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### Aeroplanes

The aeroplane has not yet reached the status of being a rival of the electric car in transportation service, but is well adapted as an attraction for street railway parks. No mechanical device has been given so much attention recently in the daily papers as the airship in its various forms, and none perhaps has aroused such popular interest. There is a fascination about sailing aloft, often greater to the spectator than to the performer, and when high in the air the airship can be seen by thousands. Few street railway parks can afford perhaps to pay the amount

per flight reported to have been offered Henry Farman for his American excursions, but the number of aeronauts is increasing, airships are being perfected, they are not now very expensive to build, and it will not be long, in the opinion of those engaged in the work, before at least coasting machines will be as common as automobiles were five or six years ago. One hint might be offered to park managers. After the ascent is made, a large part of the crowd will chase blindly after the airship, and will be apt to trample over flower beds if they lie under the first few hundred yards of the course of the aeronaut's flight.

### Cleaning Paint on Cars

Why does the protective coating of paint and varnish on the outside of interurban cars often have so much shorter life than on steam passenger cars? It cannot be faulty methods of applying the material for cars fresh from the builder, who employs skillful workmen and follows rigid specifications, need attention in the paint shop as soon as a car which has been repainted by the railway company's own painters. The daily mileage of steam and electric passenger cars averages about the same, and certainly the road conditions are not so severe on the electric road with no smoke and abrasive cinders attacking the paint while the car is running and while it is standing in the yard. The explanation apparently lies in the difference in methods of cleaning the surface of the varnish. It is the practice on many electric roads to wash down the outside of cars with water and soft soap or some other solvent. On the other hand, dry cleaning is the common method on the steam roads, using a prepared paste or liquid rubbed on in small quantities with waste. Whether or not it is the effect of the water on the varnish which causes it to deteriorate is a question which we would like to see discussed. We know of one road which adopted the dry cleaning method and now sends its cars to the paint shop only once in four years. This would seem to be pretty good evidence in its favor, but there may be some who have had an opposite experience, for nothing is more uncertain than the life of paint.

### Problems of City Congestion

The congestion of traffic in downtown streets in New York shows no signs of diminution. In spite of what are regarded as the hard times of the past year the number of office buildings in the lower section of the city has been increased and the office capacity has grown in even greater ratio. Statistics recently compiled by the Committee on Congestion and Population present very interesting information. The area below Chambers Street already contains office space for 129,456 persons, and factory space for 236,734 persons. One building alone, erected during the past year, has office accommodations for 6000 people. Thirty-five thousand persons a day and 125 a minute have



been found by the committee's investigators to pass certain points in downtown sections. In spite of these facts, no additional transportation line has been built in this district during the past five years, and with the exception of the subway, whose capacity was reached soon after its inauguration, none has been constructed in the past 20 years, although the elevated lines and the surface lines have been electrified during this period. The question of putting some future limit on the congestion by stopping the further erection of high buildings is being seriously considered by the Code Revision Commission of the city. Among the plans suggested are that high buildings should be limited to certain sections, that they should be taxed according to their number of stories; that there should be a flat limitation to their height and that they should have an elevator capacity with a fixed speed which would empty them of their tenants within a certain time. Another suggestion made to the committee on code revision, along very sensible lines, is that vehicular traffic should be prohibited south of Chambers Street during business hours. This would allow the surface lines to cope to better advantage with this ever growing problem.

### Settlement of Damage Suits by Arbitration

In a non-political address delivered before the Virginia Bar Association, on August 6, Mr. Taft discussed the very important question of possible reforms in judicial procedure in this country. This is a subject which can be fully considered and in which reforms can be suggested without disrespect to the courts, because it is unreasonable to expect the law to stand still in its methods while revolutions are occurring in those followed in scientific research, medicine, business and even in the church. Among the points mentioned by Mr. Taft was the jury system, which is a remarkable survival of the times when judicial, political and social conditions were far more different from those which exist at present than they were to those of the ancient Greeks. That the system of trial by jury has continued so long a part of our jurisprudence is remarkable evidence of its fundamental virtue. But it was established when civil suits were extremely rare and primarily as a precaution against injustice in criminal cases. Mr. Taft did not recommend the abolition of the system, but believed that every means should be adopted by which litigants in civil cases should be induced voluntarily to avoid the expense, delay and burden of jury trials; subsequently, he referred particularly to the substitution of other means for settling damage suits brought by employees against public service corporations, now in effect in Massachusetts. Mr. Taft evidently had in mind Chapter 489 of the Massachusetts Acts of 1908 which permits employers to make arrangements with their employees, the arrangement to be satisfactory to the State Board of Arbitration, by which the employees shall receive certain sums of money in case they are injured while engaged in the work of the master. This act was passed by the last Legislature and can hardly yet be said to have received a thorough trial, but the experiment is an interesting one, particularly if time should demonstrate the possibility of its extension in some way to other casualty cases.

### Light Cars

A recent article in these columns calls sharp attention to the needless weight of much of the present rolling stock and shows the saving that could be made by lightening it. Carefully designed steel cars could, as the author points out, bring the dead weights at least within a reasonable limit and make a very material gain in power consumption and general upkeep. Is it not pertinent to ask whether on the whole American roads have not gone rather too far in imitating steam railway car construction? For long runs at high speed the big cars may always be needed, and yet it is notable that in European practice even steam railway cars are relatively much lighter than those used here—so light indeed that to American eyes they look weak and unstable. Yet they do hold the rails with entire success, are reasonably comfortable and certainly produce very much less wear and tear on the way. The use of long electric cars gives, of course, increased capacity for the same labor cost, and their weight is a supposedly necessary accompaniment of the length, yet it may be questioned whether the cost in power and depreciation, including track, does not go a long way toward offsetting the gain. We are not by any means inclined to advise going back to the rattle trap vehicles that are now doing duty as night lunch carts, yet there is considerable to be said for the proposition that American roads have shown a tendency toward overdoing weights all along the line. Proper track construction constitutes one of the most important problems facing the electric railway companies of the near future. In city construction the joint question is serious. In very high-speed electric railway service it seems at present to be more a question of fastenings. In either case lighter rolling stock would be of great assistance. There has also been a steady increase of the power used per car that is not commensurate with the increase of speed or of carrying capacity, and this factor can also be reduced by lessening the weight of cars. If some road making ready to get new equipment for next season would deliberately plan for a lighter type of car, perhaps along the line of a center sill car as in the new Pennsylvania type for suburban service, it would find itself rewarded for its enterprise. Even good tendencies can be overdone at times, and while no one wishes to go back to 7½-hp motors and 14-ft. cars, there is a happy medium that is likely to suit many conditions better than either extreme.

### Street Sprinkling

This is the time of the year when the dust raised not only by cars but by vehicles and automobiles becomes a pest and the abomination of passengers as well as a cause of wear to bearings. Even the best guards and journal boxes will not keep the dust entirely away from journal bearings, where its presence not only causes wear but requires increased power to propel the cars. Similarly the best motor casing produced will not keep the dust entirely out of the motors where it creates commutator and brush trouble, sometimes unjustly attributed to other causes. The dust penetrates to other places where it is not desired and in general is a nuisance to say the least.

Many roads have found it profitable on this account to



sprinkle their right of way at their own expense and still others have turned their trouble to advantage by securing contracts covering the sprinkling of all the streets along their lines for their full width. Such an arrangement has been found in a number of cases to be mutually satisfactory to railway officials and city or township authorities as well as to pedestrians and vehicle owners. In addition to increasing the income of the railway materially, it enables the municipality to reduce the expense of sprinkling its streets. Contracts may be made for a lump sum covering the sprinkling service for the season or on a car-mile basis based upon the minimum number of sprinklings required per day, or as many more as the authorities may direct. The latter arrangement, as nearly as can be judged, has proved to be the most satisfactory from the standpoint of the railway at least. In this connection it may be said that the experience of one road has proved that 20 cents per car-mile is the lowest price at which there is a profit from the operating standpoint, without consideration of the saving of equipment and the increased comfort of passengers. The price mentioned covers only the service by the electric railway, all water being furnished free by the city. The number of sprinklings required per day, of course, varies in accordance with the nature of the pavement and other conditions.

While it is hardly probable that a sprinkling contract could be entered into with profit during the present year, the usual conditions at this time offer a good opportunity to present a proposition to the city fathers for consideration. A little judicious agitation through the local papers designed to arouse the interest of pedestrians, merchants and owners of vehicles in their own welfare and comfort, will doubtless be of value in obtaining a favorable contract with reasonable dispatch.

### Transfers Again

The question of transfers, though discussed to a considerable extent in these columns recently, is still one upon which a great deal can be said. It certainly constitutes a very live topic in New York City at present and the New York situation is of interest to every road in the country. As each different branch of the old Metropolitan system is lopped off from the parent stem to begin life anew a half-dozen or more points of transfer are discontinued. Concurrently the Public Service Commission is deluged with complaints from people who have to pay 10 or 15 cents for a ride which formerly cost five. The latest line to be thus segregated is the Central Park, North & East River Railroad, which owns the Fifty-ninth Street crosstown line, and the abandonment of transfers between it and the former leasing company last week gave rise to a particularly large number of protests.

As stated elsewhere in this issue, a public hearing to discuss the matter was held by the Public Service Commission of the First District on Aug. 11, at which merchants claimed that their sales were being affected by the extra fare, while representatives of labor organizations put in a demand for cheap transportation. The receivers of the Metropolitan company postponed their answer owing to the temporary absence of their counsel from town, while the representatives of the crosstown line vainly pleaded that they were

struggling hard to keep their road out of the hands of a receiver and could not afford to divide their fare with any other company. At the close of the hearing, the commissioners ordered both companies to establish on Aug. 24 a "joint rate" with free transfers for all passengers between Thirty-fourth Street and 116th Street.

This method of relieving the situation reminds one very vividly of the condition described in a treatise on political economy written some time ago by a professor at Yale in which A and B consult together to decide what can best be done to improve the condition of C. The advice of D is not asked; he is nothing but a taxpayer; all he does is to pay the bills; he is the "forgotten man." The closeness of the analogy will be apparent. The "forgotten man" in the case of free transfers in New York City is the stockholders of the railway company who has now no duty except to carry passengers below cost.

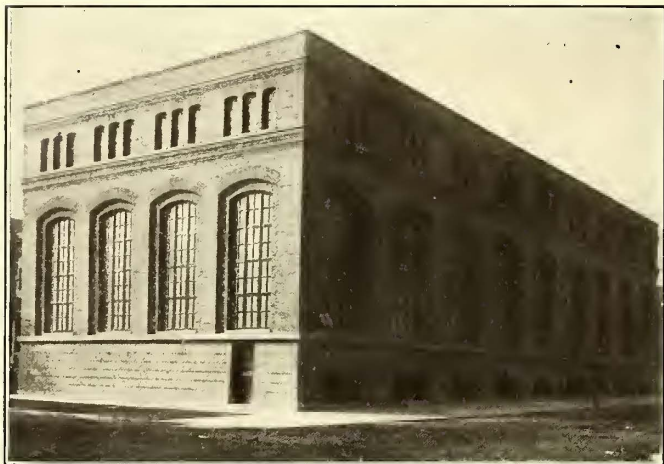
In former years each company operated its own cars over its own route and charged not 5 cents, but six for a ride without a transfer. Certain capitalists believed that they could introduce economies by consolidating the operation—not the ownership—of these lines, and did so temporarily by a series of leases. But the economies expected were overestimated or more than overbalanced by unlooked-for expenses, not the least of which was the requirement for universal transfers. The plan was unsuccessful and many of the leased properties had to be returned to their original owners to be operated under the original conditions called for in their franchises. There is no more reason now to expect the Central Park, North & East River Railroad Company, or the Third Avenue Railroad Company, or the Twenty-eighth & Twenty-ninth Street Crosstown Railroad Company to give free rides or to carry people for 2½ cents than there is to ask a Wall Street broker to sell a share of New York Central for \$91 because it could be bought at that price last January.

Transfers have probably done more than any other one agency to mislead the public as to the real cost of street railway operation. They are handed out so freely that many passengers assume the extra ride to which they entitle the bearer costs the company nothing. But the conditions do not differ radically in New York from those in other cities. The extra ride often means two extra stops, one to take the passenger on, the other to allow him to alight. It always necessitates additional accommodations in the way of rolling stock, power and platform wages; in fact, it practically duplicates the service for which the company is paid but once. Increase in traffic alone will not help the situation; in fact, it will make it worse if it costs the company 3½ cents in operating expenses to carry a passenger when it receives only 2½ cents for each ride. There may be cases where free transfers can be given, but as a general proposition they are wrong; they are incorrect in theory, and they are often disastrous in practice. The average street railway fare is too low and every additional transfer issued tends either to decrease it, or to increase the operating expenses, whichever view one prefers. From either aspect it reduces the narrow margin which exists between gross receipts and cost of operation, from which the returns on the capital invested must be made.



## LARGE TYPICAL SUBSTATION OF THE CHICAGO CITY RAILWAY

The Chicago City Railway Company is just completing a large rotary converter substation which will serve as a type for future stations. The new substation described in this article has been designed with a view to affording a per-

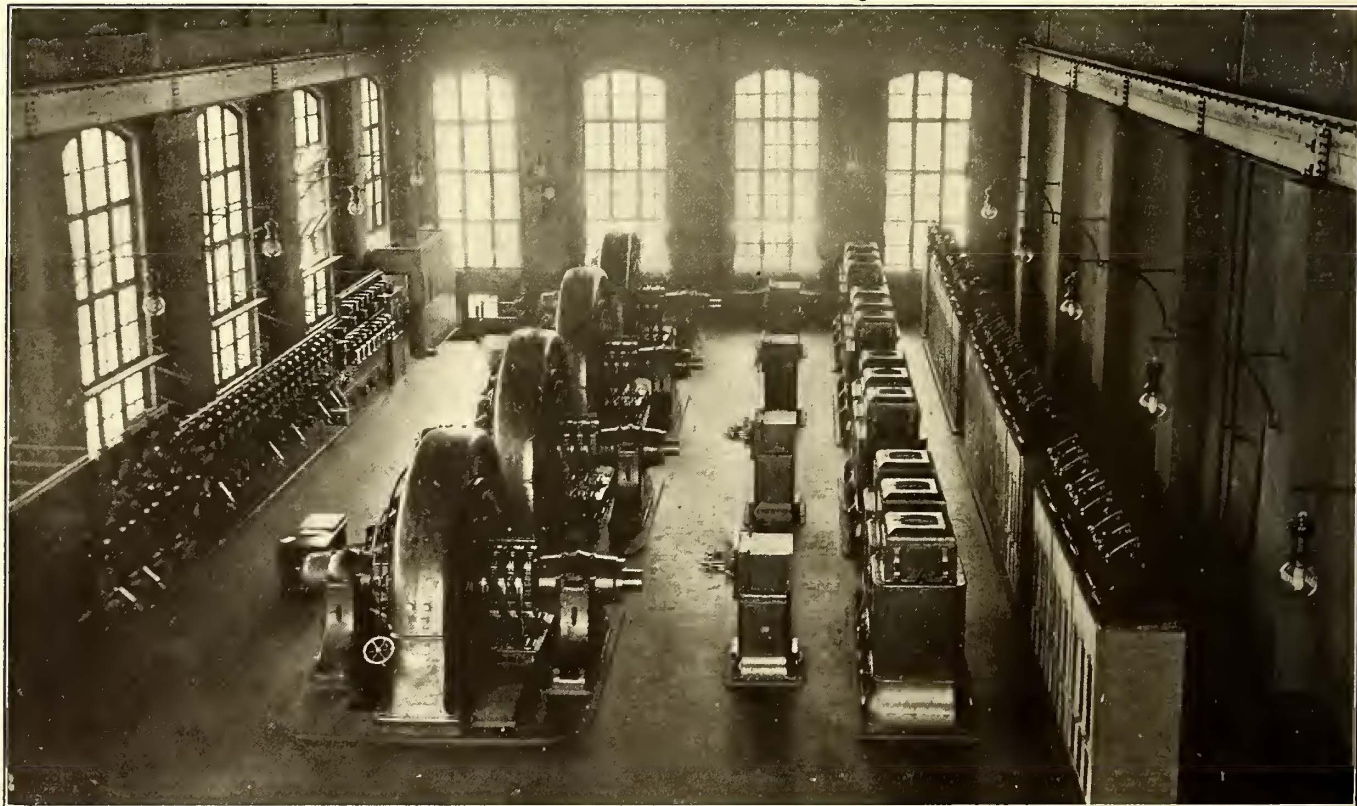


Chicago City Substation at Forty-second Street

manent installation which can be operated and maintained economically and which will offer the utmost security against interruption of service.

2000-kw machine will be installed this fall. Substation No. 2, at Forty-second Street and Wabash Avenue, is equipped with four 2000-kw rotary converters, and space is provided in the present building for the addition of three similar units. The fifth machine will be installed in the fall of 1908. Substation No. 2, at Sixty-third Street and Wentworth Avenue, has three 1000-kw and two 2000-kw machines, and a third rotary converter of 2000 kw will soon be installed. Each substation is connected with the Fisk Street generating plant of the Commonwealth Edison Company by paper insulated, lead covered three-conductor cables laid in vitrified underground conduits. In so far as practicable the cables supplying each substation pass through the city over separate routes so that the possibility of an interruption of current supply by reason of damage to the underground feeder cables is very remote.

The Forty-second Street substation, of which exterior and interior views are shown on this page, is constructed of brick enclosing a steel framework on which rest trusses spanning the entire width of the building and supporting a tile roof. The basement walls and floor, all foundations and the machine room floor are built of concrete. The machine room floor has a red tile surface. The substation building is 161 ft. long by 60 ft. wide over all. Accompanying illustrations show the machine floor plan and a cross-sectional elevation with dimensions. Every precaution has been taken to make this a strictly fireproof structure. No wood enters into any part of the building



Chicago Substation—General Interior Showing Switchboard, Rotaries, Resistance Coils, Transformers, Oil Switches, Etc.

The trolley feeder network of the Chicago City Railway is supplied with current from one 5000-kw d.c. generating station and five rotary converter substations fed with 9000-volt, 25-cycle a.c. from the generating stations of the Commonwealth Edison Company. Substation No. 1 at Twentieth and Dearborn Streets is now equipped with three 1000-kw and three 2000-kw rotary converters. Another

construction. Metal sash are used for the window openings. The brick used for the interior of the building is yellow in color and presents a smooth surface that will not accumulate dirt. A wainscot effect is given by the use of dark brown glazed brick laid in the walls to a height of about 5 ft. Steel columns enclosed by brick support the I-beam runways for a 25-ton Pawling & Harnischfeger



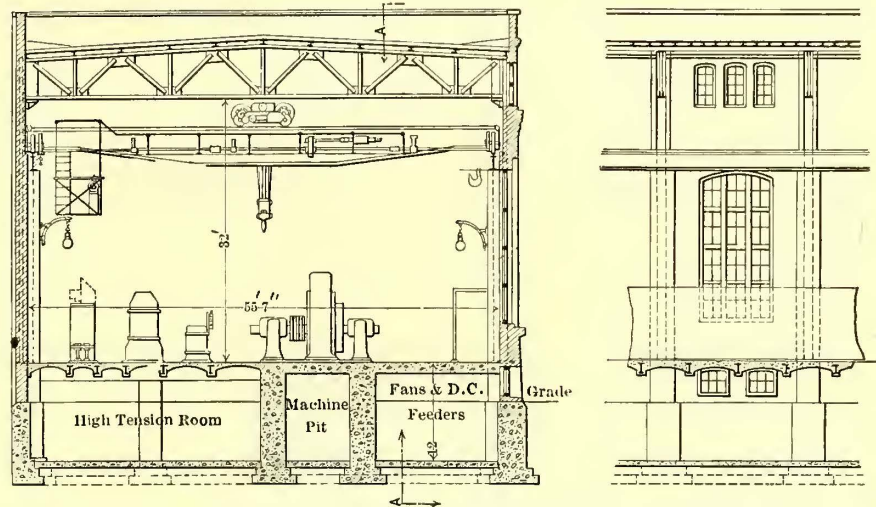
three-motor crane, which serves the entire floor area of the building. To facilitate the unloading of machinery from wagons a wide doorway closed with a Kinnear rolling steel door leads through the rear wall to a depressed floor space large enough to permit a truck to be backed into the building so that its load can be picked up by the crane. An especially well-appointed toilet room, including in its equipment six Durand steel lockers, is enclosed at one corner on the machine room floor.

