it complete for the distant office to ring through.

What a Stroke of Lightning Did.

A story comes to us, vouched for by T. E. Crosson, manager of the Central District and Printing Telegraph Company, Greenville, Pa., to the effect that G. E. Powell, an inspector and lineman for that company, was sent to locate wire trouble a few days ago. When some fifteen miles out, and during a severe thunder storm he climbed a pole in order to make a test, and while in the act of attaching his test telephone to a pair of wires, he was struck by lightning, which knocked him to the ground, a distance of thirty-five feet. Badly stunned, for a time he lay unconscious, but regaining his senses he gathered up his tools, placed them in his wagon and pluckily drove fifteen miles further, where he finally found the broken wire and repaired it. His work completed, although sore and stiff from the combined effects of lightning stroke and heavy fall, he drove home. The following day a severe pain experienced in his right leg led to an examination, which revealed imprinted thereon a perfect picture of the pole on which he was standing when struck by the lightning, together with the three cross-arms, the pair of wires to which he was attaching the test telephone, and the lower cross-arm.

Mr. Powell has fully recovered from the effects of the electric shock and of his fall, and is about again none the worse for his experience, but he still carries the picture of the pole so distinctly burned upon him by lightning.

"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.

Edward Chambers, Superintendent of the Western Union Cable Station at Penzance.

Edward Chambers, who succeeded the late G. R. Mockridge as superintendent of the Western Union Telegraph Company's cable station, at Penzance, England, has been identified with the telegraph from boyhood. His long experience as an operator, and his comprehensive and thorough acquaintance with the manifold details of cable matters, especially qualify him for the position he holds. He was considered one of the most expert mirror men on the British side of the Atlantic, possesses a cordial manner and is popular in the service.

He commenced his telegraphic career at an early age in the employ of the Electric and International Telegraph Company, at Lincoln, England, thence going to Hitchin and Hatfield in the same interests. His next move was to Bradford, where he entered the service of the United Kingdom Telegraph Company. Subsequently, on the death of the superintendent, young Chambers



EDWARD CHAMBERS,
Superintendent of the Western Union Cable Station, Penzance, England.

was placed in sole charge of the company, which he represented at the time of the transfer of the telegraphs to the Government. Later he became identified with the German Union Telegraph Company, at London, where he became associated with his late chief, Mr. Mockridge. On the inauguration of the Direct United States Cable Company, Mr. Chambers entered that employ, afterwards being transferred to the company's cable station at Ballinskellig's Bay, Ireland. Here he remained until 1881, when the Western Union cable station was opened at Penzance. Mr. Mockridge became the superintendent and Mr. Chambers transferred his services to the new company. For nineteen years Mr. Chambers filled the post of chief clerk, being appointed to the superintendency on the death of Mr. Mockridge.

Subscribe for TELEGRAPH AGE, \$1.50 a year.

Edward E. Cord Goes to New Orleans.

Edward E. Cord, chief operator of the Western Union Telegraph Company, at its Memphis, Tenn., office, as briefly noted in our issue of August 1, has been appointed to a like position at New Orleans. Mr. Cord comes of a telegraphic family, for his father before him was a well known operator in the Western Union service at Chicago. Edward E. was born at Mendota, Ill. As a lad he obtained an excellent schooling, and began his telegraphic career as a messenger in Chicago, later going with a telephone company. Acquiring the art of telegraphing he became a Western Union operator in Chicago, thence going to Peoria, Ill., in the same interest, where press reports engaged his attention for several years. The appointment as manager of the Kankakee office took him to that place for a year, at the expiration of which time he resigned to enter



EDWARD E. CORD,

Recently Appointed Chief Operator, Western Union Telegraph Company, at New Orleans, La.

the employ of the Peoria, Decatur and Evansville Railroad Company, at Peoria, as operator and clerk in the general freight and passenger department. From this point Mr. Cord returned to the employ of the Western Union at Nashville, Tenn., afterwards accepting the managership of the office at Decatur, Ala. His appointment to the position of assistant night chief at the Memphis, Tenn., office soon followed, from which in turn he was further promoted to the posts of wire chief and chief operator. Mr. Cord has always been a close student and in electrical engineering he has long been credited with possessing expert knowledge. He excels, perhaps, in comprehending multiple-circuit difficulties. Mr. Cord is of a genial disposition and has a wide circle of friends.