**BUSBAR ARRANGEMENTS**

Special precautions were taken when installing the high-tension apparatus to provide against any interruption of the current supply to the rotary converters. The incoming cables from the generating station enter the substation building at different corners, each cable terminating in a bell under a type H-3 motor-operated remote-control oil switch. From this line switch when closed current is fed direct to an individual set of machine buses. One set of such buses is provided for each rotary, the buses being connected to the three 750-kw air-blast transformers for that rotary by a motor-operated oil switch. Supported directly under the individual machine buses is a transfer bus extending the length of the building. This bus may be sectionalized by oil switches. Motor-operated transfer switches are provided to connect each of the sets of machine buses with the transfer bus. By this combination of buses with line, machine and transfer switches, it is possible to feed any machine from any supply line. A study of the busbar arrangement as presented on page 465 will show that a most complete flexibility of arrangement is afforded.

The high-tension busbars are all made of 3-in. x 1/4-in. copper supported on edge. This cross section of copper

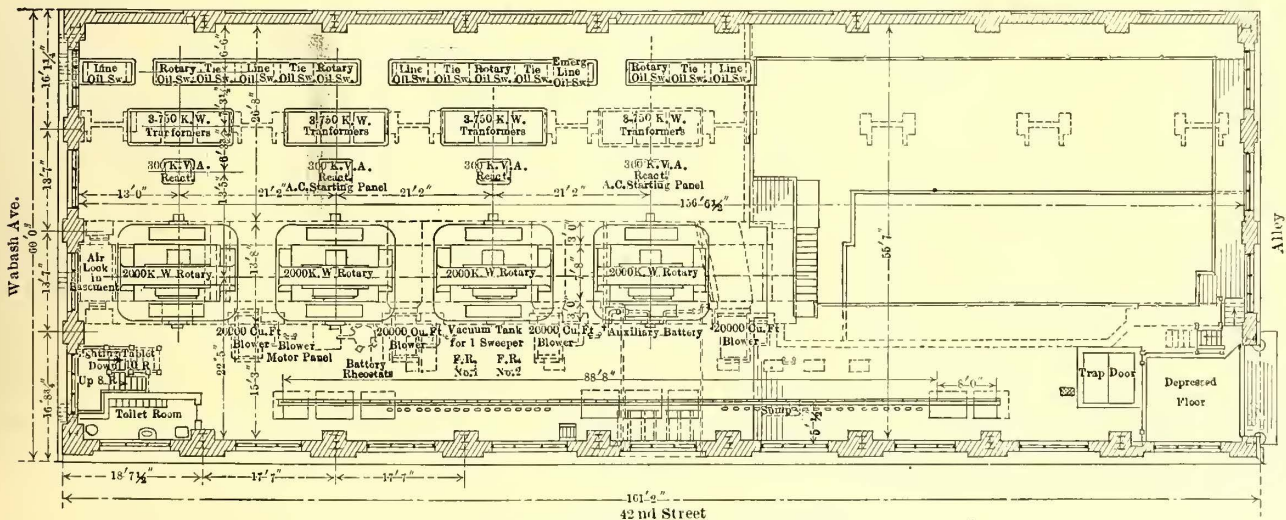
connections from the busbars to all transformers and switches are made of copper tube 1 1/16 in. in diameter. This tubing weighs about 20 oz. per foot and is easily handled in construction work. The tube is flattened at the ends, drilled and bolted to the switch and connection studs. On account of its stiffness it is unnecessary to support the tubing except at its ends. On all bolted connections spring



**Chicago Substation—Cross Section and Part Longitudinal Section**

wasters are employed to prevent the bolts from loosening. New features have been introduced in the oil-switch cell construction. These switches, which are of the General Electric Company's H-3 motor-operated remote-control type, are enclosed in cells of repressed waterproof brick with soapstone partitions. Instead of placing the disconnecting switches for the oil-switches in the basement, as usually found, the brick switch structure has been built high enough above the floor to make room for the disconnecting switches above the floor level, where an operator can readily inspect them before he starts working on the oil-switch cells.

As ordinarily found, oil switches are enclosed on three



**Chicago Substation—General Plan**

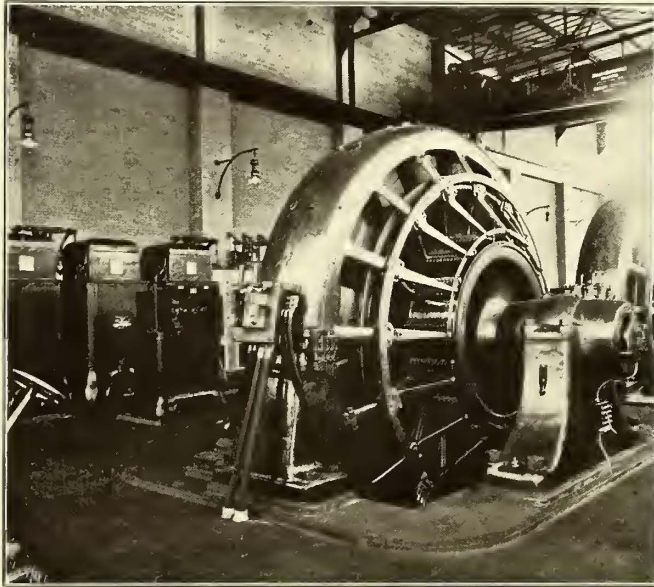
bar is standard for use between the transformers and rotaries, 5-in. x 1/4-in. copper is used between rotaries and switchboard, additional bars being placed alongside of each other where increased carrying capacity is necessary. All the high-tension buses and switch and transformer connections are completely separated by walls of repressed waterproof yellow brick and barriers of soapstone. The vertical

sides by brick or concrete walls. However, with a view to cleanliness and ease of inspection the oil switches in this substation are provided with doors on both sides of each cell. The doors are made of asbestos lumber with clear wired glass set in the center of each lower panel. The upper panels are filled with pieces of asbestos board so balanced and supported that normally they hang closed; but



should an explosion occur inside the cell they will spring open and afford a quick-acting vent. Each entire door also is supported so that it may swing out from the bottom and act as a vent.

An illustration is presented showing a cross section of the busbar compartment and the arrangement of the cable terminal and line switch connections. Inasmuch as current



Chicago Substation—2000-kw Rotary and Transformers

is purchased and therefore accurate metering warranted, instrument transformers are placed on each of the three phases of the incoming high-tension feeders.

The arrangement of the current transformers and the potential transformers together with the disconnecting switches and fuses for the latter is illustrated in the sec-

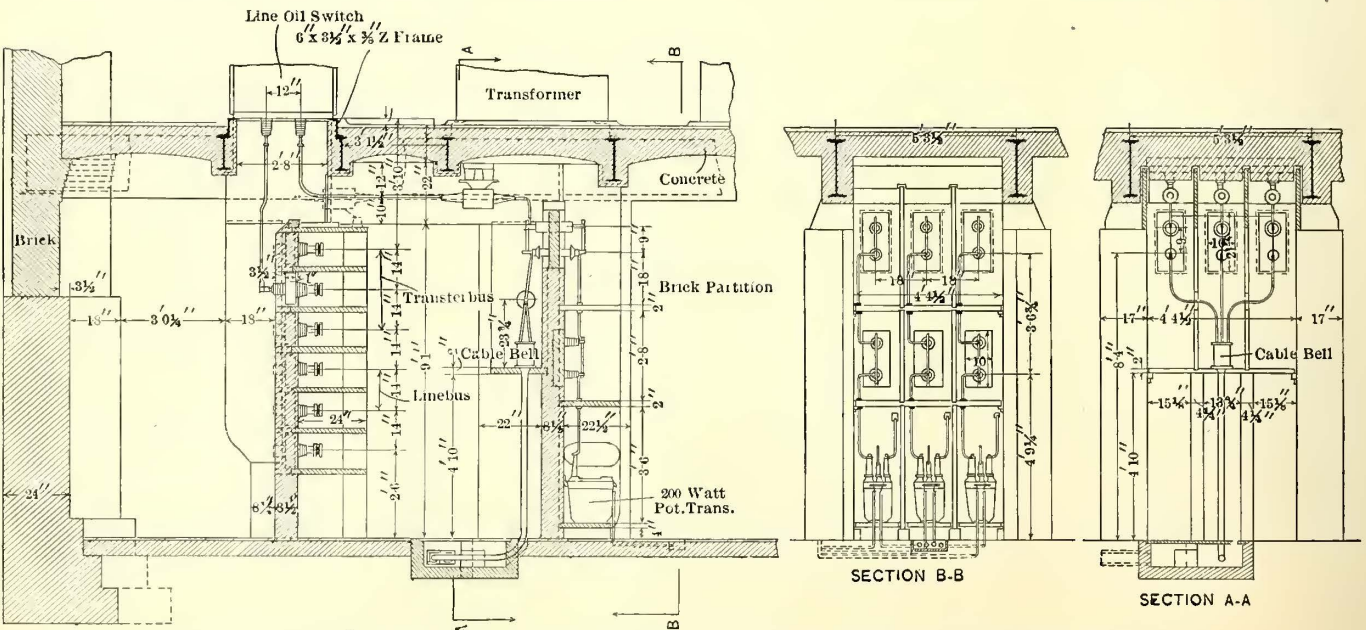
tional expense for transformers in each phase was warranted because of the desire for accuracy in metering purchased current.

The high-tension division of the basement is under air pressure furnished by induction motor-driven blowers. The blowers are of 20,000 cu. ft. per minute capacity and were built by the Buffalo Forge Company. Each has a separate panel for its 7½-hp induction motor. The panels are provided with wattmeters for measuring the power consumed by the blowers, and there are double-throw switches also, so that the blower motors may be operated from either one of two transformer sets. The air supply for the blowers is taken from the d.c. section of the basement, which is connected with the outside of the building through window openings fitted with fine screens. The accumulation of dust on these screens is blown away each day with a compressed air nozzle.

Reference to the illustrations will show that the path between the high-tension current supply through the transformers to a rotary converter is very direct. From the low-tension side of the transformers copper bars supported on insulators held in pipe racks carry current to air-blast reactance coils and from them to the rotary converters. A starting panel is mounted on each reactance coil. This panel has two three-pole double-throw switches by means of which starting current may be fed to the rotaries from the one-third, two-thirds and full voltage taps of the transformers.

The method of starting the rotaries is to build up speed by feeding d.c., and, when a proper speed has been reached, to disconnect from the d.c. side, cut in the a.c. one-third voltage taps, adjust the field to the correct polarity, then transfer to the two-thirds voltage taps of the transformers and finally place the machine across the full secondary voltage.

As earlier stated, there are now installed in this substa-



Chicago Substation—Section Through Incoming Line and High-Tension Busbar Structures

tional view of the busbar compartment. Each pair of transformers operate a single-phase wattmeter. The three potential transformers on each incoming line are star-connected with the neutral grounded. Ordinarily two pairs of transformers are used to operate the wattmeters of most substations, these transformers also serving other instruments. With the Chicago City Railway, however, the addi-

tion four 2000-kw six-phase General Electric rotary converters, and space is provided for three others. The machines stand with their field frames in line over a pit extending throughout the length of the building. The common negative and the equalizer bus are carried on brackets along one wall of this pit close to the underside of the machines, so that a minimum amount of copper was re-



quired for making the connections. The machine frames are grounded to the negative bus so that there may be no difference of potential between the frames and the floor on which the operators stand. From the high-tension room in the basement, which is under air pressure, are ducts leading through the wall for the machine pit, the openings being controlled by igniters. The air which escapes through these ducts rises under each machine and serves to prevent pockets of heated air about the lower part of the converters.

STATION LIGHTING

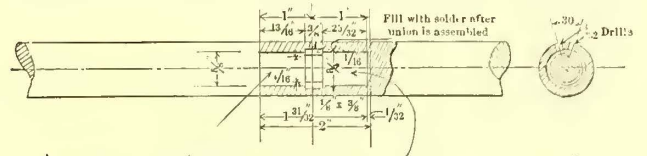
Both arc and incandescent lamps are used for lighting. The arc lamps are used for lighting the machine room and the incandescent lamps are distributed throughout the basement. Two separate and distinct lighting systems are used. Ordinarily 500-volt current taken direct from the rotary-converter leads is used to feed the 20 110-volt, five-in-series arc lamps, which illuminate the machine room and one-half of the incandescent circuits throughout the basement. The 20 arc lamps are wired alternately on different circuits so that if desired a well distributed illumination can be obtained when burning only part of them. Current for the 500-volt lighting circuit is taken direct from the machine buses so that if, for any reason, the circuit breakers on the switchboard open, there yet will be current supplied to the lighting circuit so long as the rotary converters are running. A multiple-point lighting switch mounted on one of the switchboard panels serves to connect at will the lighting circuit feed wires with any one of the machines that may be in service. This switch has points for each machine and for the feeder bus.

In the event of the 500-volt current supply being interrupted, then current is fed automatically to emergency lighting circuits which, by two arc lamps hung close to the roof of the machine room and a generous number of incandescent lamps distributed throughout the basement, will

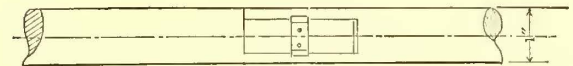
and automatically cuts in the battery and lights all the lamps on the emergency circuits.

SWITCHBOARD

The switchboard is 97 ft. long and stands on the machine floor parallel with the north wall of the substation. An illustration is presented showing one end of this board.



Female & Male part of union to be thoroughly tinned before assembly.

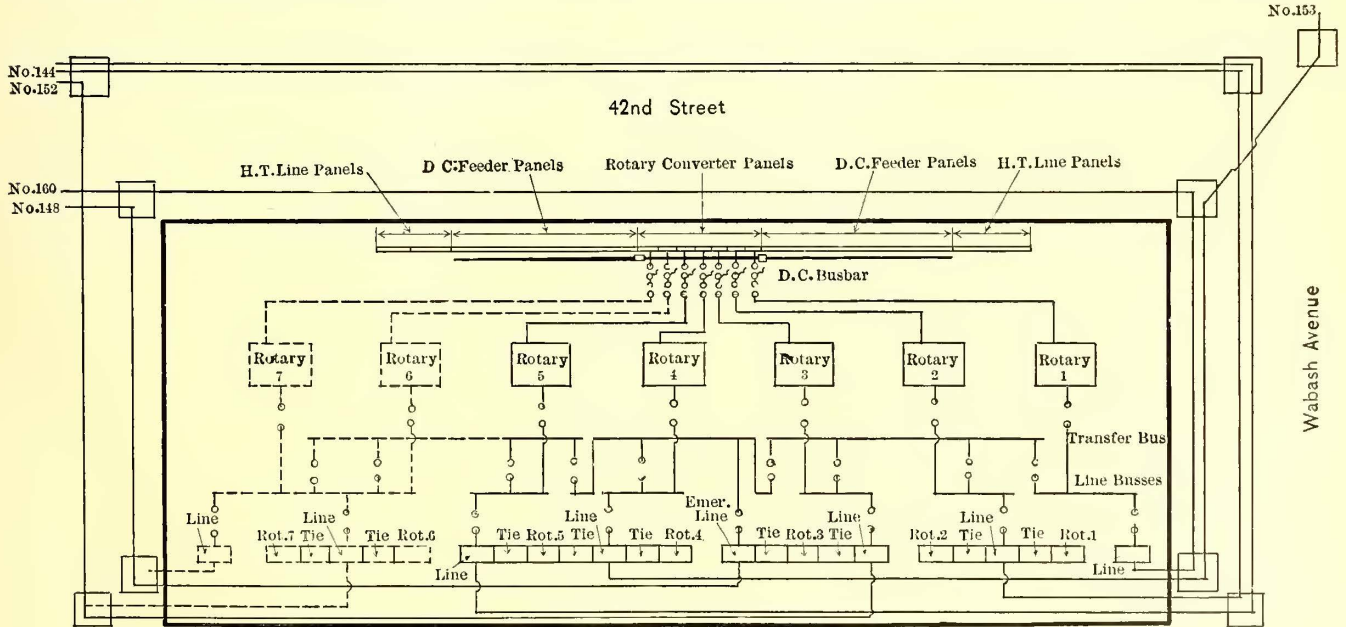


Chicago Substation—Joint for Positive Feeder Bars

Beginning at the farther end of the board, as shown in the illustration, the various groups of panels may briefly be described as follows:

First, at the end are four line panels, each with two pull button switches for controlling two oil switches, one of these being the transfer switch and the other the incoming line switch. On each line panel is mounted an overload time-limit relay, curve-drawing wattmeter, curve-drawing voltmeter, indicating ammeter, voltmeter and three single-phase wattmeters.

Next in order are the battery panel and the station lighting panel. On the former instruments are provided for controlling the 55-cell storage battery, which operates the oil switches and which was supplied by the Electric Storage Battery Company. The latter panel carries the switches controlling the substation service circuits and an integrat-



Chicago Substation—Diagram of Connections

furnish an ample illumination. The emergency circuit takes current from a storage battery which also serves to feed the control circuits for the oil switches. The automatic cutting-in of the emergency lamp circuits is done by a relay, the core of which is normally held up by current from the 500-volt circuit. When for any reason the 500-volt current is cut off the core of the relay drops by gravity

ing wattmeter measuring the current used for all station power and lighting service.

Several d.c. feeder panels are next, each being supplied with a circuit breaker, ammeter and double-throw switch which permits connecting the outgoing feeder either with the main bus directly or through an auxiliary bus and an auxiliary feeder panel to the main bus.



A totalizing direct-current panel carries a 40,000-amp ammeter with two shunts, one connected with either half of the d.c. feeder panels. On this totalizing panel are also two voltmeters (machine and bus) mounted on a single bracket, a synchronism indicator and a Bristol recording voltmeter connected with the outgoing feeder bus. The multiple-point lighting switch for connecting the lighting circuits with any desired current supply is also mounted on this panel.

In the center of the board the machine panels are located. For convenience in starting up and shutting down the rotary converters and for economy in floor space there are combined on a single panel for each machine the standard equipments of an a.c. machine panel and a d.c. machine panel. The field rheostats are ratchet-operated remote control and therefore a field ammeter is mounted on each machine panel. By observing the needle of this ammeter the operator is guided in cutting in or out resistance with the ratchet-operated rheostats. An advantage of this type of rheostat is that inasmuch as only four wires are needed to connect it properly with the board these rheostats can be located in almost any unoccupied space on the basement ceiling. On the other hand, chain-operated rheostats must necessarily be close enough to the board to admit of proper connections by means of shaft, chains or wires.

The end of the switchboard not shown in the illustration duplicates that described except for the battery panel and the lighting panel. The general scheme of the board is to have the combination a.c. and d.c. machine panels in the center, thus minimizing the copper in the main buses leading to the d.c. feeder panels on either side. The a.c. line panels are placed at the ends of the board, thus dividing the equipment into two sections.

Built in the floor below the board are sheet-steel boxes enclosing all the instrument bus wires and terminals and also all instrument wires of the different panels.