Do what good thou canst unknown.—William Penn.

The Old Timers' Reunion.

The coming reunion of the Old Time Telegraphers' and Historical Association to be held jointly with The United States Military Telegraph Corps, as previously announced, will meet at the St. Charles Hotel, Milwaukee, Wis., on Wednesday, Thursday and Friday, September 23, 24 and 25. The programme as now arranged, and which has been printed for distribution, provides a series of entertainments covering the three days of the meeting, so liberal and varied in its outline, as to indicate that the reunion of this year will not fall behind in attractive features those which have preceded it.

After the usual business meetings of each society, held separately, on the first day, an extended street car ride about the city is planned, which will take members to the Soldiers' Home and for an inspection of the Marconi wireless telegraph station, while in the evening the theatre will claim the attention of guests.

On the forenoon of the second day an opportunity will be afforded the ladies of the party to go a visiting and do such shopping as they may desire, the afternoon being given over to a boating trip on Lake Michigan. The day will conclude with a subscription banquet, to be given at the Hotel Pfister. On Friday morning a trolley ride has been arranged out to Whitefish Bay, a pleasant nearby resort, where a luncheon will be served.

It is requested that members who expect to be present at the reunion, and who desire to secure hotel accommodations in advance and those who propose to attend the dinner, will communicate promptly with Mr. F. J. Machette, chairman of the Hotel Committee, St. Charles Hotel, Milwaukee, who will personally attend to all such wants.

The various committees who have charge of the affair have been indefatigable in arranging for the reception and care of their visiting friends, and are certainly entitled to much credit for the thorough manner in which they have performed their duties.

The Committee on Transportation is as follows: John Brant, chairman, 195 Broadway, New York; Henry C. Hope, Chicago, St. Paul, Minneapolis and Omaha Railway, St. Paul, Minn.; E. J. Nally, Postal Telegraph-Cable Company, and W. J. Lloyd, Western Union Telegraph Company, Chicago, Ill.

"Small Accumulators" is the title of an illustrated volume of eighty-one pages, by Percival Marshall, M. E. The book covers the subject of storage batteries, as indicated by its name, as fully as is possible, and it will be found a practical and trustworthy guide of the matter treated, readily understood by non-technical readers. The price of the book is fifty cents, an amount which covers the prepayment of express charges. Address J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

The Western Union Chief Operator at Pittsburg.

John Gaul, the newly appointed chief operator of the Western Union Telegraph Company, at Pittsburg, Pa., is a Canadian by birth, his native place being Ottawa, where he was born in 1864. He began his telegraphic career as a messenger with the Dominion Telegraph Company in 1877, becoming a receiving clerk in 1878 and an operator in 1880. After a service with the Mutual Union, of Ottawa, of two years, he went to Buffalo, N. Y., in 1884, where he entered the Western Union employ. Here he received a fine training under Mr. Frank Kitton, then chief operator, and now assistant electrical engineer at New York, filling consecutively the posts of assistant chief of the Commercial News Department, repeater chief and western wire chief until, in 1896, he resigned to go to Butler, Pa., as repeater chief. Here he showed his ability by making that point a first-class repeater station. He was promoted to be



JOHN GAUL,

The New Chief Operator, Western Union Telegraph Company, at Pittsburg, Pa.

western wire chief at Pittsburg in 1901. This position he held until six months ago, when he returned to Butler as manager. The five months he was in Butler he was able to increase the business fifty per cent. He is a hard worker, has demonstrated his abilities and is further proving them in his present position.

"Wireless Telegraphy," by Richard Kerr, F. G. S., with a preface by Sir W. H. Preece, is a book just off the press, which is meeting a very wide sale, the subject treated being uppermost in the minds of the public at the present moment. This work, which comprises 116 pages, contains a good account of the discoveries in telegraphy without wires. The subject matter is arranged in readable form, the illustrations are excellent, and the descriptions of the experiments are accurate. Copies may be had at 75 cents each by addressing J. B. Taltavall, Telegraph Age, 253 Broadway, New York.