The heavy copper buses on the back of the switchboard rest on marble blocks supported by special angle-iron brackets. All the bare copper on the back of the switchboard as well as in the high-tension compartment is lacquered, so that it presents a smooth, clean surface. No cables are used between the feeder switches and the underground ducts, connection being made between these two points with solid copper bars and rods. From the terminals of the feeder switches copper bars extend through the floor to connect with horizontal conductors which are supported in porcelain blocks on a steel rack directly under the switchboard.

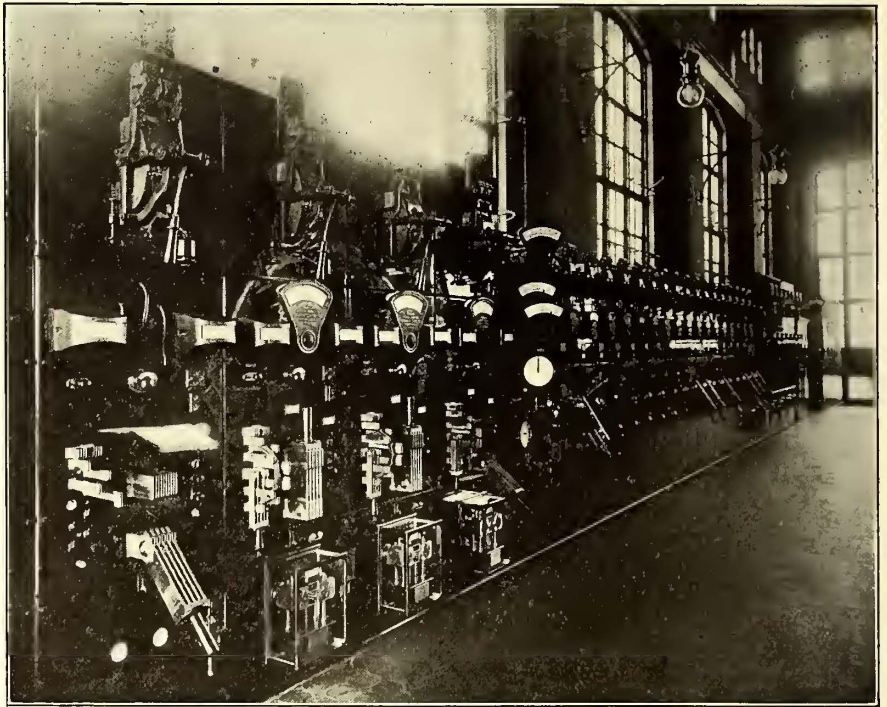
These conductors are made of 1-in. solid copper rods 20 ft. long and insulated by the Chicago City Railway at the time of erection. A view presented on page 465 shows the method of making joints in the 1-in. copper rods used as positive feeder bars. When in position these insulated copper rods do not sag and present a far neater appearance than could be obtained by the use of cables. The insulation as applied is said to last indefinitely and by test has shown itself to be fireproof.

## SHOWING EMPLOYEES THE VALUE OF RIGHT LIVING

W. F. Kelly, second vice-president and general manager of the Oakland (Cal.) Traction Company and Key Route, has issued a booklet addressed to employees of the company and entitled "It's Up to You." In this booklet Mr. Kelly tells the men that the conduct of many commends them to their employers and to all good citizens. For this class, he adds, "We have nothing but words of praise and a genuine interest in your success."

Mr. Kelly then discusses the "few who are looking for a chance to give the least service for the most money," who think that their railroad work "is only a disagreeable incident in the daily routine." He tells any that may be men of this character that they are "no credit to us, to yourselves or to your fellow-workmen."

Mr. Kelly states to the employees that "we can't get away from the fact that you are our agents and representatives before the public," and that "we are to a large degree responsible for your acts when on duty. This be-



Chicago Substation—One-Half of Board with Combined A.C.-D.C. Rotary Panels in the Foreground

ing so, we want to know that your conduct off duty is not such as to wreck you mentally, morally, physically and financially. What you do when off duty is an index to your real character, and is largely responsible for your mental and physical condition when on duty."

After speaking of the habit of drinking, card-playing, betting on horse races, etc., Mr. Kelly continues: "When we engage your service for certain duties, we include the employment of your brains as well as your bodies. We want your cheerful, willing effort and not half-hearted, grumbling discontent." Mr. Kelly speaks of the man that follows the wrong course, saying:

"His brain stopped growing because he didn't use it; he has no interest in his work other than his wages; he spends his money and leisure in drinking resorts and pool rooms; he studies the racing forms and thinks that next day he'll 'strike it lucky.' Before that day comes he has struck a prolonged vacation, and some other fellow is holding down his job."



## RECONSTRUCTION OF THE POWER SYSTEM OF THE TRI-CITY RAILWAY & LIGHT COMPANY

In the summer of 1906 the Tri-City Railway & Light Company was organized to take over and consolidate all of the street railway, gas and electric light and power companies operated in the cities of Davenport, Ia., Rock Island, Moline and East Moline, Ill. Included in the consolidation were the Peoples Power Company, operating gas and electric lighting properties in Moline and Rock Island; Peoples Light Company, gas and electric lighting properties in Davenport; Davenport Gas & Electric Company, gas and electric lighting properties in Davenport; Tri-City Railway Company, street railways in Davenport, Rock Island and Moline; Davenport & Suburban Railway Company, operating a suburban line out of Davenport; Moline, East Moline & Watertown Railway Company, operating an electric line between Moline, East Moline and Watertown. The consolidation was effected by Eastern bankers who engaged J. G. White & Company, New York, as engineers and operating managers. After a careful examination of all of the properties, plans were made to expend about \$1,500,000 in rehabilitation and improvements. Most of this money was spent on reconstruction of track of the electric railways included in the merger and an entire rearrangement and enlargement of the electric generating and distribution equipment. Work was begun on the track reconstruction in the fall of 1906, and an extended description of this part of the rehabilitation was printed in the *STREET RAILWAY JOURNAL*, Jan. 5, 1907. In that article some mention was made of the proposed changes in the generating and distribution system which, at that time, however, were not begun. During the past year this work has been completed and most of the current required for the railway, light and industrial power circuits is now generated at the combined steam and water power generating station in Moline from which it is distributed to a substation in Rock Island and a substation in Davenport across the river.

Before the consolidation of the railway and light properties the Tri-City Railway Company operated an antiquated generating station on Twenty-third Street and Second Avenue in Rock Island. It bought some current from the combined steam and water power generating station of the Peoples Power Company at Fourth Street and First Avenue, Moline. This plant also supplied current for lighting and industrial power purposes in Rock Island and Moline and also to the Peoples Light Company, of Davenport. The Davenport Gas & Electric Company had a power plant on the west side of the river, making three separate generating stations in all. The capacity of these three stations was inadequate and their operation was inefficient inasmuch as their distribution lines were often duplicated and much of the generating apparatus was of small size and out of date. In combining the three stations and redesigning the distribution system, the steam and water power station of the Peoples Power Company in Moline was selected for enlargement to supply all current for the combined properties. One 500-kw railway unit was retained at the station of the Davenport Gas & Electric Company and three generators of 650 kw total capacity were retained as an emergency plant at the old power house of the Tri-City Railway Company in Rock Island. A new substation to handle both railway and light and power load in Davenport was installed in one end of the old car house on Third Street in Davenport and a similar substation was built out of a reconstructed part of the old Tri-City Rail-

way Company's power house in Rock Island. These two substations, the single railway unit in Davenport and the main power house in Moline now supply all of the current for every purpose in the three cities.

The steam and water power generating station in Moline is situated on the south bank of the channel separating Rock Island from the Illinois shore. A triangular-shaped smaller island in this channel provides two natural water power sites. A wing dam was built some years ago by the Government extending out from the north end of Rock Island and as there is a considerable fall in the main channel on the north side of Rock Island, a normal head of 10 ft. is obtained at the generating stations. The Government has a water-power generating station on Rock Island which supplies current for the extensive manufacturing operations in the arsenal located on the island. The water-power station of the Peoples Power Company is located on the small island in the channel directly opposite the steam-power plant. As originally installed, the water wheels were connected to a line-shaft, on which were grooved pulleys for rope drive. The rope drive was carried across the tail race about 200 ft. into the steam-power plant, where it was coupled to the main line shaft 300 ft. long, from which the small generators originally installed there were driven by belts. The steam engines in the generating station on the south bank of the tail race were belt-connected to this line shaft and were used in connection with the water power transmitted by the rope drive. When the water wheels were shut down on account of ice or other reasons the steam units were depended upon to carry the entire load. About five years ago the water-power plant was rebuilt and direct-driven generators installed on the line shafts, driven by the water wheels. The old rope drive across the mill-race was taken out and two 1100-kw generators, direct-connected to Reynolds-Corliss compound engines were installed in the south end of the engine room. About one-half the length of the old line shaft in the engine room with the small generating units belt-connected to it were taken out and five additional 500-hp Stirling boilers erected in the boiler room. The two Reynolds-Corliss direct-connected engines replaced a 500-hp Buckeye engine belted to the line shaft.

When plans were made for enlarging the capacity of the steam plant in Moline another section of the old line shaft was taken out, together with a 750-hp Buckeye engine, and 4500 kw were added to the capacity of the station by installing first a 1500-kw Westinghouse-Parsons turbine unit and later a 3000-kw turbine unit of the same make. These are now located about in the center of the engine room between the two Reynolds-Corliss units, and the remaining section of the old line shaft. The turbine units are mounted at the ends of an open pit in which the condensers and circulating pumps are placed. The old and new arrangements of the power house are shown by the accompanying drawings.

Referring to the engravings showing the present arrangement of apparatus, the two units at the west end of the engine room are the horizontal cross-compound Reynolds-Corliss direct-driven alternators already referred to. The cylinders of the engines are 24 in. and 50 in. in diameter by 48-in. stroke. They are rated at 1500 hp and the generators to which they are connected are rated at 1100 kw, but the engines are equipped with double eccentrics and the valve gears may be adjusted to three-quarter cut-off. Operated in this way at 100 r.p.m., a maximum output of 1600 kw can be obtained from each unit. The engines are ordinarily run condensing, the exhaust being lead to Dean



vertical jet condensers. The condensers are supplied with water under 7 ft. head taken from an intake above the mill-race dam and the discharge is lead into the tail race.

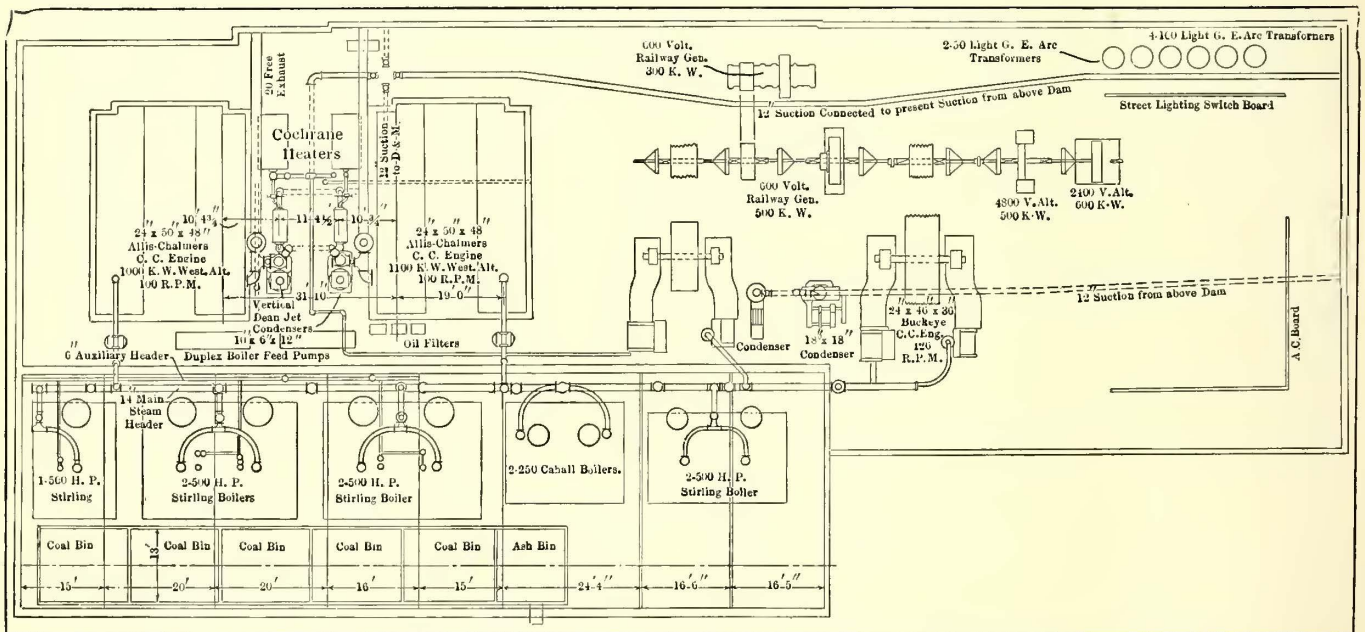
The next unit is the 1500 kw Westinghouse-Parsons turbine which was installed first. It exhausts into a Wheeler surface condenser mounted in the open pit. The condensed steam is lead into a hot well from which the boiler feed pumps draw their supply. On the opposite side of the pit is a 3000-kw Westinghouse-Parsons turbine unit exhausting into a Wheeler condenser using wet vacuum. The condensing water for this unit is also drawn from the mill-race above the dam and has a head of about 7 ft. Ordinarily no circulating pump is required, but when the head of water gets below 6 ft. the circulating pump is started. A vacuum of about 28 in. is maintained.

Only about 100 ft. of the original 300 ft. of line shaft now remains. This is connected by a rope drive to a 1000-hp Buckeye compound engine with cylinders 24 in. and 46 in. in diameter x 36-in. stroke, running at 126 r.p.m. On this shaft, which runs at 300 r.p.m., are now mounted one 500-kw motor-generator set which may be run together

with a generator of 150 kw capacity, direct connected to a Buckeye simple engine is kept in readiness for use in emergencies. In addition to these two exciter sets in the steam station there are two 50-kw exciter generators in the water-power plant. The connections to the switchboard of all of these exciter sets are arranged so that any of them may be thrown in on any of the alternators in either the steam or water-power plant.

The switchboard for both the steam and water plants is grouped around the three walls of the east end of the building. Along the north wall are the arc light and d.c. railway panels. Along the east wall are the general station panels and along the south wall are the a.c. feeder panels, having two sets of four busbars each. The power and lighting circuit step-down transformers are mounted in a room back of the a.c. switchboard panels and the lightning arresters are mounted in a gallery above the transformers.

With the addition of 4500 kw capacity by the installation of the two turbine units the size of the boiler room adjoining the engine room on the south had to be materially increased. Previous to the installation of the first



Tri-City Improvements—Old Arrangement of Power Station Machinery

or either the motor or generator may be run independently by throwing in or out friction clutches. The motor, which is wound for 5000-volt, 60-cycle alternating current, may be run as an a.c. generator by starting the engine, or it may be supplied by the generators in the water-power plant and the unit run as a motor generator for delivering 550-volt direct current for the railway load. It may also be used as synchronous motor to balance the power factor. The 1000-hp Buckeye engine is retained only for use in emergencies, and the motor-generator set is ordinarily supplied with current from the water-power plant. This arrangement, however, provides great flexibility of operation and reserve power in case of emergencies with a minimum investment in apparatus.

Mounted along the west wall of the engine room opposite the line shaft is a 600-kw 4800-550-volt motor-generator set carrying part of the railway load and operated from the water-power plant.

Direct current for exciting the fields of the alternators in the steam station is supplied by a 100-kw motor-generator set mounted in the east end of the engine room. A sep-

turbine there were five 500-hp Stirling boilers running under 200 lb. pressure. A bank of three additional boilers of the same size was added at the east end of the boiler room just before the installation of the first turbine. These boilers took up the remaining space in the old boiler room and when it was necessary to install three more boilers an addition 40 ft. wide was made on the south side of the boiler room. These three boilers were installed when the second turbine was put in. There still remains room for four more units of 500 hp each. Six of the eleven boilers are equipped with Green chain-grate automatic stokers and five with Rooney stokers. The operating shafts for the stokers are driven by 5-hp motors, but the small vertical engines supplied with the original installation are kept ready for emergencies.

Coal is stored in steel bins above the boilers. The storage bins originally installed for the first eight boilers were served by a Jeffrey conveyor with a capacity of 30 tons per hour. When the boiler house was enlarged the roof was raised and 6 ft. added to the height of the storage-bin walls. The last three boilers installed are supplied with

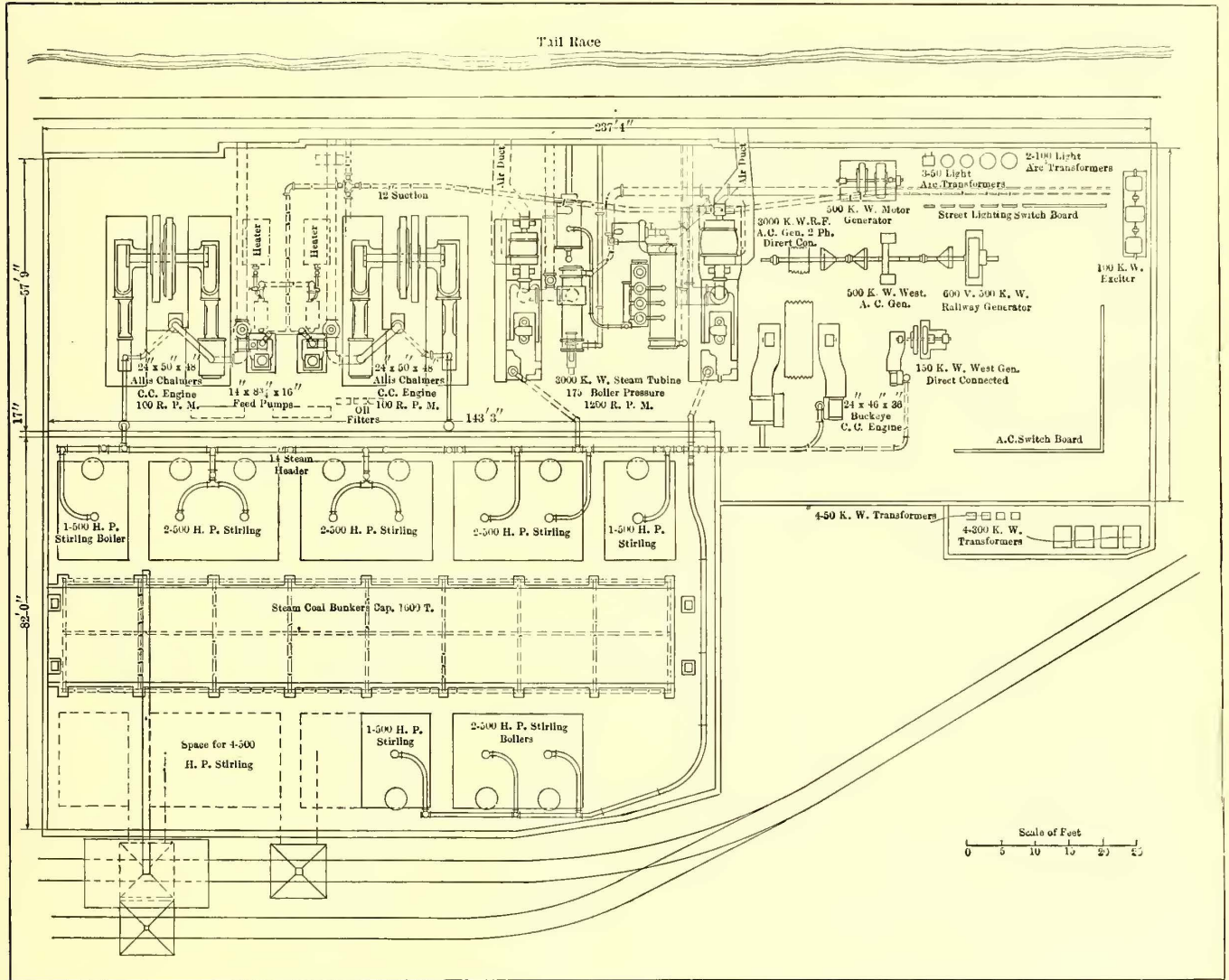


coal from a second row of storage bins of the same size as the enlarged bins opposite and which were built the entire length of the boiler room in anticipation of future enlargement. This second row of bins is supplied with coal by a Hunt conveyor with a capacity of 40 tons per hour. The two rows of bins have a total storage capacity of 2000 tons.