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.

The current information of any office will, if carefully chronicled, furnish a welcome digest of news that will be read with pleasure and satisfaction by thousands, and this limit should constitute the legitimate contents of all letters. And we wish that our correspondents would avoid the too frequent habit, at all times a bad one, of abbreviating words in writing. This is a peculiarity among telegraphers, we know, but what may be plain to the writer, and for local interpretation, is usually a mystery to the editor, and is apt to lead to error in the printed statement.]

MONTREAL, QUE., GREAT NORTHWESTERN.

Allan Clarke has returned to this office after an absence of several months in St. John, N. B.

Mr. Fenton has been placed on the regular list.

H. G. Barclay has resigned.

Special wires were strung to Dorval and Point Claire during the yacht races, and creditable work was performed by Mr. Clifford Byrd.

Chief Operator Walter Graham has completed several splendid improvements to the switchboard and ticker department.

Arrivals: Messrs. Fenton, Walsh, Clark, Coleman, Ross, Tetter, H. Barclay, Scriver, J. Leroux, Cole and Miss Touzel.

Resigned: B. S. Leroux and Miss M. L. De Bellefeuille.

Fred Coleman has recovered from his long illness, and has resumed work.

Mr. H. H. Lyle is spending the summer at "The Point," River du Loup, Quebec.

LOS ANGELES, CAL., POSTAL.

Chief Operator W. J. Wallis has just returned from a brief vacation spent in Arizona and New Mexico.

Frank Merrill, night chief operator, is enjoying a month's outing at Catalina Island.

L. C. McIntosh and family left for Colorado August 15 in an automobile, starting from the home of his brother-in-law at Fullerton, Cal.

We were favored with a short visit by W. C. Swain, Pacific Coast electrician of this company, who is installing the new repeater plant at Ashfork, Ariz. As soon as the Ashfork office is completed work will be commenced on the Los Angeles plant and we hope to be able to use the more reliable energy during the season of the next orange crop, which makes business pretty lively in this office.

CHICAGO, ILL.

Typewriters of all kinds; very easy payments; we handle everything a Telegrapher needs; write us for catalogue. "Mills" shipped all over the United States. Telegraphers Typewriter Company, O. T. Anderson, Manager, Member C. T. U. and O. R. T., 405 Monon Building, Chicago, Ills.

WESTERN UNION.

A "Cobweb Picnic," so-called, was held on July 26, at the Ames Farm, Downer's Grove, Ill. Mrs. Ames proved to be a charming hostess. Among those present were E. Levery and wife; Charles White and wife; Joseph Cummins and lady; Miss May Stack and Miss May Beelman.

The "boys" entered heartily into the spirit of the occasion; in fact, were boys again, and eagerly competed for the prizes awarded. Mr. Cummins secured the capital prize, a rubber doll.

Henry Jahn, for many years the popular chief operator at the Board of Trade, has resigned to take a broker position. He is succeeded by Mr. L. W. Marston, a gentleman who has the good will of all. Mr. Marston is well qualified for the position, having been for years acting assistant, and is versed in the routine of the business.

A. E. Johnson, who is well known in the East End, has secured a position with the Long Distance Telephone Company, and is doing well.

Wire Chief Charles Willoughby has recovered from a severe illness.

W. O. Warren, a recent arrival, who has been working for the Lake Shore road, in general offices, has been assigned to the heaviest wires which he successfully works.

Chief A. J. McGrath, of the Cincinnati and race department, recently returned from a trip through South Dakota and northern Minnesota. He was represented in the Cincinnati Division by Capt. Thos. Quinlan, and the races were kept moving smoothly by Edward Wells.

Thomas Quinlan went to Springfield, this State, with the 7th Illinois. Mr. Quinlan is captain of a company and is every inch a soldier.

Charles Sims, of St. Paul division, has been assigned to Gr office to send stocks.

Managers White and Glade, of Bloomington and Cairo, Ill., respectively, were visitors here a few days ago.