When the boiler room was enlarged the unloading hopper and elevator conveyor were moved from their old location out to an unloading track built along the south wall of the addition. The coal is unloaded from cars into a hopper between the rails, from which it falls through a screen onto the elevator conveyor. Ashes were formerly delivered into an elevated hopper at the east end of the boiler room. This

The water-power plant is a low one-story brick building built in the shape of an "L," with the long leg parallel to the bank of the tail race. It contains two 600-kw alternators and one 600-kw direct-current railway unit, together with two 50-kw., d.c. exciter units. The two alternating-current units and the railway unit are mounted on a sectional line shaft running the entire length of the long wing of the building. Each unit is driven by six water wheels geared through beveled gears to a section of the line shaft. There are six 56-in. Leffel water wheels and twelve 61-in. Trump water wheels all operated under a 10-ft. head. The two 50-kw exciter units are each driven by a 56-in. Trump wheel.

The line shafts to which the three large units are con-



Tri-City Improvements—New Arrangement of Power Station Machinery

hopper was moved to the south side of the building over the unloading hopper so that cinders can now be delivered into cars standing on the unloading track.

The steam drum of each boiler is connected to a main header running around the walls of the boiler room. This header now terminates just beyond the connection with the last of the three boilers recently installed. It is the intention to ultimately continue it entirely around the room, making a complete loop. Connections to all of the engines in the engine room are carried from the main header in the boiler room through the separating wall and down to the engines.

nected run at 200 r.p.m. The speed of the water wheels is governed by Woodward governors and is adjusted about 1 per cent higher than that of the engines. The alternators are operated in parallel with the steam-driven alternators and this adjustment provides for the somewhat slower regulation of the water wheels; it also insures that the wheels will deliver at all times the maximum power which is required to handle the load on the generators which they turn.

The water-power plant ordinarily handles the entire load from midnight to 6 a. m., while the steam plant is shut down. In the winter when some trouble is experienced



from needle ice, it is sometimes necessary to shut down completely for one to two weeks, but very often the water power is available the year around. Plans have been made by the Government for increasing the height and length of the wing dam at the head of the channel and when these improvements are completed an additional 2 ft. of head will be available. This will permit the installation of a 750-kw unit on the line shaft of the existing power house without adding to the number or to the size of the wheels.

The generating and transmission apparatus at the Moline power station has all been designed to fit into the general scheme of light and power circuits already in use before the consolidation and reconstruction was begun. The system employs two-phase alternating current at 60 cycles for all of the lighting and power circuits in Moline and Rock Island and for nearly all of the circuits in Davenport. All of the arc-lamp circuits on the south side of the river are now supplied with alternating current, but in Davenport the street arcs are connected to Brush machines and two d.c. power circuits—one a 500-volt circuit for elevator motors and one a 250-volt, three-wire system for small motors—are still used. The a.c. generators are all wound to deliver current at 4800 volts, and this potential is used on the primary distribution circuits connecting the substations and some of the largest users of power without interposing step-up transformers. The secondary distribution circuits for incandescent lighting and small motors in general carry current at 2200 volts which is stepped down to 110 and 220 volts through pole transformers supplied to each individual customer. The alternating-current arc light circuits in Moline and Rock Island are supplied through tub transformers wound to give the necessary voltage. The common practice is to connect 100 lamps in series on a circuit, each lamp requiring 80 volts or a total of 8000 volts. In Moline 350 arc lights are supplied from the main power station in this manner and in Rock Island 200 lights from the Rock Island station. The incandescent lighting circuits are supplied with individual voltage regulators to maintain a constant voltage. The synchronous motors of the motor-generators in the main power station and in the Davenport and Rock Island stations are wound for current at 4800 volts and are fed direct from the primary transmission lines.

The old power house of the Tri-City Railway Company in Rock Island, which has been transformed into a substation and separate generating plant for use in emergencies, formerly contained nine generators with a total capacity of 1100 kw. Eight of these generators were Thomson-Houston machines of 75 kw capacity each and are of 500 kw capacity. The eight small machines were belted to eight Ideal engines and the large generator was belted to a 600-hp Buckeye engine. When the plant was abandoned for continuous operation six of these small units were taken out and scrapped. Two of the small generators and engines and the Buckeye engine and 500-kw generator were retained. Two 500-hp Stirling boilers were left to supply steam. This plant was closed down in September, 1907, and unless some extraordinary emergency arises will probably never again be started up. One end of the engine room was walled off and a 1000-kw capacity railway substation equipment installed. This substation contains two 400-kw motor-generator sets taking current on the a.c. side at 60 cycles and 4800 volts and delivering direct current at 550 volts to the street railway feeder circuits, of which there are five running out of the substation. There

are two sets of step-down transformers for delivering current at 2200 volts for the lighting and power circuits; and one set of transformers for supplying a 440-volt circuit running into the business district of Rock Island for small motors and other light power demands.

#### SUBSTATIONS

The Davenport substation contains two 400-kw motor-generator sets similar to those in the Rock Island substation and in addition three Westinghouse rotary converters. Two of these converters are of 300 kw capacity and the third is of 200 kw capacity. They take 440-volt current on the a.c. side and deliver 550-volt current on the d.c. side. The smaller unit is used for supplying the 500-volt elevator circuit and the 250-volt, three-wire system circuit which is split from the same set of busbars as the 500-volt elevator circuit. The two large rotaries and the two motor-generator sets supply the railway feeder lines. In addition to these machines there are four Brush arc machines connected in pairs to 200-hp General Electric synchronous motors. Each of the arc machines supplies 200 magnetite arc lamps. At the present time only 625 lamps are in operation.

The two motor-generator sets and the synchronous motors driving the arc machines are supplied with current at 4800 volts direct from the primary transmission lines. The three rotaries, however, are supplied with 440-volt a.c. taken from the secondaries of step-down transformers mounted in the basement, where the transformers for the power and lighting circuits are also placed. There is room in the station for two more motor-generator sets of the same size as those already installed.

The switchboard consists of 30 panels. Eight light and power circuits are handled on 4 of these panels; 10 panels are required for the station switching, 6 panels for the 8 arc light circuits and 10 panels for the 5 d.c. railway circuits and 2 d.c. power circuits.

The Davenport and Rock Island substations are connected with the main generating station at Moline by two separate circuits, each carrying 4800-volt, two-phase current. Each circuit consists of four 200,000-circ. mil cables and has sufficient capacity to carry the entire load of either of the substations in an emergency. In addition to these two primary transmission circuits the power house and the two substations are inter-connected with a 1,000,000-circ. mil d.c. feed cable, which serves to relieve any sudden demand for current on any one of the substations. This main cable is connected direct to the busses of the railway circuit panels in each of the three stations. In case of a shutdown at either one of the substations, the local feeder circuits are handled from the switchboard in the same manner as though the station equipment was in.

The 500-kw unit at the Davenport Gas & Electric Company's plant is a Crocker-Wheeler generator direct connected to a Corliss compound engine built by the Murray Iron Works. The principal reason why it is retained as an isolated unit is that the Davenport Gas & Electric Company operates in the business district of Davenport an exhaust steam-heating system and the exhaust from this engine is sold for heating purposes.

#### ENGINEERING

The generating stations and transmission system are under the direction of F. W. Reimer, chief electrical engineer, who has had charge of most of the reconstruction work. This paper is indebted to J. F. Porter, president of the Tri-City Railway & Light Company, for the data from which this description has been prepared.



## OPERATION OF THE CLEVELAND STREET RAILWAY SYSTEM BY A NEW COMPANY—IV

The terms of the so-called "renewal" ordinance or "security" franchise granted to the Cleveland Electric Railway by the City Council of Cleveland on April 27 are different in several important respects from those which many people in Cleveland believe are embodied in this measure.

It will be understood that the provisions of the ordinance as granted are substantially those favored by the owners of the stock of the Municipal Traction Company, which leased the property of the Cleveland Electric Railway on the same day on which the ordinance granting the franchise to the latter company was passed by the Council. This issue of the *ELECTRIC RAILWAY JOURNAL* contains the substance of all of the clauses of the ordinance, omitting only matters of a routine nature or description of lines, etc.

In order to bring out clearly some of the differences between this measure and other forms of ordinances, it was thought best to compare the various features with the terms of the ordinance proposed by the Cleveland Electric Railway, but not accepted. The two ordinances are given in parallel columns on the following pages.

It is strange to note that the ordinance granted to the Cleveland Electric Railway Company, when it had the support of the city officials who control the Municipal Traction Company, provides for fares of 5 cents and six tickets for 25 cents, while the ordinance suggested by the company, but not accepted, stipulated fares of 5 cents and seven tickets for 25 cents. In many other particulars the present ordinance is more favorable to the company than that which was not accepted.

The testimony offered during the valuation proceedings which preceded the lease of the system by the new company was very clear regarding the inadequacy of the fares at the rate of seven tickets for 25 cents, which were suggested in the ordinance that was not accepted. F. H. Goff, arbitrator for the Cleveland Electric Railway, said during these proceedings that when the company offered to accept a franchise based on seven tickets for 25 cents the officials "were driven pretty nearly to the last ditch, and it seemed to them that they would better accept the franchise on these terms and do the best they could until possibly they had become wiser or the people had become wiser. But they did not contemplate that they could ever receive revenue enough from operation or borrowing that would permit any development of importance." Henry J. Davies, secretary of the company, also expressed the opinion that the revenue based on a rate of seven rides for 25 cents would not earn a dividend of 6 per cent upon the value fixed in the negotiations, on its conclusion, of the physical value and the franchises.

Taking up the various points of difference between the two forms of franchise, it is shown that the ordinance under which operation is now conducted grants a franchise for 25 years, the maximum period possible under the laws of the State of Ohio. The ordinance that was not accepted provided for a 20-year franchise. The latter measure also made provision for many extensions; the subject of the construction of extensions is not covered by the renewal ordinance as passed.

The motive power stipulated in the ordinance under which the property is now operated may be electricity or such other motive power as the Council shall approve. Under the ordinance that was not accepted the motive

power was to be electricity without option of change. The ordinance approved by the municipal officials provided merely that the tracks hereafter laid should conform in style and construction with the general ordinances of the city, while the ordinance that was not accepted stipulated the use of a girder grooved rail or such other rail as might be agreed upon between the company and the Board of Public Service.

The clause regarding paving is especially favorable to the new company. It provides that the railway shall not be required to repave either by virtue of its obligation to repair the pavement in streets occupied by its tracks or by virtue of any requirement of the general ordinances of the city.

Under the ordinance which was not accepted, the company would have been obliged to sprinkle the pavement between the outer rails of its tracks from April 1 to Nov. 1 of each year, but the company now leased to the Municipal Traction Company is not bound by any provision concerning sprinkling.

The ordinance proposed by the company, but not accepted, would have required it to seek the consent of the city to change routes or abandon routes or any part thereof, and would have enabled the city to establish such new routes and to order such changes of routes as it might deem serviceable. The city reserves no such specific authority in the ordinance as granted.

The ordinance which was not approved provided that the cars should be kept clean and well ventilated and heated from Nov. 1 to April 1, at a temperature of not less than 60 deg. Fahr. There is no provision concerning these features in the ordinance as passed.

The transfer limit under the existing ordinance is five minutes, whereas a limit of 15 minutes was stipulated in the ordinance proposed by the company, but not accepted. One peculiar provision illustrates a feature of the situation prevailing in Cleveland to-day. It is provided in the ordinance as passed that "if cars upon two or more routes are operated regularly along the same street, passengers who are able to reach their destination by one of said routes without transfer to another of said routes shall board a car upon the route reaching such destination and shall not be entitled to a transfer thereto from any other route." A material difference is observed in the somewhat similar clause in the ordinance that was not accepted, which stated "if cars upon two or more routes are operated regularly along the same street, any passenger who shall be able to reach his destination by one of said routes without transferring to another of said routes shall board a car upon that route, so that the operation of cars shall not be delayed, or the service hampered, by unnecessary transfers." It will be noted that the latter clause does not state that the passenger who might have boarded the wrong car by mistake shall not be entitled to a transfer.

The special provisions regarding various crosstown lines are similar, except that the time limit on transfers is made five minutes for the company as now operated as compared with 15 minutes in the ordinance suggested before control passed to the owners of the stock of the Municipal Traction Company.

Under the ordinance as passed, two children shall be carried for a single fare only when accompanied by a passenger paying full fare. The ordinance proposed and not accepted did not qualify the use of this rate for children by requiring that they be accompanied by a passenger paying full fare.



PROVISIONS OF RENEWAL ORDINANCE  
GRANTED BY THE CITY COUNCIL OF  
CLEVELAND

Part of Preamble

It is the common desire of the city and the company to have the grants of the company renewed, the outstanding grants surrendered, the rate of fare reduced, the transfer privileges made definite and the rights of the city as to regulation and possible acquisition made certain.

Length of Franchise

The Cleveland Electric Railway Company is hereby granted, upon the conditions herein provided, a renewal for 25 years from the date of the passage of this ordinance of the right to maintain and operate its existing street railway by single or more tracks as the same now exists in the city of Cleveland.

Motive Power

The motive power for the operation of the company's railway shall be electricity or such other motive power as the Council shall approve, the construction and equipment first class and to the satisfaction of the city. The tracks hereafter laid in paved streets, either as new construction or as renewal of existing construction, shall with respect to their style and construction conform to the general ordinances of the city.

Transmission of Power

The right is hereby given to the company to maintain its present lines of poles and wires and to erect and maintain such other lines of poles and wires as may be necessary to connect its power houses and its street railway system and to maintain its feeder cables as at present located in the city water-works tunnel, or hereafter located in said tunnel or other tunnels or conduits with the permission of the Board of Public Service, and to maintain its present intake and discharge water pipes and intake cribs between its power house on Washington Avenue N. W. and the Cuyahoga River, and such other intakes as may hereafter be authorized by said board; and wherever any of the routes provide for or include private right of way or property the company is granted the right to maintain and operate its tracks on and across any and all intervening streets and to maintain all poles and wires necessary to such purpose.

Joint Use of Tracks

The city reserves the right to grant to any other person or corporation the right jointly to occupy and use for street railway purposes within the following described territory the whole or any part of the tracks, poles and wires and electric current therein authorized to be maintained and operated and all other appliances and power now or hereafter used for street railway purposes, this territory being known as the central district of the city. \* \* \* The right of joint occupancy and use herein reserved shall be upon such terms and conditions as the Council may prescribe.

PROVISIONS OF ORDINANCE PROPOSED BY  
CLEVELAND ELECTRIC RAILWAY COM-  
PANY, BUT NOT ACCEPTED

Part of Preamble

There is an urgent demand for extensions of existing lines in various parts of the city and this company is best prepared to construct such extensions and to operate them as parts of its present street railway and to interchange transfers between such extensions and its present street railway and thereby to operate a comprehensive system without building unnecessary tracks upon the streets of the city, and to carry any passenger from any point in the city to any other point for a single fare.

The company has repeatedly stated to this Council that it was willing to reduce the rates of fare which it has the right during the unexpired portions of existing franchises to charge, to enlarge and extend its transfer system and to construct at once and operate as a part of its existing street railway, without increase of fare and with the most liberal transfer privileges, all needed street railway extensions, provided the Council would grant to it an extension of its franchises.

Length of Franchise

In order to remove the uncertainties in existing grants, to terminate all litigation as to franchises, to fix a single date for the expiration of all the company's franchises, to obtain a substantial reduction in the rates of fare and an increase in the transfer privileges accorded to passengers and to fix the terms and conditions upon which the company's existing grants may be renewed and its railroad system may be operated during a period of 20 years; be it ordained that the Cleveland Electric Railway Company is hereby granted a renewal for 20 years from the date of the passage, legal publication and written acceptance of this ordinance of the right to maintain and operate its existing street railway in the city of Cleveland.

Extensions

The company is hereby granted permission to construct, maintain and operate double-track extensions of its existing street railway tracks in various streets provided it shall obtain and present to the Council before the final reading of this ordinance the written consent of a majority of the property holders on the various streets. If the company shall be unable to obtain these consents, it shall not acquire the right to build such extensions under this provision. [One extension was to be built within a year from the date of acceptance of the ordinance and others within three years.]

Motive Power

The motive power for the operation of the company's railway and the extensions thereof hereby authorized shall be electricity, the construction and equipment first class and to the satisfaction of the city. The tracks hereafter laid in paved streets shall be laid with girder grooved rail 8 in. or more in depth, the top of the flange or lip of which shall be not more than  $\frac{1}{2}$  in. lower than the upper surface of the head of the rail, the outer edge of the head of the rail to be at right angles to its upper surface, or with such other rail as the Board of Public Service and the company may hereafter agree upon.

Transmission of Power

The right is hereby granted to the company to maintain its present lines of poles and wires and to erect and maintain such other lines of poles and wires as may be necessary to connect its power houses and its railroad system, to maintain its feeder cables as at present located in the city water-works tunnel, and to maintain its present intake and discharge water pipes and intake cribs between its power house on Washington Street and the Cuyahoga River, and, wherever any of the said routes provides for or includes private right of way or property, to lay tracks over and across any and all intervening streets and to erect all poles and wires necessary for such purpose.

Joint Use of Tracks

The city reserves the right to grant to any other person or corporation the right to jointly occupy and use for street railroad purposes the whole or any part of the tracks herein authorized to be maintained and operated on \* \* \* upon such terms and conditions as the Council may prescribe.



*Ordinance Granted by City Council  
(Continued).*

**Paving**

The company shall maintain in constant repair the pavement within a space 7 ft. in width for single track and 16 ft. in width for double track in all paved streets occupied by its tracks, whether such streets were paved at the time of the passage of this ordinance or subsequently thereto, but the company shall not be required to repave by virtue of this obligation to repair, nor by virtue of any requirement of the general ordinances of the city of Cleveland during the continuance of this grant.

**Equipment**

The company shall place and continue upon all its lines cars of modern design, equipped and furnished with such improvements and appliances as shall be deemed by the city to be necessary and proper for the safety, convenience and comfort of the passengers and the public, and shall run such cars in such numbers, at such intervals of time and under such rules and regulations as the city may from time to time require, and shall cause such cars to stop at such places as the city may designate at which passengers may desire to leave or enter the same.

The company shall operate, under such regulations and at such rates of fare as the Council shall from time to time fix, not less than the rates provided in a section hereof, such night cars between the hours of 12 midnight and 5 a. m. as the city may deem to be reasonably necessary to accommodate the public, and shall at all times maintain its tracks and all of its equipment in good repair.

**Fares**

The rate of fare for a single continuous ride within the present limits of the city of Cleveland in one direction over any route of the company shall be 5 cents.

The company shall sell on all its cars at all times tickets at the rate of six tickets for 25 cents, each of which tickets shall entitle the holder to one such ride.