Joseph Guerin has just returned from Colorado, where he went on a short vacation.

Hank Smith, who recently submitted to an operation, is now convalescent.

Two recent subscribers to TELEGRAPH AGE, E. J. Normile, of Denver, and J. M. Dickerson, of Seattle, Wash., are working good circuits. Normile, the first St. Paul, and Dickerson, a Boston wire.

Another judicious appointment is that of C. D. McDermott, who has been selected as an assistant to Charles White, of the St. Paul division.

The recent baseball game between the "Clar-

monts" and the "Lone Stars" was an exciting one the "Clarmonts" defeating the "Lone Stars" by a score of 3 to 2 in a twelve inning game.

PHILADELPHIA, PA.

WATCH THIS SPACE for the announcement of the typewriter which Harry V. Emanuel, the champion of all champions in the "message receiving" class will use in the coming great American Telegraphers' tournament. Send for booklet on new and remodeled typewriters. All makes rented \$3.00 per month; sold on easy monthly payment plan; D. A. Mahoney, Western Union Telegraph Company, Philadelphia.

WESTERN UNION.

Our sympathy is extended to Miss Sadie Arthur whose sister died recently.

Morgan G. Moyer, who met with an accident while alighting from a trolley car, has again resumed duty after an absence of several weeks.

Daniel McBride is filling in for The Associated Press operators each of whom will receive two weeks' vacation with pay.

W. F. Scherer was sent recently to Doylestown, Pa., to handle press matter, which was very heavy, owing to a bank failure at that place.

T. J. Clinger, a well known old timer, is seriously ill at his home in Norwood, Pa.

Messrs. Makin and Ebest have resigned, the former going with the Postal company and the latter to New York. Miss E. B. Sachs has also resigned and, after a few weeks' rest, will take a position with a broker.

The bonus wire, which seems to have come to stay, is kept red hot with business and new records are made and smashed daily. Harry Emanuel, who manipulates the Yetman transmitter on both sides, takes to the bonus system like a duck to water.

Recent visitors: Superintendent E. B. Saylor, of Pittsburg, Pa., and Chief Operator T. A. McCammon, of New York.

New comers are numerous among whom we find M. J. Dougherty, D. H. Wilson, H. Hudson, D. J. Grady, J. Simons, B. McMenamin, T. A. Craney and J. A. Golden, all of Philadelphia; O. J. Davis, from Exmore, Va.; John Church and C. A. Dawson from Washington, D. C., and Mr. Kaufman, from Mauch Chunk, Pa.

The recent fatality at the Philadelphia Ball Park had a depressing effect on Messrs. Shinn, Uber, Rowles and McElroy, who were present for this company. All four rendered heroic service.

POSTAL.

Mrs. Hock and the Misses Jennie Melville and Mary Hagan will take a much anticipated, and it is to be hoped, profitable vacation rest, during this month. At the same time Mr. James Hagan is away on an enforced rest, consequent to an attack of muscular rheumatism.

Apropos to the recent funeral services of Mr. Frank Holloway, it is gratifying to mention the

fact that a beautiful and massive floral design, representing a telegraph line, embracing two poles of white roses, mounted on a base of red flowers and carrying three wires (chenille cords), one of which was broken, both ends terminating near the base and united by the letter "N," Mr. Holloway's "sine," was sent by members of this staff, an appropriate and expressive manifestation of the esteem and sympathy felt for their deceased associate.

A sufficient and interesting inducement was extended to Mr. Robert Stoddard, who returned here from the Western Union office; likewise young Harry Hockery, from Atlantic City.

Among recent arrivals are: Mr. A. F. Flanagan, from the Postal, New York; C. R. Mackin, Wm. Howard, J. A. Hickey, J. L. Osborne, J. F. Anderson, W. J. Fox, C. F. Happersett, R. G. Angney, F. A. Stidfole, O. W. Parke, J. H. Charles, F. N. Wagner, G. M. Lewis, R. A. Lyon and J. C. Mullen.

Mr. I. W. Landis, of the Long Distance Telephone Company, has enjoyed a two weeks' vacation to points in the State.