**Transfers**

Any passenger demanding a transfer ticket at the time of paying such cash or ticket fare shall be entitled without additional charge to transfer from the route on which he may have paid such fare to any other route of the company, except in a substantially opposite direction on a route parallel or substantially parallel thereto, and to ride continuously to any point upon such second route within the present limits of the city of Cleveland, provided he transfer to a car upon such second route within five minutes after leaving the car upon which he shall have paid fare, or to the first car of such company passing such transfer point upon such second route, and at the first point of intersection of the routes reached by the car upon which he shall have paid fare.

If cars upon two or more routes are operated regularly along the same street, passengers who are able to reach their destination by one of the routes without transfer to another of the routes shall board a car upon the route reaching such destination and shall not be entitled to a transfer thereto from any other route.

If at any time during the continuance of this grant the company charges a rate of fare lower than that authorized herein, the company may, during such time, with the consent of the Council of the city of Cleveland, make such charge for transfers as shall not increase the fare for a ride and transfer in the aggregate above the ticket rate of fare herein provided.

Any passenger getting upon a car on the East Fifty-fifth Street crosstown line of the company or upon its crosstown line in East 105th Street, Woodhill Road and East Ninety-third Street shall upon demand at the time of paying such cash or ticket fare or presenting within the time herein provided a transfer ticket to such crosstown line from any intersecting line of the company be entitled without additional charge to transfer to any other route of the company intersecting such crosstown line and to ride to any point upon such intersecting route, provided he transfer to

*Ordinance Proposed by Cleveland Electric Railway Company  
(Continued).*

**Paving**

The company shall maintain in constant repair the space within its tracks, the space between its tracks and a space 1 ft. in width on the outer side of each track; and when it shall construct any of the extensions herein authorized in streets already paved it shall pay to the city for the benefit of the abutting property owners the value of the strip of pavement 16 ft. in width to be occupied by its tracks.

**Sprinkling Streets**

The company, when necessary in order to prevent nuisance from dust, shall sprinkle or cause to be sprinkled the surface of the pavement between the outer rails of its tracks during the period from April 1 to Nov. 1 of each year.

**Changing Routes**

The company may, with the consent of the city, change any route or abandon any route or any part thereof, and the city may establish such new routes and from time to time order such changes of routes as it shall deem advisable for the convenience and better service of the public.

**Equipment**

The company shall place and continue upon all of its lines cars of modern design, equipped and furnished with such improvements and appliances as shall be deemed by the city to be necessary and proper for the safety, convenience and comfort of passengers and the public, shall run such cars in such numbers and at such intervals of time and under such rules and regulations as the city may from time to time require and cause such cars to stop at such places as the city may designate at which passengers may desire to leave or enter the same.

The company shall operate such all-night cars as the city may deem to be reasonably necessary to accommodate the public and shall at all times maintain its tracks and all of its equipment in good repair.

**Cleaning and Heating Cars**

The cars operated by the company under this grant shall be kept clean, shall be well ventilated and from Nov. 1 until April 1 of each year shall be kept heated when in operation to a temperature of not less than 60 deg. Fahr.

**Fares**

The rate of fare for a single continuous ride in one direction over any route of the company shall be 5 cents.

The company shall sell tickets on all its cars at all times at the rate of seven tickets for 25 cents, each of which tickets shall entitle the holder to one such ride.

**Transfers**

Any passenger demanding a transfer ticket at the time of paying such cash or ticket fare shall be entitled without additional charge to transfer from the route on which he shall have paid such fare to any other route of the company (except in a substantially opposite direction on a route next parallel or substantially parallel thereto) and to ride continuously to any point upon such second route within the city of Cleveland, provided he transfer to a car upon such second route within 15 minutes after leaving the car upon which he shall have paid fare or to the first car of the company passing upon such second route and at the first point of intersection of the routes reached by the car upon which he shall have paid fare.

If cars upon two or more routes are operated regularly along the same street any passenger who shall be able to reach his destination by one of the routes without transferring to another of the routes shall board a car upon that route, so that the operation of cars shall not be delayed or the service hampered by unnecessary transfers.

Any passenger getting upon a car on the East Fifty-fifth Street crosstown line of the company or upon its crosstown line in East 105th Street, Woodhill Road and East Ninety-third Street or any other crosstown line in the city hereafter constructed and operated by the company shall upon demand at the time of paying such cash or ticket fare or presenting within the time herein provided a transfer ticket to such crosstown line from any intersecting line of the company be entitled without additional charge to transfer to any other route of the company intersecting such crosstown line and to ride to any point upon such intersecting route, provided he transfer to a car upon such last-mentioned route within 15 minutes after leaving such crosstown car or to the first regular car upon such last-mentioned route.



*Ordinance Granted by City Council  
(Continued).*

a car upon such last-mentioned route within five minutes after leaving such crosstown car or to the first regular car upon such last-mentioned route.

**Abuse of Transfers**

The company shall not be required, however, to furnish a round trip for a single fare nor to carry any passenger to any point upon its railway and from such point to the vicinity of his starting point for a single fare; and the company may make such reasonable regulations, not inconsistent with the provisions of this ordinance, as may be necessary to prevent misuse of transfers.

**Fares for Children**

Any child under six years of age accompanied by a person paying fare shall be carried free; and two persons under six years of age, when accompanied by a passenger paying full fare, shall be carried for a single fare.

**Regulation of Fares and Transfers**

The company may make and enforce proper and reasonable rules and regulations relating to the collection of fares and the issuance and acceptance of transfers upon the several routes of the company.

**Special Service**

The company may transport upon and along its lines in suitable cars such material, supplies, appliances and tools as it may need for the construction, maintenance and operation of its road. It may carry upon its passenger cars, or upon other cars, mail for the Government of the United States. It may carry packages and make a reasonable charge for such carriage. It may operate funeral cars, observation cars, express passenger service and other special cars, at rates of fare to be fixed from time to time by the Council of the city of Cleveland, not lower than the rate herein fixed for the carriage of passengers. But the transportation of materials, supplies, appliances, tools, mail and packages, and the operation of special cars, shall not be permitted to interfere with or delay the carriage of passengers, and shall be at all times subject to regulation.

**Right to Purchase by the City**

The city reserves the right to purchase the street railroad with all additions or extensions within the then city limits at the termination of this grant, provided it have the power so to do, for such price and upon such terms and conditions as may be agreed upon between the city and the company, or, upon their failure to agree, then for such price and upon such terms as may be fixed by a board of arbitration consisting of three persons, a majority of whom shall decide all questions.

In case of arbitration in the purchase of the street railroad, the city shall give written notice of its intention so to arbitrate and name therein one arbitrator, said notice to be given not more than 18 months nor less than 12 months prior to the termination of this grant. The company shall name in writing within 10 days after receiving such notice, one arbitrator; the two within 10 days thereafter shall agree upon a third arbitrator; or on failure of the company so to name an arbitrator, or the two arbitrators to name the third, within the times herein specified, the Probate Judge of Cuyahoga County, or in the event of his being disqualified by reason of interest in the company or declining to act, then the presiding judge of the Court of Common Pleas of the county, or such judge thereof as may be designated by the presiding judge, may name either or both, as the case may be, upon the application of the city. In case of the death, disability or refusal to act of any arbitrator, his place shall be filled in the manner provided for the making of his appointment.

**Price to Be Paid in the Event of Purchase**

The price which the city shall pay for such street railroad shall be its value for street railroad purposes and shall

*Ordinance Proposed by Cleveland Electric Railway Company  
(Continued).*

**Abuse of Transfers**

The company shall not be required, however, to furnish a round trip for a single fare nor to carry any passenger to any point upon its railway and from such point to the vicinity of his starting point for a single fare; and it may make reasonable regulations for the prevention of fraudulent use of transfer tickets, not inconsistent with the provisions of this ordinance.

Any person who shall sell or give away, or any person who shall purchase or accept from any one other than an authorized employee of the company any transfer ticket of the company shall be deemed guilty of a misdemeanor and on conviction thereof may be fined in any sum not exceeding \$25.

**Fares for Children**

Any child under six years of age accompanied by a person paying fare shall be carried free; and two children under six years of age shall be carried for a single fare.

**Regulation of Fares and Transfers**

The company may make and enforce proper and reasonable rules and regulations relating to the collection of fares and the issuance and acceptance of transfers upon its several routes and the extensions hereby authorized.

**Special Service**

The company may transport upon and along its tracks in suitable cars such material, supplies, appliances and tools as it may need for the construction, maintenance and operation of its railroad. It may carry upon its passenger cars, or upon other cars, mail for the United States. It may carry packages and may make a reasonable charge for such carriage. It may operate sprinkling cars, funeral cars, observation cars and other special cars, but the transportation of such material, supplies, appliances, tools, mail and packages and the operation of such cars shall not be permitted to interfere with or delay the carriage of passengers and shall be at all times subject to regulation by the city.

**Annexations to Cleveland**

If territory contiguous to the city in which the company at the time shall have a right to operate a street railroad shall be annexed to and become part of the city, the provisions of this ordinance shall apply to the company's property and rights in the territory so annexed, anything in its franchises to the contrary notwithstanding, it being the intention of this grant that the rates of fare and all other conditions hereof shall, during the life of the grant, apply to the entire railway system of the company within the city of Cleveland.

**Right to Purchase by the City**

The city reserves the right to purchase at the termination of this grant so much of the company's street railway as may be at that time within the limits of the city of Cleveland, provided it shall have the power at that time so to do, for such price and upon such terms and conditions as may be agreed upon between the city and the company, or, if they fail to agree, for such price and upon such terms and conditions as may be fixed by a board of arbitration, to consist of three persons, of whom one shall be named by the city, one by the company and one by the other two, or, if they shall be unable to agree, by the Probate Judge of Cuyahoga County.

If the city shall elect to purchase the street railway, it shall give at least six months' written notice of its intention so to do, and in the notice shall name an arbitrator. The company shall, within 30 days thereafter, in writing, name an arbitrator, or if it refuse or fail so to do such second arbitrator may be appointed by the Probate Judge. The two arbitrators so selected shall, within 30 days thereafter, name the third arbitrator, or on their failure to agree the Probate Judge of Cuyahoga County may appoint the third arbitrator. In case of the death of any arbitrator, or of his inability or refusal to act, his place shall be filled in the manner provided for the making of his appointment. Such purchase, however, shall not be consummated, nor shall the purchase price be paid unless the purchase be approved by the electors of the city by vote at the next general election or an earlier special election, nor unless two-thirds of the votes cast at such election be in favor of such purchase.

**Price to Be Paid in the Event of Purchase**

The price of purchase shall be the value of the company's property as an operating street railway.



*Ordinance Granted by City Council  
(Continued).*

be obtained as follows: The cost of reproduction shall be estimated and from this shall be deducted a reasonable amount for depreciation. All the physical property of every nature within the then city limits used in the operation of the railroad shall be included in the valuation. Separate itemized schedules, with values, shall be made under the following titles:

1. Land. 2. Power plant, including land, buildings and machinery. 3. All other buildings. 4. Tracks, including poles, wires and appurtenances. 5. Street pavements and foundations to the extent paid for by the company. 6. Rolling stock. 7. Miscellaneous.

To the total valuation of the above items, if the city shall exercise its right and purchase the property under this section, 10 per cent shall be added. But in arriving at the valuation the franchises and privileges granted by the city shall not be estimated or paid for. The city reserves the right to decline to take the property at the valuation fixed by arbitration as above provided.

**Obligation at Expiration of Grant**

If at the expiration of this franchise no extension or renewal thereof is granted by the city, and the city does not then purchase the property, any person to whom a franchise may be granted to operate a railroad over the then existing routes shall have the right and be under obligation to purchase the railroad upon the terms provided for purchase by the city in the foregoing section.

**Use of Bridges and Viaducts**

The company shall pay to the city \$3,000 per year for the use of the city's tracks and appliances on the bridges, viaducts and elsewhere in the city and shall renew, maintain and keep these tracks and appliances in constant repair. The city reserves the right, however, from time to time to adjust and fix the sum to be paid by the company for the uses herein provided by the ordinance of the Council, the sum so to be fixed, however, not to exceed at any time an amount equal to 6 per cent per annum upon the cost of the tracks and appliances belonging to the city so used, and imposing and continuing upon the company the obligation of renewal, maintenance and repair above provided. Should the city at any time grant to any other company the right jointly to use any of its tracks covered by this section, the payments to be made to the city for such use by the grantee herein and such other company, or companies, shall be apportioned by the city as the Council shall deem just, the aggregate sums paid not exceeding the maximum hereinbefore provided to be paid by the company.

**Control by the Council**

The construction, maintenance and operation of the street railroads herein authorized shall be subject to and governed by the general street railroad ordinances now in force, except as the same are herein modified, and future ordinances and regulations of the city not inconsistent herewith, except that the company shall not be required to pay any car license fee.

**Valid as to Any Part**

The grantee may exercise the rights hereby granted on any street or highway or part thereof, or by any one provision of this ordinance, notwithstanding its right may be disputed or enjoined or held to be invalid over any other street or highway or part thereof, or under any provision of this ordinance, it being the intent of the Council that the grant hereby made may be exercised and held to be valid as to any part or provision, notwithstanding its invalidity as to any other.

**Forfeiture**

In case of any failure of the company to do and perform each and every one of the terms and conditions herein stipulated to be performed by it, or failure in any wise to comply with the general ordinances of the city of Cleveland relating to street railroads now or hereafter in force and not inconsistent with the specific provisions of this ordinance, and such failure shall continue for six months after written notice to the Cleveland Electric Railway Company from the city of its intention to exact a forfeiture by reason of such failure, the company shall thereupon forfeit all and singular the rights and privileges herein granted, and thereafter all such rights and privileges shall cease, and such forfeiture shall be declared and enforced in the manner provided in Section 1891 of the revised ordinances of the city of Cleveland of 1907.

**Date of Taking Effect**

This ordinance shall take effect and be in force from and after its passage and legal publication and the acceptance thereof by the company in writing, except that the provisions of this ordinance as to the issuance and acceptance of transfers and sale of tickets shall not take effect until 90 days from the date of the passage and publication hereof.

*Ordinance Proposed by Cleveland Electric Railway Company  
(Continued).*

**Obligation at Expiration of Grant**

If at the expiration of this franchise no extension or renewal thereof is granted by the city and the city does not then purchase the property, any person to whom a franchise may be granted to operate a railroad over the then existing routes shall have the right, and be under obligations, to purchase the railroad under the terms provided for the purchase by the city in the foregoing section.

**Use of Bridges and Viaducts**

The company shall pay to the city of Cleveland \$3,000 per year for the use of the city's tracks on the bridges and viaducts of the city.

**Control by the Council**

The construction, maintenance and operation of the street railroad and the enjoyment of the privileges hereby granted shall be subject to and governed by the general street railroad ordinances now in force, except as the same are herein modified, and future ordinances and regulations of the city in the exercise of its police powers, not inconsistent herewith.

**Forfeiture**

In case of any failure of the company to do and perform each and every one of the terms and conditions herein stipulated to be performed by it, or failure in any wise to comply with the general ordinances of the city relating to street railroads now or hereafter in force and not inconsistent with the specific provisions of this ordinance, the company shall, upon such failure, forfeit all and singular the rights and privileges herein granted, and thereafter all such rights and privileges shall cease, upon the passage of an ordinance by the Council of said city declaring a forfeiture thereof for such failure.

**Date of Taking Effect**

This ordinance shall be in force from and after its passage and legal publication, the acceptance thereof by the company and the payment by it of the cost of such publication.



Some important differences are also to be observed in the clause governing special service. The present company has permission to operate an express passenger service, for which no provision was made in the ordinance requested by the old company. Consistent with the omission of a requirement that the track be sprinkled is the failure to mention the operation of sprinkling cars, which is included in the ordinance that was not approved.

When the officials who are no longer in control of the company sought a renewal of the rights of the corporation, they agreed that if outlying territory should be annexed to the city, the same provisions as to fare and other conditions should apply; no provision affecting annexation is included in the ordinance passed.

The ordinance as passed prescribes a method of valuation of the property in the event of purchase, but no specific method is outlined in the original ordinance, which simply provided that the price should be the value of the property as an operating street railway.

It is expressly stipulated in the existing ordinance that the company shall not be required to pay any car license fee, but no such favorable mention of this important item was included in the ordinance that was not accepted.

*(To be continued)*

**COMMUNICATION**

**ORGANIZATION NECESSARY FOR INTERURBAN LINES IF BUSINESS IS TO BE HELD**

July 28, 1908.

To the Editors:

The writer gives herewith some actual experiences which show that a complete organization is necessary to promote interurban interests and take care of business that is offered.

A line in one State had a carload shipment offered for a point in the adjoining States. This shipment would have to pass over four lines. It took the traffic man four days to secure the necessary information regarding the movement of this carload. If the shipper had not been a patient man the originating line would have lost the shipment, not only for itself, but for the connecting roads. The shipper could have secured the necessary information from a steam road in about five minutes and the shipment could have gone forward on the same day.

The writer was standing at a ticket window in one of the interurban centers and heard a lady making an inquiry regarding the route and rate to a common point in another State, a distance of about 250 miles. The ticket agent told her that he did not know whether her destination was on an electric line, but he thought it was. He was unable to quote a rate to that point. As the prospective passenger was about to go to the steam line, the writer, who was familiar with the place which the passenger wanted to reach, took a part in the conversation and put the lady on the right track and a ticket was sold as far as the agent had rates. Proper and authentic information would have helped the agent in this case.

The foregoing case started some inquiry on the part of the writer, who stopped at another ticket window in a city of considerable size in the next State and asked for rates to 10 places in another State, in which only three lines were interested; but the agent could quote rates to only five of these points. The writer then tried the same experiment at another city that claims to be an interurban center, and

secured rates to six out of 10 points regarding which information was asked. All of the points to which rates were asked are known by steam lines as "common points" or places where there is more than one railroad.

This is deplorable and no one knows how much business is lost to the interurban lines by the lack of proper information. A passenger will ask for information and, if it is not given, will go to an office where he can get it, and will travel or ship by the route that furnishes the desired information.

If proper assistance and encouragement are given to the Central Electric Traffic Association all of the information necessary can be put in the hands of every agent at very small cost. When each agent has this information he becomes a soliciting agent for every other line and the amount of through business that he may secure is almost beyond estimate.

It is only through associations of this kind that reliable and thorough information can be transmitted successfully, and the expense would be so small that it would hardly be missed when the annual statement was made up. The amount saved in the publishing of joint tariffs would more than pay each road's proportion of the cost of operating such an association.

The steam lines have found out the value of their various associations and would not abandon them for any cause; in fact, they have fought every move on the part of the government to have such associations declared illegal. Why not profit by their experience and give the Central Electric Traffic Association a trial and see what it can do?

INTERURBAN.

**NUMBERS OF OPERATING EXPENSE ACCOUNTS IN TENTATIVE NEW YORK ACCOUNTING SCHEME**

The scheme of uniform accounts suggested by the Public Service Commissions of New York, on which a hearing was held at Albany on Aug. 4, would require, if adopted, the use of the operating expense accounts, as follows:

	Classes		
	A	B	C
The maximum number of accounts are.....	119	90	47
If the corporation has no horse car operations the respective numbers of accounts will be reduced to .....	113	85	46
If it does not operate by means of cable power the numbers will be reduced to....	111	83	46
If it conducts no business outside the regular street railway business—that is, no commercial lighting department or other such department—the numbers will be reduced to .....	103	75	38
If it has no joint facilities or joint operations—that is, facilities or operations in which it is connected with other carriers—the numbers of accounts will be further reduced to .....	93	65	28
If it produces all of its own power and furnishes no power to other corporations, the numbers will be further reduced to....	91	63	26

**INTRODUCTION OF INTERSTATE CLASSIFICATION OF ACCOUNTS POSTPONED**

It has been determined that the Interstate Commerce Commission classification of accounts for electric railways will not be made effective until Jan. 1, 1909. In view of this fact the commission believes that publication of the classification should be deferred for the present.



### FIRE PROTECTION RULES IN NEW YORK

The Metropolitan Street Railway Company has been doing a great deal of work recently in reconstructing its buildings for better fire protection and installing the most effective fire protection equipment. It was the belief of Oren Root, general manager to the receivers, that full advantage of the improvements could be obtained only by issuing and suitably enforcing a set of fire regulations which could be easily understood by every employee.

The company, therefore, has just printed and distributed to its employees a booklet on certain precautions against fire, embodying what are probably the most comprehensive regulations of the kind ever issued by an electric railway company. The rules were originated by the Independence Inspection Bureau, of Philadelphia, in conjunction with J. H. Derby, fire protection engineer of the Metropolitan Street Railway Company, at the request of Mr. Root.

Although the rules are not intended to go into full effect before Sept. 15, their distribution alone already has had a good moral effect. There is every reason to believe that within a short time the Metropolitan Street Railway Company will have one of the best fire-fighting organizations possible for the protection of its properties.

An important feature in connection with these regulations is the system of dividing the weekly inspections under the four heads of Fire Doors and Housekeeping; Sprinkler Equipment; Extinguishing Apparatus and Alarms; and Electrical Equipment. Instead of having the forms filled out by one or more individuals in the separate car houses, each of these four departments is in charge of an expert in fire protection, who looks after his specialty on all properties. Thus the special inspector of the sprinkler equip-

tion engineer, the latter examines them for the cross marks which indicate that a particular device requires attention. Should repairs be needed, the fire-protection engineer

APRIAN H. JOLINE, DOUGLAS ROBINSON, RECEIVERS  
**METROPOLITAN STREET RAILWAY COMPANY**  
WEEKLY INSPECTION REPORT—Extinguishing Apparatus and Alarms.

Property \_\_\_\_\_ Time of Inspection \_\_\_\_\_ M.

1. WATER PAILS										2. SAND PAILS									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
3. CHEMICAL EXTINGUISHERS										4. CHEMICAL ENGINE									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
e.										e.									
f.										f.									
g.										g.									
h.										h.									
i.										i.									
j.										j.									
k.										k.									
l.										l.									
m.										m.									
n.										n.									
5. HOSE CUPPTS										6. FIRE ALARM BONES									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
e.										e.									
f.										f.									
g.										g.									
h.										h.									
i.										i.									
j.										j.									
k.										k.									
l.										l.									
m.										m.									
n.										n.									
7. EGG OPERATING LIGHTS										8. FIRE AXES									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
e.										e.									
f.										f.									
g.										g.									
h.										h.									
i.										i.									
j.										j.									
k.										k.									
l.										l.									
m.										m.									
n.										n.									
9. ALARM GONGS																			
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof										
a.																			
b.																			
c.																			
d.																			

Remarks \_\_\_\_\_

Date: \_\_\_\_\_ Signed: \_\_\_\_\_

Report on Extinguishers and Alarms

APRIAN H. JOLINE, DOUGLAS ROBINSON, RECEIVERS  
**METROPOLITAN STREET RAILWAY COMPANY**  
WEEKLY INSPECTION REPORT—Electrical.

Property \_\_\_\_\_ Time of Inspection \_\_\_\_\_ M.

1. CIRCUIT BREAKERS										2. SWITCHES									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
3. FUSES										4. WIRING									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
5. PENDANT LIGHT CORDS										6. LAMP GUARDS									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
7. FIXTURES										8. SHEATHING CABLES									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
9. PORTABLE LIGHTING SETS										10. ELECTRICAL CURRENT									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									

Remarks \_\_\_\_\_

Date: \_\_\_\_\_ Signed: \_\_\_\_\_

Report on Electrical Features

APRIAN H. JOLINE, DOUGLAS ROBINSON, RECEIVERS  
**METROPOLITAN STREET RAILWAY COMPANY**  
WEEKLY INSPECTION REPORT—Fire Doors and Housekeeping.

Property \_\_\_\_\_ Time of Inspection \_\_\_\_\_ M.

1. FIRE DOORS										2. GASOLINE, ALCOHOL, ETC.									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
3. OILS AND GREASE										4. COLD WASTE									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
5. CLEAN WASTE										6. COLD WASTE									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
7. REFUSE AND SWEEPINGS										8. LOCKERS AND COFFERS									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
9. COMBUSTIBLE MATERIAL										10. SMOKING									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									
11. STEAM PIPES										12. ASSES									
Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof	Room	1st	2d	3d	4th	5th	6th	7th	8th	Roof
a.										a.									
b.										b.									
c.										c.									
d.										d.									



tain conditions. The significance of these letters is explained in the regulations under the same heads as given on the report blanks. Thus, in the Fire Doors and House-keeping report (a) means "Not operating freely;" (b)

and easily understood character. The elimination of lengthy hand-written reports also permits the inspectors to do a great deal more than otherwise. It is hardly necessary to mention the data called for on the individual forms as the items are self-explanatory.

COPY OF FIRE PROTECTION RULES ISSUED BY METROPOLITAN STREET RAILWAY

The following are different features of the fire prevention and protection problem which are to-day receiving attention at our various properties. This summary is intended to give in concise form the general method of dealing with this problem, and standards which have been adopted. This pamphlet is intended for reference and an index and table of contents have been provided.

GENERAL

All properties have been provided with certain appliances for extinguishing fire; more efficient fire alarm systems have been installed in several and are to be installed in all important properties, and apparatus and facilities have been provided to assist in maintaining proper cleanliness and in segregating certain hazards, as, for example, provision of waste cans and bins, sweepings barrels, and proper oil and paint rooms.

General fire rules which are given later on in this pamphlet have been posted throughout all properties and these are intended as a guide both for men in charge of properties and for other employees.

The foremen at each property are held responsible for the proper care of the premises as regards cleanliness and for the upkeep of fire apparatus. Minor corrections are to be made by them, but larger matters are to be at once reported by them to their superiors and through the latter to the departments which have repairs or replacements of the particular character in charge. The usual form for description of deficiencies is to be used in making these reports.

Special inspectors in the employ of the receivers of the Metropolitan Street Railway Company will make weekly inspections of all properties and report upon printed blanks as to care of fire-fighting appliances, fire doors, cleanliness and electrical hazards and a special inspector will make weekly inspections of the sprinkler systems and report upon a special blank. It will be the duty of these inspectors to take up with the man in charge of the property any defects which they may discover and aim to have corrections made immediately wherever this can properly be done.

The present guard organization takes care of all entrances and only authorized persons are admitted to the premises. The guards keep records upon printed blanks of all persons other than regular employees who are admitted. Detailed instructions covering the duties of guards have been prepared and are given hereafter.

Watchmen patrol all parts of most properties during the night and certain of these men ring up at half-hourly or hourly intervals from watch-stations so arranged that they must of necessity visit all parts of the premises. Detailed instructions for watchmen have been prepared and are given hereafter. Watchmen have been instructed in the proper handling of all alarm and fire-fighting appliances, and have a printed form which is to be filled out and turned in by them daily.

Day and night roundsmen visit all properties daily or nightly at irregular times, and their function is to see that watchmen and guards understand and are performing their duties. Daily reports on blanks are rendered by roundsmen.

Fire brigades have already been organized at a number of properties and will ultimately exist at most points. These brigades consist of a limited number of picked men who are assigned to certain specific duties. Alarm systems or gongs will be installed at all important properties so that brigades can respond to the proper point without loss of time. The fire brigades are to be frequently drilled.

STANDARDS

We have divided the standards given below into four general divisions: "Fire Cause" covers the steps to be taken to eliminate outbreak of fire. "Fire Spread" deals with reduction of combustible material and limiting of

ADRIAN H. JOHNE, DOUGLAS ROBINSON, RECEIVERS  
METROPOLITAN STREET RAILWAY COMPANY  
WEEKLY INSPECTION REPORT—Sprinkler Equipment.

Property \_\_\_\_\_

VALVES CONTROLLING AUTOMATIC SPRINKLERS										
No.	Open	Sealed	Accessible	Leaked	No.	Open	Sealed	Accessible	Leaked	
1					16					
2					17					
3					18					
4					19					
5					20					
6					21					
7					22					
8					23					
9					24					
10					25					
11					26					
12					27					
13					28					
14					29					
15					30					

If any valve is not open, sealed, or in good order, give number and reason.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ARE ALL DRAIN VALVES TIGHT, SEALED AND IN GOOD ORDER?  
Note valves needing attention; give number and condition.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ALARM VALVES AND ALARM CONNECTION									
No.	On top hand	Tried	Condition	Electric Alarm	No.	On top hand	Tried	Condition	Electric Alarm
1					8				
2					9				
3					10				
4					11				
5					12				
6					13				
7					14				

Note any alarm valve needing attention.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DRY PIPE VALVES									
No.	Air Pipe	Water Pipe	Tried for Water Release	Temp. Valve Stem	No.	Air Pipe	Water Pipe	Tried for Water Release	Temp. Valve Stem
1					9				
2					10				
3					11				
4					12				
5					13				
6					14				
7					15				
8					16				

Has any valve tripped since last inspection?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Any valve in need of repairs?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

GRAVITY TANKS								
No.	Full	Water in tank	Cover Closed	Bottom Apparatus	Condition of Ladders	Painted	Covering on Tank Floor	Temp. of Water in Tank
1								
2								

Note any matters needing attention.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PRESSURE TANKS					NOTE ANY MATTERS NEEDING ATTENTION
No.	Air Press.	Water Level	Temp. of Tank Water	Cover Closed	
1					
2					
3					
4					
5					

STEAMER CONNECTIONS

No. 1.      No. 2.      No. 3.      No. 4.

Condition: \_\_\_\_\_

AUTOMATIC SPRINKLERS

Distribution obstructed? \_\_\_\_\_

Any Corroded? \_\_\_\_\_

" Whitewashed? \_\_\_\_\_

" Painted? \_\_\_\_\_

Condition of Water Pump? \_\_\_\_\_      Condition of Air Pump? \_\_\_\_\_

Date, \_\_\_\_\_      Signed, \_\_\_\_\_

Front and Back of Sprinkler Report

"Hanger not greased;" (c) "Not automatic," etc. This arrangement makes it possible to keep the size of the forms down to 8½ in. x 11 in., saves much writing by the inspectors and results in having all of the reports of a uniform



area over which a fire might spread. "Fire Extinguishing" takes up the question of extinguishing apparatus. "Alarms, Brigades, etc.," cover alarms, brigades, watchmen and matters of inspection.

#### FIRE CAUSE

**Ashes.**—Ashes to be deposited only in approved type metal barrels, preferably Metropolitan Street Railway Standard. This rule applies particularly to blacksmith shops and points where forges are located. Ash barrels to be emptied daily.

**Combustible Material.**—All needless combustible materials to be removed from all buildings. This applies particularly to packing boxes, empty barrels and boards. Special attention is required in places where supplies are received and unpacked.

**Cupboards.**—All wooden supply cupboards, with possible exception of offices, to be replaced with Metropolitan Street Railway standard metal cupboards.

**Electric Wiring.**—Best standard practice covering arrangement and condition of circuit-breakers, switches, fuses, wiring, pendant light cords, lamp guards, fixtures, shifting cables (jumpers), portable lighting sets and cutting off of electrical current, when the same is not absolutely needed, to be followed and self-inspection blank covering various details to be made out weekly. Instructions to inspectors are given herein. Electric current must be shut off from tracks, except when cars are actually being moved. Switches on both sides of track circuits are to be open and are to be frequently observed by everyone interested in fire prevention, or in authority. The electric current is also to be cut off of portable lights, pit lights, ceiling lights and ceiling clusters, except when needed for use.

**Gasoline and Other Volatile Oils.**—These materials are to be kept at properties only in the smallest quantity possible from an operating standpoint and all torches and other containers to be returned to oil house when not in use.

**Grease.**—See Oils.

**Lockers.**—All wooden lockers to be replaced with approved type metal ones, with possible exception of office and non-inflammable conductors' and motormen's rooms.

**Matches.**—The use of matches to be prohibited except in such places as shops, offices and conductors' and motormen's rooms. Matches at these points to be of the safety type.

**Oils.**—The main supply of oils and grease is to be kept in oil house or oil room and only sufficient for the day's supply carried into the rooms of building. This daily supply is to be returned to the oil room when not in use. The unnecessary opening of barrels is to be prohibited.

**Pits.**—All combustible material is to be kept out of pits, and waste cans provided in each one to assist in maintaining cleanliness at the highest possible point. Liberal whitewashing and sanding of floors are to be required.

**Refuse.**—(See Sweepings.)

**Smoking.**—Smoking is to be prohibited in all portions of the property except offices, conductors' and motormen's rooms, blacksmith shops and boiler rooms. Signs to this effect are to be posted.

**Spit Boxes.**—Metal pans or metal cuspidors containing sand are to be used in place of wooden boxes filled with either sawdust, sand or shavings.

**Steam Pipes.**—All combustible material is to be kept away from steam pipes and proper insulation is to be provided where pipes pass through woodwork of any kind.

**Sweepings.**—Premises are to be kept clean and all refuse matter placed in approved type metal barrels having covers. These barrels are to be emptied as soon as they are filled, and always once a day. Particular attention is to be paid to corners, spaces under benches, stairs or any place where rubbish is liable to accumulate.

**Waste, Clean.**—Main supplies of clean waste are to be kept in metal or metal lined wooden bins, having covers, normally kept closed. Local supplies are to be kept in metal waste cans.

**Waste, Oily.**—All oily waste is to be kept in approved type waste cans, preferably Metropolitan Street Railway Standard; cans to be emptied when full, and always daily. When repacking journal boxes, the oily waste must be placed immediately in some metal receptacle as soon as it is pulled from the journal boxes, and under no condition

is it to be scattered along the floor; as soon as possible it should be emptied from the metal receptacle into the approved waste can referred to above.

#### FIRE SPREAD

**Ceilings.**—Particular attention is to be paid to maintaining wood sheathed or plastered ceilings in best repair to prevent spread of fire into inaccessible spaces between ceilings and floor or roof above. In so far as possible expanded metal and cement plaster are to be used where repairs of any moment are to be made.

**Doors, Fire.**—All openings in fire walls are to be protected by standard tin-clad fire doors of the sliding automatic type. Fire doors are to be kept clear of all obstructions and to remain closed except when openings are actually needed.

**Enclosures, Wood.**—Wherever feasible all woodwork in the form of partitions and enclosures is to be avoided and where enclosures are required, these are to be of non-flammable construction, preferably cement on expanded metal. Where wood partitions are allowed to remain, varnish and oil paints are to be avoided and whitewash or cold-water paint used instead.

**Lounging Rooms.**—Lounging rooms for employees are to be made non-flammable, cut off by fire doors and wire glass, and preferably equipped with metal lockers. All needless combustible material is to be eliminated.

**Whitewash.**—Liberal use of whitewash is to be made in all portions where woodwork exists and at many points whitewashing brickwork will improve light and encourage cleanliness. Whitewashing of pits has been covered above.

#### FIRE EXTINGUISHING

**Automatic Sprinklers.**—If sprinkler equipment is inoperative or injured, or in any way put out of service, immediate notice should be given to the fire-protection engineer. However, those responsible for the general condition of each property should learn the location of the shut-off valves, so as to be able to close the proper valves, and no other valves, in event of sprinklers or sprinkler piping being broken. After a fire has occurred it is of the utmost importance that the sprinkler water supply should not be shut off until well after the fire is supposed to be under control. The sprinklers are more efficient than all the other kinds of fire apparatus; in order therefore to keep them in service at all times care must be used not to injure the sprinkler pipes or sprinkler heads. Never stand upon, or support anything upon any of the sprinkler pipes. The sprinkler heads themselves must never be obstructed with storage material, or coated with whitewash or paint. If whitewashing is to be done the sprinkler heads should be covered with small paper bags tied on with a string, which bags must be promptly removed as soon as the whitewashing is completed. The sprinkler heads should not be jammed or bent. Remember that the operation of a single sprinkler will sound an electric fire alarm and be at once discovered. In those buildings where water is allowed to remain in the sprinkler pipes during cold weather (in distinction from the automatic dry-pipe sprinkler system) care must be exercised not to leave a window down at the top or otherwise to expose the sprinkler piping to cold which might cause freezing of the water and bursting of pipe and sprinkler. Never handle the sprinkler heads, valves, alarm connections, drip pipes or other fittings except in the performance of duty.

**Chemical Engines.**—Between 30 and 40 labeled 40-gal. chemical engines have been placed at various properties, particularly at danger points. Crossover and longitudinal aisles to enable engines to be run to fire are to be maintained in car houses and repair shops where so specified.

**Chemical Extinguishers.**—Labeled chemical extinguishers are to be placed in liberal number at all properties and kept in standard extinguisher cabinets, heated during the winter by two incandescent lamps, or other approved method, and provided with red glass inserts to show their location.

**Hose Outfits.**—Hose outfits to consist of 100 ft. leads of 1½ in. approved unlined linen hose with ¾-in smooth bore nozzle; equipment to be on reels or racks and the controlling valve to be provided with drip to protect the hose against leakage through valve.



Pails, Sand.—A liberal supply of pails filled with fine dry sand to be placed in all car houses, shops, substations or wherever oil or electrical fires are possible.

Pails, Water.—Pails filled with clean water to be placed at certain properties, but use of water pails to be reduced to a minimum where hose and extinguisher protection is provided. Calcium chloride is to be used in these pails during cold weather at locations where there is no heat.

#### ALARMS, BRIGADES, ETC.

(To be supplied later.)

Red Indicating Lights.—Red lights are to burn continuously near ceiling above each fire alarm box. These lights are to be placed in nearest aisle to enable them to be seen readily. The horizontal distance between box and the light in all cases is to be limited to a few feet. Red glass inserts in chemical extinguisher boxes indicate the location of these boxes during such times as lamps are required for heating purposes. Extinguisher cabinets are to be located near fire alarm boxes, and hose outfits are also to be placed near alarm boxes in so far as possible.

#### GENERAL FIRE RULES

I. Men in charge of buildings, or sections thereof, will be held responsible for the proper condition of fire apparatus, which should be frequently tested, and for the clean and tidy condition of the premises of which they have charge. They must make daily surveys thereover, repair minor defects at once, and report serious ones to proper authorities on the prescribed form (No. 699).

II. Free access to fire pails, extinguishers, hose reels, standpipes, alarm boxes and all other fire equipment must be had at all times.

III. Fire pails and all other fire apparatus will be used only for fire purposes.

IV. Electric circuits must not be changed nor tampered with except by the electrician in charge. Under no circumstances is copper wire to be used to replace blown-out fuses.

V. Rubbish and debris of every sort must not be littered around, but must be put in the proper receptacles. Dirt or rubbish must never be swept into the conduits or track pits. Stairways, hallways, closets, cupboards, etc., must not be blocked up by nor used for storage of rubbish of any kind. Rubbish boxes and waste cans must be emptied daily, or oftener, if necessary, and the accumulation therefrom disposed of.

VI. Ashes must be placed in metal receptacles which must be frequently emptied. Ashes must not be allowed to accumulate under the grate bars of boilers or stoves.

VII. Steam or other heated pipes must not be in contact with wood or other inflammable material. Special care must be used to see that dirt, paper or other rubbish does not accumulate around, under or near radiators, steam or other heated pipes, or stoves. Stoves must be set on stone, brick or metal, and all woodwork near stoves or pipes must be protected by metal. Flues and stove pipes must be examined regularly and be kept in good condition.

VIII. Oily or greasy waste, greasy rags and paper, or other inflammable material must be put in the covered metal cans supplied for the purpose. Such supplies must not be mixed with clean material of like character.