NEW YORK CITY.

"My Old Virginia Home Upon the Farm," "Utopian Waltzes," and all popular music, 18c. each. Pianos sold \$1 per week. B. L. Brannan, 195 B'way, N. Y.

WESTERN UNION.

The official titles of Leonard Cox and A. Carlson have been changed from inspector and assistant inspector to travelling auditor and assistant travelling auditor, respectively.

Henry W. Sauer, a well known New York telegrapher, president of the New York Telegraphers' Aid Society during 1901, died of consumption at El Paso, Tex., on August 2. Mr. Sauer, a year ago, went to Colorado in the hope that the change of climate would benefit his failing health. He was a native of New York city, where he was born forty-five years ago. His entire telegraph career was spent in the Western Union Telegraph Company's service, and at different times he was manager of important city branch offices and traffic chief in the main office and manager of the company's interests at various race tracks. He leaves a widow and three children.

J. F. Olmstead, a member of the day force, died at his home in Brooklyn, August 9. He had a genial, happy disposition and will be much missed by his comrades. He was, with one or two exceptions, the oldest Morse operator in continuous service in this department, having been here without a break since 1872.

Mr. P. T. Sullivan, manager of the Cotton Exchange office, has resigned his position to assume the management of the leased wire service of D. J. Sully, the Cotton King, who is now opening up wire connection with southern cities.

Mr. G. W. Bange, for many years chief operator of the Western Union Telegraph office at

the Produce Exchange, has been appointed manager of the Cotton Exchange office, vice Mr. P. T. Sullivan, resigned.

Mr. Joseph Hagen, a stenographer in the general superintendent's office, has accepted a similar position in the office of General Superintendent Levin, at Atlanta, Ga.

Mr. M. J. O'Leary, secretary of the Telegraphers' Mutual Benefit Association, whose offices are on the second floor of this building, has gone to Chicago on business of the association.

The Social and Dramatic Club will hold its first annual outing at Rockaway Beach on August 30. Dinner will be served at the New York Hotel.

The Western Union Telegraph Company's cable tug, Western Union, with a party of fifty-five attaches of the operating and other departments, spent nearly the whole of August 2 steaming around the lower bay and giving the boys a chance to experiment with the finny tribe. There were no notable catches, and excepting many burned faces no harmful results followed.

Mr. E. E. Morison has resigned his position in the Central Cable office and has been added to the force at the main office.

Mr. B. Brooks, general superintendent of the Eastern division, has returned to the city after a business trip through the New England States.

The following are absent on vacation: T. A. McCammon, chief operator; F. D. Murphy, C. J. Lawson, J. F. McGuire, C. Thom, R. W. Martin, W. T. Mapes, W. L. Apgar, E. P. Porter, R. A. Furr and H. C. Worthen.

W. T. Rogers is absent because of illness

POSTAL.

Mr. Charles P. Bruch, assistant general manager of the company, has returned to his office after a brief vacation.

Mr. George F. Fagan, of the general manager's office, is also absent on a vacation.

Those absent in the operating department on vacation are: Manager Charles Shirley; Night Chief Charles McCarthy and Operators Robert Mitchel, Thomas Flynn, W. M. Hawes, J. J. Pucci, J. J. Green, Thomas Kehoe, Wilbur Eastlake, Miss H. Watson and Miss Shirmer.

The following have returned from vacations: J. F. Stevens, C. O. Smith, the Misses Crawford, Dore, McCabe, McDonald, McEntee, Mr. Reilly and M. T. Lynch.

Miss M. O'Connor has recovered from a two weeks' illness.

Miss K. Weldon and Miss Eisner are absent on account of illness.

Messrs. Hess and T. M. Murphy have resigned.

Arrivals: Miss M. O'Sullivan, Miss McComach and G. Sherm.

Mr. H. Finn has been assigned to the Pittsburgh bonus wire, and Mr. L. Corper to the Buffalo bonus wire.

Mr. C. P. West has returned from Richmond, Va., where he went to attend the funeral of his father.