IX. Oils, paints, surplus supplies of oil, waste and similar material must be kept in fireproof rooms provided for this purpose, except when actually being used. Benzine, gasoline, naphtha, alcohol or other similar highly inflammable substances must not be allowed on the premises except where actually needed. At such places only the minimum quantities necessary will be kept on hand. These substances will be handled with the greatest care, being kept in fireproof rooms wherever possible.

X. Gas lights and brackets must be protected so that they cannot be swung against woodwork, papers, curtains, or other inflammable substances. Lamps and lanterns must be kept well filled with wicks in good order, for when oil is low it generates gas, which is liable to explode. Lamps or lanterns must not be filled after dark, or near fire or flame.

XI. If oil or like substances are on fire, use sand; never use water, for water spreads the burning material. Use sand when live wires, short circuits, or charged rails are involved.

XII. Sand only must be used on floors, in spittoons, or for catching oil drippings.

XIII. Smoking is prohibited in buildings except as stated under "Smoking" in the chapter on "Fire Cause." Safety matches only are to be used, and must be kept in boxes in secure places.

XIV. All shutters and all fire doors must be kept closed at night.

XV. All clothing must be kept in lockers provided for the purpose, and only clothes actually used and needed may be kept on the premises.

XVI. Remember that most fires are caused by neglect and carelessness. Familiarity with these rules is enjoined upon all employees.

#### INSTRUCTIONS TO WATCHMEN

The following instructions must be observed by watchmen in the performance of their duty:

1. You are entrusted with the regular watching of the property to which you are assigned. Should sickness or any unusual occurrence prevent you from reporting for duty, you must give timely notice to the office of engineer, maintenance of way, to this effect at least four hours before the time that you should report for work, so that a substitute may be temporarily assigned to your place. Should it be necessary for you to leave your post before your hours of duty expire, you must first notify your superior officer. Absence from duty without such proper notice is forbidden.

2. When instructed to use a watch clock do so not as your principal duty but merely as a record of your constant watchfulness and periodical visits to all parts of property.

3. In making rounds give most time to the locations where fire is more likely to occur. Ask instructions as to this feature.

4. Do not make visits to stations with too much punctuality; vary 15 or 20 minutes, but reach each station on the average once an hour (or half hour) as specifically instructed.

5. The mere visiting of all clock keys, in their consecutive order, does not necessarily constitute good watchman's service. New enclosures may be built from time to time, doors cut and other building changes made. It is always your duty to assure yourself that you are visiting *all portions* of the premises, and that you personally see to the proper condition of out-of-the-way places and rooms, even if the clock-key route should not, by any oversight, include these places. Do not make hasty "bee-lines" from key to key. Alter your route from time to time where feasible, walk through different aisles between cars, look to right and left, enter rooms adjoining the route. Your record and reputation will be directly benefited by this character of interest and watchfulness, and on the other hand absence of this kind of work cannot fail to be noticed through other persons finding poor conditions which you have not reported for attention. Nine places in a building may be in safe condition and yet the property burn from hazardous conditions in the tenth place which may have appeared unimportant and which you have not visited. Be sure to know every point in the property and the conditions of all enclosed spaces.

6. Inspect fire apparatus on first round and assure yourself that it is in proper condition, ready for instant use. Correct, if possible, any defects or secure aid from foreman. Defects which cannot be remedied at once by yourself or foreman should be reported at once if serious and always on your daily report.

7. A thorough understanding of the printed general fire rules of this company is part of your duty, and they must be observed and enforced. Any violation of these rules you should, if possible, immediately correct or have corrected; or report them for attention.

8. You should study the conditions at the property, and plan what would be the best action to take if discovering a blaze at various points. In this way, only, can you be prepared for emergencies, and act with dispatch and efficiency.

9. You must understand location and operation of all fire apparatus. Drills will be conducted in which you can become personally skilled in the actual operation of the various types of apparatus.

10. Watchmen must take a personal interest in care of fire apparatus and maintenance of clean conditions in all



out-of-the-way points, as well as in the open parts of property.

11. Upon discovering a blaze (if fire cannot be extinguished readily by pails of water and hand chemical extinguishers), send in the alarm at once to city fire department from nearest private auxiliary box and then fight fire with nearest fire apparatus, while waiting for assistance from your private brigade, if any, or from the public fire department. Private brigade, if any, will respond to your summons by whistle or private fire gongs in property, and fight fire pending arrival of city department.

12. Your value is not only in watching for and discovering matters which may have gone wrong, but especially to watch for and correct conditions before they cause fires, thefts or accidents.

13. Call attention of foreman to any lack of cleanliness, or to disorder, oily waste, defective or carelessly kept refuse cans; also make mention of all such matters on your daily report, stating whether taken care of before you went off duty.

14. Watch windows and doors to guard against theft and incendiary fires. Report to foreman and also on daily report any windows and doors in need of locks, bars, screens, hooks or other repairs. Any door found open which should be kept closed you are at once to securely shut.

15. All windows should be kept well glazed. Broken panes of glass should be at once replaced. Windows generally should be kept closed at night, and in places where men are not always at work, windows should be kept closed even in daytime. A fire in the neighborhood may cause sparks to enter the building through broken panes or open windows.

16. Any portions of property not protected by fire apparatus should be reported on daily report.

17. Fire pails should be kept filled, free from rubbish and unobstructed by material.

18. Chemical extinguishers must not be left in discharged condition. Ample supply of acid and soda should be kept always on hand at each property by foreman who will also have extinguishers recharged, as soon as discharged.

19. Each hose outfit must be neatly coiled, nozzle hanging in proper position, reel not tied in position, and whole outfit accessible.

20. Be sure material is not placed in passages. Especially at night should all passages be kept clear for quick action in event of fire or accident.

21. Material should under no circumstances be even temporarily placed so as to obstruct ready access to hose, pails, extinguishers, valves, exits, etc.

22. Carry clock and lantern so as to have hands free for instantaneous action, if fire is discovered. Do not set lantern down, but keep it with you in fighting incipient fire, sending in alarm, etc.

23. One man will be assigned the duty of filling and repairing all watchmen's lanterns. Do not use a lantern in defective condition.

24. Blank form will be furnished you for making daily reports to office, in accordance with specific verbal instructions given you.

#### INSTRUCTIONS TO GUARDS

The following instructions must be observed by guards in the performance of their duty.

1. Same as for watchmen.

2. Your post and duties lie always at the entrance you guard and at time of fire or other emergency you are to remain at your post; prevent entrance of crowd and prepare entrance for arrival of firemen and ambulance.

3. Absence during or for lunch hour will not be permitted.

4. Admit no one except those presenting passes properly signed, or employees vouched for by foremen or some known official of the company. Carefully note the date of expiration of passes, take up all expired passes when presented and send them to the office of the engineer, maintenance of way. You should be particularly careful about admitting to buildings persons claiming to be employees of the company or engaged in doing work for the company. Under no circumstances will you permit such persons to enter buildings unless you are absolutely certain that they have the right to do so.

5. In event of doubt or argument as to admitting persons send for foreman on duty and submit matter to him for his decision.

6. If cars are allowed to stand in position to obstruct your view across entrance, call foreman and have cars shifted.

7. Report to foreman any needlessly open doors or lack of cleanliness or defects in fire fighting apparatus.

8. Fill out regular blank forms which are given you and report on these any defects which you may have found, stating whether they were taken care of before you went off duty.

9. Familiarize yourself with location of nearest street fire alarm box, location of all interior alarm boxes, chemical extinguishers, hose outfits, and all fire apparatus and matter appertaining to fire.

10. In general familiarize yourself with the duties of watchmen so that you can assume watchman's duties when vacancies occur, if fitted for promotion.

#### FIRE BRIGADE RULES

The following instructions to fire brigades are to be posted:

Conditions at each property vary and require special treatment.

The following are general rules to be used as a basis:

1. Night and day shift will each have one man in authority selected as brigade captain.

2. A second man will also be selected to act as assistant captain.

3. In event of captain being absent at time of fire or drill, assistant captain will assume charge in captain's place.

4. When captain is present the assistant shall aid him in directing and executing his orders.

5. Captain or assistant shall when reaching fire at once assure themselves that alarm has been turned in to the city department (if fire cannot be extinguished readily by pails of water and hand chemical extinguishers) and that a man has been sent to the street box to direct firemen to the exact location of the fire. This is essential, particularly in large, high buildings.

6. Pending arrival of the city department, the captain and his assistant shall direct brigade in fighting fire, with pails, extinguishers, chemical engines and hose outfits, including use of ladders and axes, and in removing cars which may be near the fire.

7. When an auxiliary alarm box is "pulled" at time of fire the man sending in this alarm must send a man to the proper alarm box on street, to await there for arrival of the city department to direct firemen to the exact location of the fire.

8. Valvemmen must proceed immediately to their posts at hose outfits, see that nozzles, hose valves, reels, etc., are ready for use; must prepare for running out the hose; must remain at their posts, and "turn on" or "shut off" as directed.

9. Tankmen must proceed immediately to their posts at chemical engines and hold them in readiness for "turning over." After all hose has been "paid out," they will turn over tank and if necessary move engine along (while discharging) toward nozzlemen should the latter wish to advance further than hose would otherwise allow.

10. Hosemen will guide and pass hose along, following nozzlemen, and use axes as necessary in concealed construction.

11. Nozzlemen will take nozzles in close to fire and at once discharge stream on fire, giving the order when to "turn on" or "shut off."

12. Hand extinguishers shall be used by any men discovering a fire, who will return after sending in alarm and continue fighting fire until private brigade arrives.

13. Names of men selected for brigade duty shall be displayed at certain locations to be decided upon at each property.

14. Men shall be selected by the captain of brigade, but new men shall not be finally appointed to brigade duty until a few drills are held under inspection, and the qualifications of such new men are approved.

15. The general maintenance of discipline and replacement of absent men shall be under the control of the captain, who shall be held responsible for discipline and training of the brigade.



16. Fire drills shall be held at least once a month.

17. Each member of the brigade shall understand all fire apparatus, where it is, how to use it, location and use of private fire alarm boxes, location of nearest public alarm box and the meaning of each of these rules.

18. Members of the fire brigade must report to the captain or assistant captain upon going on duty. The captain or assistant captain must assure himself that his brigade members have reported, and if the relief men do not arrive, those employees about to go off duty should wait at least 10 minutes before reporting to the captain or assistant captain, who will arrange for filling the vacancies.

#### SELF-INSPECTION BLANKS

Weekly inspection reports are made on the blanks especially prepared and the following general instructions and detailed matter are placed in the hands of the inspectors:

The duty of the inspector is to be severely critical, and he shall not restrict his reports to the defects given below. Where apparatus bears characteristic letter and consecutive number, place these in the column on blank headed "location." Report defect by number and letter, as for example "3-A," which means "chemical extinguisher missing." Wherever apparatus is not numbered, describe location, and describe defects which are not given below.

#### EXTINGUISHING APPARATUS AND ALARM REPORT

1. Water Pails: (a) missing, (b) not full, (c) frozen, (d) defective.
2. Sand Pails: (a) missing, (b) not full, (c) sand wet, (d) defective.
3. Chemical Extinguishers: (a) missing, (b) not full, (c) frozen, (d) acid bottle not in place or improperly filled, (e) caps not easily removable, (f) gaskets missing or defective, (g) tags not showing date of last charging, (h) copper corroded, (i) hose defective, (j) nozzle defective or clogged, (k) access prevented by obstructions.
4. Chemical Engines: Same as chemical extinguishers.
5. Hose Outfits: (a) water in hose, (b) drip not open, (c) hose defective, (d) hose frozen, (e) hose not properly racked, (f) nozzle missing, (g) nozzle not connected, (h) spanners missing, (i) access prevented by obstructions.
6. Fire Alarm Boxes: (a) glass broken, (b) signs giving location of boxes not in place, (c) access to fire alarm box obstructed.
7. Red Indicating Lights: (a) not burning over alarm boxes at all times, (b) not burning in extinguisher cabinets during freezing weather.

#### FIRE DOOR AND HOUSEKEEPING REPORT

1. Fire Doors: (a) not operating freely, (b) hanger bearings not greased, (c) not automatic, (d) link not exposed, (e) not clear of obstructions, (f) tin covering defective, (g) hardware not complete, (h) supporting bolts loose, (i) not kept closed when not in use, (j) not painted.
2. Gasoline, Alcohol, etc.: (a) any storage except in oil house, (b) torches or other daily supply not returned to oil house when not in use.
3. Oils and Grease: (a) main supply not in oil house, (b) daily supply not returned to oil house when not in use, (c) unnecessary barrels open, (d) hangers and bearings not free from grease, (e) sawdust or shavings used to catch drippings.
4. Clean Waste: (a) main supply not in storage bin, (b) local supplies not in cans.
5. Oily Waste: (a) not kept in cans, (b) cans not emptied daily, (c) cans defective.
6. Refuse and Sweepings: (a) not in metal barrels, (b) barrels not emptied daily, (c) barrels without covers, (d) barrels defective.
7. Combustible Material: (a) needless material in any portion of building.
8. Lockers and Cupboards: (a) any not metal, (b) not clean, (c) clothes not hung up, (d) interiors not visible, (e) matches kept inside.
9. Steam Pipes: (a) in contact with woodwork, (b) combustible material against pipes.
10. Smoking: (a) anywhere except in offices, swing, lounging rooms, blacksmith shops or boiler rooms.
11. Ashes: (a) not kept in metal barrels, (b) not removed before night.
12. Whitewash: (a) woodwork not whitewashed.
13. Pits: (a) combustible material in pits, (b) not clean,

(c) waste can not in each pit, (d) not whitewashed, (e) not sanded.

#### ELECTRICAL REPORT

1. Circuit Breakers: (a) not enclosed, (b) cabinet not lined, (c) breakers defective, (d) blocked.
2. Switches: (a) not operating properly, (b) loose connections, (c) defective.
3. Fuses: (a) link fuses used, (b) extra cartridge fuses not on hand, (c) circuits fused too high.
4. Wiring: (a) defective insulation, (b) connections not soldered and taped, (c) not properly supported, (d) conduit outlets not bushed.
5. Pendant Light Cords: (a) defective insulation, (b) not properly supported, (c) tied aside.
6. Lamp Guards: (a) not provided where danger of contact with combustible material exists.
7. Fixtures: (a) loose connections, (b) sleeve missing, (c) otherwise defective.
8. Shifting Cables (Jumpers): (a) insulation defective, (b) not disconnected when not in use.
9. Portable Lighting Sets: (a) Standard portable lighting sets not used, (b) extension cords not of heavy portable type, (c) extension cords defective.
10. Electric Current: (a) current not off cars, when track is not being used, (b) current on portable lights, which are not actually in use, (c) ceiling lights burning needlessly, (d) pit lights burning needlessly.

#### SPRINKLER REPORT

1. Valves Controlling Automatic Sprinklers: State if valve is open, sealed, accessible and lubricated. If any valve is not open, sealed or in good order, give number of valve and reason.  
Are all drain valves tight, sealed and in good order?  
*Note valves needing attention—give number and condition.*
2. Alarm Valves and Alarm Connections:  
Are cocks open and sealed?  
Has valve been tested?  
What is its condition?  
Are electric alarms in order?  
*Note any alarm valve needing attention.*
3. Dry Pipe Valves:  
Is air pressure on the system? State pounds pressure.  
What is water pressure under dry valves?  
Has dry valve been tested?  
State temperature of valve room.  
Has any valve tripped since last inspection? If so, state reason for same.  
Any dry valve in need of repairs?
4. Gravity Tanks:  
Is tank full?  
Is telltale in order?  
Is the cover closed?  
Is the heating apparatus in order?  
Are the ladders safe?  
Does tank or structure need painting?  
Is cover on tank riser in good condition?  
What is the temperature of the water in tank?  
*Note any matters needing attention.*
5. Pressure Tanks:  
State air pressure on tank.  
Is tank two-thirds full of water? If not state height of water in tank.  
What is temperature of tank house?  
Are gage cocks closed?  
*Note any matters needing attention.*
6. Steamer Connections.  
Are they accessible?  
Have caps been oiled within six months?  
Do all caps cover the inlets?
7. Automatic Sprinklers:  
Are any sprinklers obstructed by clothing, partitions, platforms, etc.?  
Are any sprinklers corroded?  
Have any sprinklers been whitewashed?  
Have any sprinklers been painted?  
Are any sprinklers subject to corrosive influences?

OREN ROOT,

General Manager for Receivers.

July, 1908.



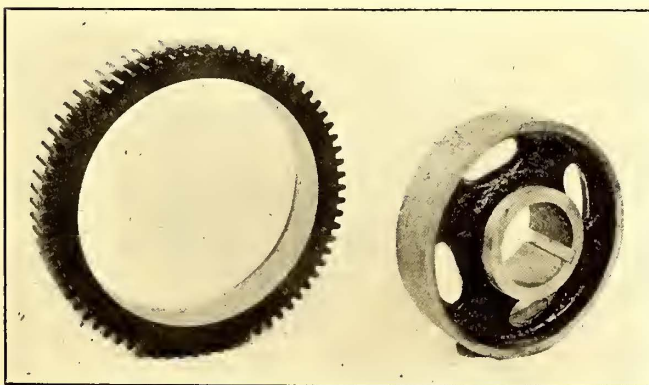
## HEAVY TRACTION GEARING

The augmented stresses to which the teeth of motor gearing are subjected in heavy electric railroading have rendered the wearing qualities of gears and pinions important factors in the cost of operation. To meet these conditions successfully without an excessive increase in cost, the General Electric Company has developed a gear which consists of a forged-steel rim or tire mounted on a cast-steel center to form practically a one-piece gear, as a pressure over 200 tons would be required to force the rim off the cast center. This combination gives added resistance to wear on the gear teeth and enables a worn-out rim to be replaced with the least delay and expense.

During the past three years this gear has been installed successfully on many of the most important electric railway systems in the United States, among these being the Interborough Rapid Transit Company, the Hudson & Manhattan Railway Company, the New York, New Haven & Hartford Railroad, the West Jersey & Seashore Railway Company and the Scioto Valley Traction Company.

As a further development along these lines the company conducted experiments which resulted in developing a pinion having physical characteristics of tensile strength combined with an elastic limit said to exceed that of any other product now on the market and obtained without sacrificing toughness. This pinion is known as the "New Long Life Pinion—Grade F." This special (Grade F) steel after being machined, is treated by a process which avoids any possibility of distortion or internal stress while cooling. The increased strength thus obtained insures an ample factor of safety over the stress to which the pinion teeth are subjected in ordinary service, while the hardness of the steel minimizes the effects of abrasion and thereby reduces the wear from friction. As a result there should be a notable saving in the labor cost of renewals and, in addition, the expense caused by interrupted service is materially reduced. There is also a more even wear of gears and pinions.