A New Mechanical Wonder in Telegraphy

THE TRANSMITTING TYPEWRITER

TWO MACHINES IN ONE

The Nerve-Destroying Slavery of Hand-Sending Forever Done Away With

A SPLENDID TYPEWRITER built expressly for telegraphwork, and a wonderful device for transmitting **Morse Signals**. Either part of the machine may be used separately and independently, or both may be used together to secure a mechanically correct copy of the matter transmitted. The writing machine with its "Keyboard Idea" has worked wonders for penman. **The Transmitting Typewriter** for the first time makes application of this same principle to the transmission of Morse signals and performs a *veritable miracle* for telegraph operators. **The Transmitting Typewriter** is the only typewriter worth a moment's consideration for telegraph work.

THE TRANSMITTING TYPEWRITER copies train orders beautifully. It does vastly more than that. It **transmits them** beautifully and **repeats them back** beautifully.

THE SALIENT FEATURE of the typewriter part of the **Transmitting Typewriter** is the perfect visibility of its work. Every letter, every word, and every line is in plain sight of the operator from the instant it is written until the printed sheet has been removed from the machine. To read the work done by this typewriter there is no time wasted lifting the carriage, no peering behind obscuring typebar guides, no changing of the focus of the eyes to make them reach into some dark hole in the typewriter mechanism, no pushing of the carriage to bring the printed matter into view, no stretching of the neck to look over intervening barriers, no rolling of the cylinder to bring into view written lines, but a simple easy glance is all that is necessary to discover to the operator the work which has been done.

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Facts Concerning This Journal.

FOR TWENTY YEARS *Telegraph Age* has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. They have been invaluable to the active operator as a practical aid in his daily employment. The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth many times the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of *Telegraph Age* have come to be regarded as works of reference. They will increase in value as time goes by. The very full and comprehensive cross index published each year, is a most useful supplement to the paper.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given *Telegraph Age* a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this large circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call the attention of others to this matter. A sample copy will be sent free to any address on application.

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J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

August, usually a dull month, has been an unusually busy one so far. The yacht races will make it more so the latter half of the month.

The Telegraph Tournament.

The following circular has been issued by order of the Executive Committee of the American Telegraphers' Tournament Association, dated at Philadelphia, Pa., August 7:

To all members of the telegraph fraternity.

Greeting:

The greatest tournament in the history of the telegraph will be held in the National Exposition Building, Philadelphia, October 30 and 31, 1903.

The names of those who have honored the Association by active co-operation should inspire confidence, and induce all telegraphers to assist in promoting the success of the tournament. It will be the greatest opportunity ever offered to demonstrate ability, and cannot fail to have a beneficial effect upon the fraternity in general.

It is proposed that the tournament shall not be limited to contests of skill in transmitting and receiving the Morse code, but will include a display of telegraph, telephone and other electrical apparatus pertaining to the service. Demonstrations of the latest devices for signalling messages, exemplifications of the practical working of submarine cables, wireless telegraph, the printing telegraph, and many other methods will be shown in practical operation, making the tournament highly instructive.

The contests will be as follows, subject to slight change as conditions may dictate:

First Event.—For the best all around operator, including sending and receiving messages and press, all straight work; ten minute trials in each branch, the contestant having the highest average to be declared the winner. First prize, Carnegie medal, and \$300 cash; second prize, \$150 cash.

Second Event.—Receiving messages contest on typewriters; automatic transmission; half hour trial. First prize, \$300 cash; second prize, \$150 cash.

Third Event.—Strictly code press work, sending and receiving; thirty-minute trials; two cash prizes for both senders and receivers.

Fourth Event.—Ladies' contest, straight message work on typewriters; ten-minute trials; two cash prizes for both senders and receivers.

Fifth Event.—Special; sending commercial messages and press on Yetman transmitter; receiving on any typewriter; two cash prizes for both senders and receivers; fifteen-minute trials.

Sixth Event.—Open to railroad operators only; sending and receiving regular railroad business; fifteen-minute trials.

Seventh Event.—Old timers; open to all sixty years of age or over; five-minute trials; sending and receiving messages and press; two cash prizes for each class.

Eighth Event.—Open to broker operators only; sending and receiving matter pertaining to the brokerage business, orders, quotations and gossip; three cash prizes for each class; ten-minute trials; the

winner of the sending contest to send for the receivers.

Ninth Event.—Championship class, sending five hundred words straight matter; two cash prizes, \$300 and \$150, respectively.

It is impossible for us at this time to state the amount of money that will be given in all contests, but it is proposed to have cash prizes accompany each medal offered. The amount of cash prizes offered will depend on the support we receive.

We guarantee that the tournament will be clean in every respect, and urge all those interested to co-operate with us in making this the greatest tournament ever held. It is not a money making scheme, but a movement to elevate the profession.

The entrance fee for contestants will be \$2.00, which must be paid to the treasurer on or before October 1.

There are several large halls besides the auditorium, at the Exposition buildings which will permit us to hold several contests at the same time, should it be necessary to do so in order to expedite the events.

All operators are invited to become members of the association. The membership fee is \$1.00 which entitles them to two admission tickets.

By order of the Executive Committee,
C. B. Wood, Secretary.

Some New Western Union Offices.

The Western Union Telegraph Company is equipping some fine telegraph offices in various cities. It is stated that the new main office now being hurried to completion in Philadelphia will be the finest telegraph office in the United States. The tables and other interior wood work will be of mahogany. The floor of the business office will be laid in blue and white tilings, which are the telegraph colors, and the words Western Union will be worked in the tiling in an appropriate and uniform design.

The reconstructed office at Boston, Mass., will be a palace compared with the old quarters the company has occupied for the past quarter of a century. The work is nearing completion.

The new main office at Macon, Ga., will be the finest in the South when finished.

The Birmingham, Ala., office is completed and is thoroughly up-to-date in every particular.

A New Book.

The "Twentieth Century Manual of Railway and Commercial Telegraphy" is the title of a thoroughly practical and instructive work on telegraphy, written by Fred L. Meyer. It is one of the most complete, comprehensive and thoroughly up-to-date books of its kind on the market. It is profusely illustrated with cuts and engravings, showing the technical parts of a telegraph instrument; accurate drawings in black and white and in colors, the latter showing the regulation practical color signals used on blocks and on

trains and engines; full-page half-tone engravings and facsimile telegrams, train orders, railway messages, commercial and railway forms, etc. The book is printed from large, clear, perfect type, on extra heavy paper, and substantially bound in the best dark blue ribbed cloth, making it handsome and durable.

This volume may be obtained by addressing J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York. Price \$1.00, which includes express charges. Remit by check, post office or express money order.

Our Book Table.

"A B C of Electrical Experiments," by Prof. W. J. Clark, has lately been published. As the initial letters of the title indicate this is an elementary book adapted to the needs of beginners and students. It is written in simple language, free from all technical terms, has 146 illustrations and gives plain instructions for the making of batteries, magnets, electric bells, induction coils, X-rays, dynamos, motors, static machines, and the telegraph, telephone and wireless telegraphy, the latter written from an American standpoint. As any student can procure for himself the materials mentioned therein and can make for himself the instruments, or work out any of the experiments given in this book, its value will be apparent. The price is \$1 and it will be sent post paid upon receipt of this amount. Address orders to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

"Lightning Flashes and Electric Dashes," always bright and entertaining, never loses its interest, and has maintained a strong hold on telegraphers as being one of the best books published of telegraphic literature, depicting with genial force and attractive circumstance, the humor, fun, wit and wisdom attributable to the fraternity. The sketches are the contributions of well known writers, the illustrations are well drawn and comical, and altogether the volume, which is bound in cloth, with gold lettering on the front cover, is well worth a place in the library collection of every telegrapher. There are but a few copies left of this excellent book, and in a short time this first work containing telegraph stories will be out of print. Those who desire a copy should lose no time therefore, but send \$1.50 at once to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, who will send the volume postpaid, to any part of the United States.

"A History of Wireless Telegraphy," third edition, revised, by J. J. Fahie, the eminent English author, constitutes one of the most popular accounts yet published of the origin and progress of wireless telegraphy, showing fully what has been attempted and what accomplished in that fascinating field of operations and research up to the present time. All systems are reviewed, as well as many guesses considered. Marconi's method is treated with great thoroughness and

this inventor's particular development of the science is brought down to the present time. For convenience of the general reader the contents of the volume are divided under three distinctive heads, or periods, so called, namely: First period—The Possible. Second period—The Practicable. Third period—The Practical. The revised work will prove a welcome addition to the literature of the matter discussed. Under the respective headings the classification observed will be of especial aid in tracing with logical sequence the development of wireless telegraphy. The price of the book is \$2.50, express charges prepaid to any address in the world. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

"Don't talk to me about compulsory vaccination!" exclaimed the man who had his arm in a sling. "I'm sore on that subject."

[Advertising will be accepted to appear in this column at the rate of three cents a word.]

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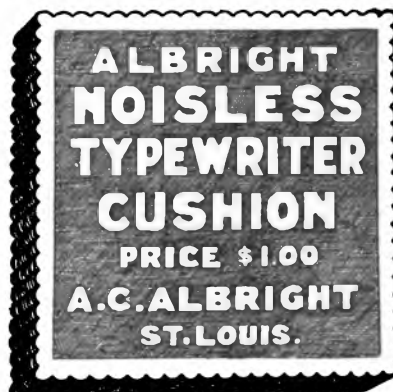
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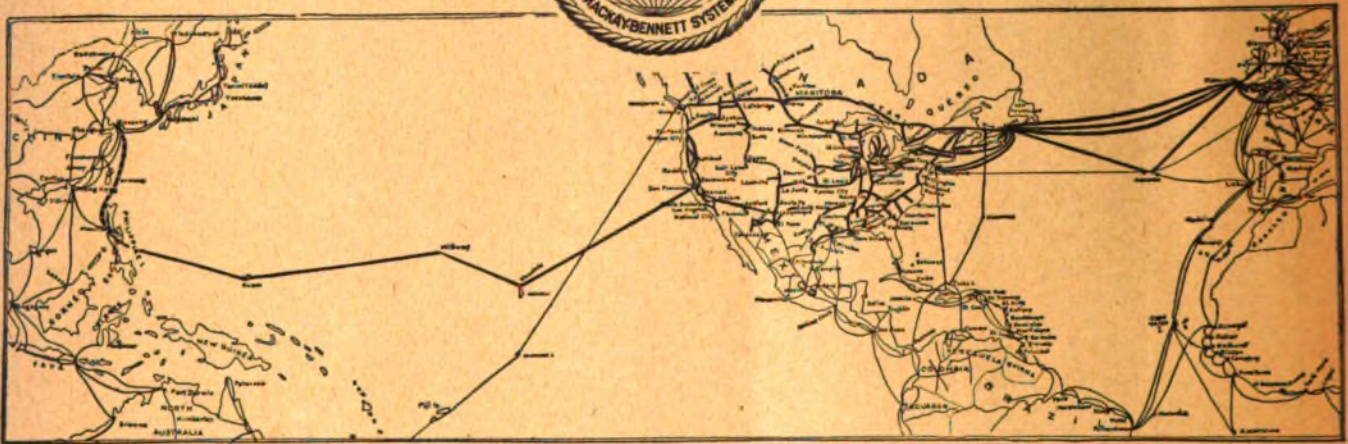
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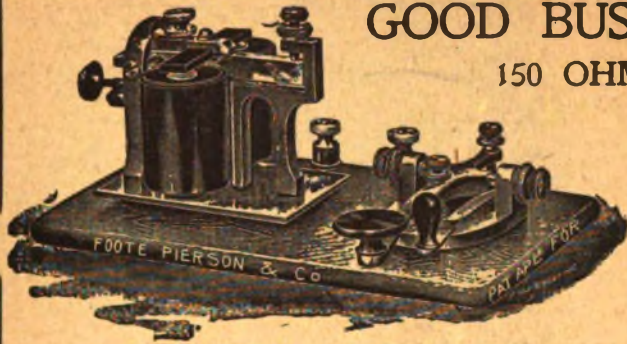
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