This latter point is worth consideration as the ordinary cast-steel gear usually outlasts three soft pinions with the result that during a large part of its life it is operating with



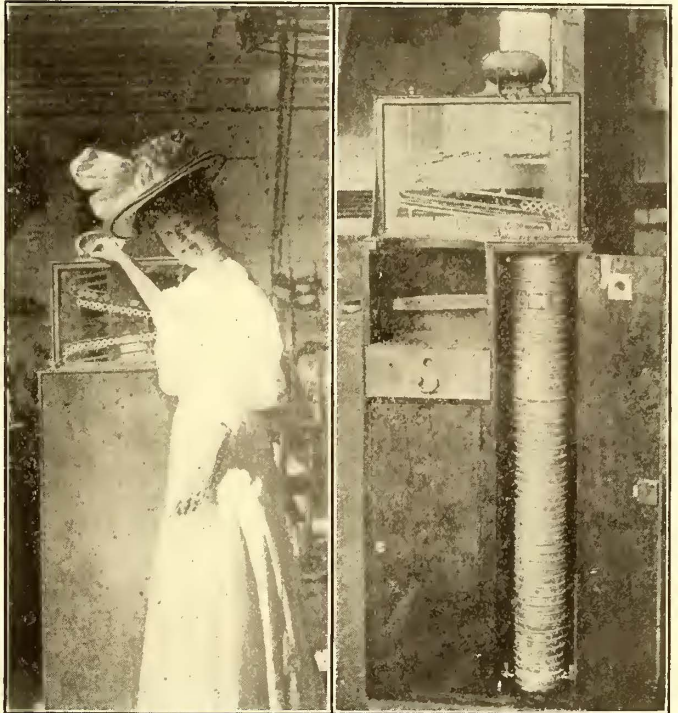
Hub and Forged Rim of Railway Motor Gear

worn pinions and under conditions of low efficiency, which add to the mechanical strain on the motor. The new pinion should, under average conditions, last as long as the cast-steel gear, and hence outwear three ordinary pinions, saving two renewals, as well as insuring operation at maximum efficiency.

In addition to its standard design this company manufactures the "Grade F" steel rim or tire for mounting on various forms of extended car-wheel hubs or steel flanges to meet special conditions.

## NEW FARE BOX FOR CLEVELAND PRE-PAYMENT CARS

Mayor Johnson, of Cleveland, introduced on the Payne Avenue pay-as-you-enter cars of the Cleveland Railway last week the new fare box upon which he has been working for some time. The box is about 4 ft. 6 in. high. It consists of a wood body, with the mechanism in the upper portion enclosed between two plates of glass. Coins or the aluminum fare disks used in Cleveland are placed in a slot at the top, guarded by a metal protector to prevent the fare from being accidentally dropped on the floor, and



Fare Box for Pay-as-You-Enter Cars, in Use and with Case Removed

strike a brass runway between the glass plates. In this runway there is a slit about 3 in. long and of sufficient width to allow pennies, nickels and dimes to pass through, but not wide enough to allow the disks, used as tickets at Cleveland, to do so. The cash and tickets are thus separated.

These runways both reach the box at the right-hand side of the conductor. The tickets may be counted before they enter the box, however, by means of numbers on the runways corresponding to the tickets. As the numbers run to 20 on both the upper and lower arm of the runway, 40 tickets may be in sight at one time. Little knobs on the outside control stops for both the upper and lower arms, so that the fares on either or both may be allowed to drop into the box at will. Those on the lower arm may be released and those on the upper arm allowed to run around in their place. The conductor can count the cash as it rests on the arms and then trip it into the box.

Precautions have been taken to make the box burglar-proof. The receptacle for the cash and tickets consists of a metal cylinder in the right half of the box, which contains 12 tubes, placed in pairs, one tube of each pair resting against the circumference of the cylinder, and the other next to the center. The cover of the cylinder has a slot which engages the extensions of the runways from the top of the machine when in correct position. These brass runs extend down like fingers and guide the disks or coins into the tubes, one of which is for the cash and the other for the disks. When the pair of tubes under the fingers are

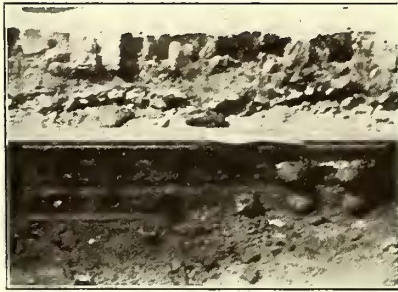


filled, the coins and disks are automatically stopped and the conductor must turn the cylinder to the next pair of tubes.

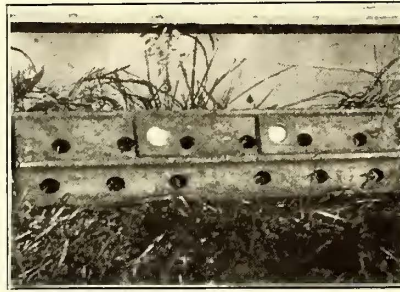
A rod extends down through the box with a large knob at the top, and a gear wheel at the bottom engages a larger brass wheel upon which the cylinder rests. A dog above this holds the rod rigidly in position. When it is desired to turn the cylinder so that a new pair of tubes will come

## PLASTIC RAIL BONDS AFTER TEN AND TWELVE YEARS' SERVICE

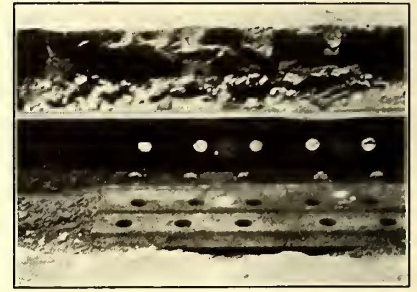
During the latter part of 1898 the Paterson (N. J.) Railway, now a part of the Public Service Railway Company, applied Brown plastic rail bonds to 598 joints of 85-lb. Johnson rail between Paterson and Passaic. The conductivity tests of the new bonds, made with a Weston



Worn Rail at Joint



Angle Plate with Plastic Bond



Rail Web and Angle Plate

### Views of Rail Joints and Plastic Alloy Bonds After 10 Years' Service

under the slots, a lever at the left is released and the cylinder drops so that the fingers extending from above pass over the divisions between the tubes. At the same time the dog is disengaged and a turn of the knob at the right brings the tubes into position. As soon as they are in place, the dog again engages the rod and the cylinder can be turned no further. The lever at the side, however, must be adjusted before the box is again ready for operation. From this it will be seen that the cover of the cylinder remains stationary, while the cylinder itself is made to turn.

The cylinder can not be removed from the box unless the slot for receiving the cash and tickets is directly over one of the divisions between two pair of tubes. In that position it is automatically locked. This, of course, makes it impossible to take either cash or tickets from the cylinder at that end. The lower end is removable, but is secured with a spring lock. The cylinders, which are interchangeable, are removed at the barns at the end of the day. A place has been provided on the cylinders for a record of the car number and other data. A metal box in the other division has been arranged for transfers, which are slipped through an aperture at the top. This box can be unlocked only at the barns.

The cash drawer shown at the left of the cylinder in the accompanying illustration is of metal. The lock is removable, being fastened on the inside by a clamp. Each conductor thus may have his own lock and key. Inside the cash drawer is placed a tin box, with divisions for packages of disks or tickets, made up and ready to hand to the passenger. Above the drawer is a shelf for punch and such other articles as the conductor may use. Three tickets and a cent constitute change for a dime, and eight tickets and a cent are given for a quarter. Half dollar and dollar packages are also made up so that those who desire may have them. There are also divisions for coins and bills taken in by the conductors. When the conductor boards his car on beginning a run, he knows the exact amount of money and tickets charged against him. When he leaves the car he turns the box over to the collector.

Albert J. Doll has charge of the construction of the boxes and will soon open a factory on Champlain Street, Cleveland, for their manufacture.

millivoltmeter, showed an average drop of 0.000145 volt per joint.

The rail joints fitted with these bonds fully 10 years ago were again tested recently, and it was found that the conductivity of single-bonded joints was equal to three-fourths of that of the unbroken rail, despite the severe service indicated in the accompanying views of the rails. The opening of several joints revealed that the bonds were in excellent mechanical condition. The contact spots upon the rail and angle plates were clean and bright, the cork was in perfect condition and the alloy itself was still plastic.

The record of the plastic bonds installed 12 years ago on the Bloomfield line of the present Public Service Railway system is even more remarkable, as these bonds were among the very first made by Harold P. Brown and very crude as compared with those turned out for the Paterson work two years later.

Nevertheless, the tests, which were made last September on joints with the older bonds, proved that the alloy had remained plastic in nearly every instance, and that the contact spots were bright and free from oxide. Out of the 580 plastic bonded joints tested only 10 were found to exceed the company's allowable standard drop of 0.075 volts at 125 amp.

## POWER ESTIMATE FOR THE BAVARIAN RAILWAY ELECTRIFICATION

Dr. W. Reichel has contributed a lengthy article to a late issue of *Elektrische Kraftberichte u. Bahnen* in which he discusses the amount of power required to run the Bavarian railway system electrically, assuming the same number and variety of train units as operated in the summer of 1906. On this basis he figures that an average of 305 kw-hours per km (0.62 mile) would be required daily. The total length of all lines is 3948.9 km (2448 miles). It is planned to transmit current at 50,000 volts from hydroelectric stations and use 10,000 volts on the trolley wire. The cars would be hauled by single-phase locomotives. If regenerative control is used, there would be a saving of about 2 per cent of the power required for the trunk lines of Bavaria.



# News of Electric Railways

## The Cleveland Situation

A new attack was made through the courts upon the Municipal Traction Company on Aug. 8, when Albert G. Daykin brought suit against all the interurban companies entering Cleveland to compel them to accept a 3-cent fare for city service. Mr. Daykin states that he represents a large number of merchants moved to this action because they are losing business through the straight 5-cent fare charged on the interurban cars. He contends that the Municipal Traction Company is operating the interurban cars within the city on a collusive contract and that the terms of the franchise in this respect, six tickets for 25 cents, are not being observed. Mr. Daykin asks for a restraining order against the companies to prevent them from collecting more than 3 cents as fare.

Secretary Hughes, of the Referendum League, has begun the organization of clubs in the wards, the first one having been formed a few days ago. He states that an attempt will be made to have the Council order an election before December, the people making their requests of Councilmen through these organizations. As the matter now stands, no vote will be taken until after the Smith suits are decided by the Supreme Court. No attempt has yet been made to appeal the first one decided against the company in the Common Pleas Court.

A few days ago the Cleveland Railway cut the transfer time from 30 min. to 10 min. without giving advance notice. Consequently people not cognizant of the new order lost their transfers if they did not board the first connecting car at the transfer point. The officials of the company stated that this action was taken to prevent people from using the time for shopping or some other errand and making a round trip on a ticket and a transfer.

Action upon the request of Attorney J. A. Kline to bring proceedings against the company on the charge of violating the charter rights in operating a stock exchange, has been delayed by the illness of Attorney-General Ellis.

Owing to the fact that the company is facing a deficit as a result of not charging for transfers, it is said that it has in contemplation the restoration of the penny charge or a cash fare of 5 cents and ticket fare of 3 cents. The Mayor's friends in the Council are said to be willing to allow the extra charge for a cash fare, but some of them are unwilling to concede a return of the charge for transfers. The company may increase the regular fare to six tickets for 25 cents or establish a 5-cent cash fare at will, but cannot then charge additional for transfers unless the Council gives permission. Mayor Johnson is said to favor a charge for transfers temporarily to meet the deficit, as he believes that the use of pay-as-you-enter cars will result in a saving that will make up for the deficit of the last two months.

## The Proposed Provident Association for Third Avenue Railroad Employees, New York

In the issue of the ELECTRIC RAILWAY JOURNAL for Aug. 8, mention was made of the proposal of Frederick W. Whitridge, receiver of the Third Avenue Railroad, to establish a provident association for the benefit of the employees of the company, provided the men themselves favor the plan. The proposal has been clearly set forth in a circular to the employees, and they have been requested to signify their desire to become members of the association by signing a postal card order authorizing the company to deduct 50 cents a month from their wages, beginning October, until the order shall be revoked by them. The letter from Mr. Whitridge is addressed to the employees of the Third Avenue Railroad, Dry Dock, East Broadway & Battery Railroad, Forty-second Street, Manhattanville & St. Nicholas Avenue Railway and the Union Railway. It follows in full:

"I propose, and the court and the bondholders have approved the proposal, to establish a provident association for the permanent employees of these roads, similar to the associations formed some years ago by the Metropolitan Street Railway and formerly existing on the Third Avenue Railroad, upon the following main terms:

"Each employee to be asked to subscribe the sum of 50 cents a month.

"If 50 per cent of the men join, the companies will pay in at the end of each month 50 per cent of the amount of money contributed by the men.

"If 75 per cent of the men join, the companies will pay in at the end of each month 75 per cent of the amount contributed by the men.

"If 80 per cent or more of the men join, the companies at the end of each month will pay in 100 per cent, or an equal amount of money to that contributed by the men.

"This money will be placed with the Central Trust Company for investment, under an agreement with the board of directors.

"The association will be managed by a board of seven, consisting of Mr. Maher, the general manager; Mr. Roosevelt, his assistant; Mr. Sage, the cashier; Mr. Snyder and three of the men who will be selected in the first place from the men longest in the service, and who, after the first year, will be elected by the members of the association, and there will be no expense of management. All the money contributed will be used:

"First—To compensate men when they are ill, at the rate of \$1.50 per day. In the case of serious illness or accident this payment will commence at once. For slight illness or indisposition, only after the lapse of five days.

"Second—To provide for a payment to the family of a man who dies in the employ of the company.

"Third—For the establishment of a pension fund.

"The insurance and pension features of the association cannot be expressly defined until we know how many men will join and what the demands on the association are likely to be. The association will also employ a physician, and the members will be furnished with a club room in the new office building at 129th Street.

"The general conditions will be similar to those in the association with which you are already familiar.

"It is my desire and that of the bondholders, in instituting this association, and in making the large contributions from the companies to its resources, to treat the men as we should ourselves wish to be treated, and I hope that it will convince the men in the employ of the Third Avenue Railroad that they now have a better job than they ever had, and that the men will consequently endeavor to convince us we are getting better service than we have ever received.

"I do not propose to call for any payments until October. Between now and then I shall be obliged if those who wish to join the association will sign the enclosed postal card and forward the same to Mr. Roosevelt."

## Commission Refuses to Interfere with Brooklyn Express Service to Beaches

The Public Service Commission of the First District of New York, acting on the recommendation of Commissioner William McCarroll, has dismissed the complaint brought by the residents of Flatbush to compel the Brooklyn Rapid Transit Company to stop its express trains on the Brighton Beach line at the Newkirk Avenue and Kings Highway stations. Commissioner McCarroll found that A. N. Dutton, superintendent of transportation of the company, was correct in his statement at the public hearing that the elevated train service would be disarranged if the express trains stopped at these two stations, because of the limited trackage facilities within the city and at the Park Row terminal. At the same time the commission denied the application of the railroad company for a rehearing on final order No. 296, which required the company to run local trains of four cars or more. The purpose of securing the rehearing was to obtain permission from the commission to cut down the number of cars used on each train. The commission decided adversely on the application, on the ground that sufficient reason for a rehearing was not presented by the company, and that during the coming fall and winter months the traffic will be so increased that any reduction in service would be inadvisable. The line over which the express service is operated has recently been converted into a four-track road between Prospect Park and Brighton Beach, 5½ miles distant, part of it being depressed and part on an embankment, and the company to accommodate its traffic to Brighton Beach and Coney Island decided to carry the beach traffic through from Prospect Park to the beach with only one stop, at Sheepshead Bay, near Brighton. In this way it sought to separate the excursion from the regular traffic, giving the benefit of the fast service to the through patrons.

**Meeting of the Central Electric Railway Association.**—The next meeting of the Central Electric Railway Association will be held in Indianapolis on Sept. 24. The program for the meeting has not yet been announced.



**New Pennsylvania Line Opened.**—The line of the Hanover & McSherrystown Street Railway between Hanover and Littlestown has been placed in operation. A park is being fitted up by the company along the route for pleasure-seekers from York, Hanover, Gettysburg, Littlestown, McSherrystown and the suburban villages. The line will eventually be extended to Gettysburg.

**New York, New Haven & Hartford Electric Service Interrupted.**—The storm which broke over New York late on the afternoon of Aug. 6 delayed the operation of trains over the electrified division of the New York, New Haven & Hartford Railroad out of New York. Nothing official was given out by the company regarding the nature of the trouble.

**Seeking to Repeal Ordinances in Seattle.**—The new superintendent of public utilities, whose office was created last fall, has introduced into the City Council of Seattle an ordinance repealing the franchise of the Pacific Telephone & Telegraph Company, the Independent Telephone Company and the Seattle, Renton & Southern Railway Company, an interurban railway operating into the city.

**New Street Work and Snow Contract in St. Johns, N. B.**—The board of works has accepted the offer of the St. Johns Railway to pay \$12,000 a year for 10 years in lieu of removing the snow and repairing those portions of the streets traversed by the company. It was decided that the money so received should be placed in a separate account and devoted exclusively to those purposes.

**Fender Ordinance Introduced in Savannah.**—An ordinance has been introduced in the Council of Savannah which provides that every car operated by the Savannah Electric Company must be equipped with a fender of the Hunter type within 60 days after the passage of the ordinance and that violations of the ordinance are punishable by a fine of \$100 or 30 days in jail or both.

**New Transfers in Chicago Make Long Ride Possible.**—Through an arrangement between the Chicago City Railway and the Calumet & South Chicago Railway, transfers are now issued and accepted beginning in the zone north of Seventy-ninth Street. By means of the new arrangement passengers may travel on the surface cars from Howard Avenue, the northern city limits, to Manhattan Beach, for 5 cents, a distance of almost 30 miles.

**Seattle Loses Franchise Case.**—The State Supreme Court has decided that the amendment adopted by the City Council of Seattle last March, which was intended to prevent the granting of any franchise save by a popular vote of the electors, is unconstitutional. The test case was taken through the courts by the Seattle Electric Company to validate a franchise granted by the Council for a short street-car extension demanded by West Seattle residents. In the court's findings it is declared that the charter amendment has sought to supersede a section of the State law, which grants to the Mayor and City Council the authority for issuing franchises. The amendment which the court declares invalid was one forced by a petition presented to the Council and was a companion amendment to an initiative and referendum act that will be tested immediately.

**Accident Fakir in Toils in Baltimore.**—On July 17 Frederick A. Taffen, Bound Brook, N. J., fell from a Madison Avenue car of the United Railways & Electric Company, Baltimore, on Baltimore Street between South and Calvert Streets. He said that he was seriously injured and that his hip was dislocated, but upon examination at the City Hospital it was found that he was only slightly bruised. He reported to a police officer who arrived on the scene shortly after the accident that he had lost a \$75 gold watch, but a pawn ticket was found in his possession which showed that he had pawned the watch in Norfolk. An investigation developed that on July 10, 1908, he settled with the Norfolk & Portsmouth Traction Company, Norfolk, for an accident alleged to have occurred on July 7. On July 21 he made a demand upon the United Railways & Electric Company for \$30 and his hospital bill, and as soon as he made this demand he was arrested and charged with attempting to obtain money by false pretense. After his arrest Taffen confessed, stating that he was standing on the end of the rear platform of a Madison Avenue car when he unfastened the gate and purposely fell off in order to recover from the company for the accident. He admitted that he had a similar accident in Norfolk. In Norfolk, however, he selected a curve for the purpose of carrying out his plan. The Norfolk & Portsmouth Traction Company paid him \$25. He was committed for the action of the grand jury and was indicted by that body on July 29. This case was worked up by the Alliance Against Accident Fraud, formed for the purpose of running down and prosecuting people who make a business of faking accidents against corporations, insurance companies, etc.

## Financial and Corporate

### New York Stock and Money Markets

Aug. 11, 1908.

Although the Wall Street stock market closed the week ending Aug. 11 with a pressure to sell and some reaction, the week, taken as a whole, was one of activity and advancing prices. A strong buying demand developed, much of it seeming to come from the outside, and sales of the active issues were made at higher prices than for the past year. This upward movement is the result of optimistic sentiment in financial circles, as there are no direct compelling causes apparent in the news of the day. The truth of the situation is that the public is not willing to let securities offering returns of 6 and 7 per cent go begging when money can be borrowed at 3 per cent. Everyone has recognized for months that Wall Street offered many bargains and the present buying disposition shows that there is a growing belief that the days of depression have passed.

The Government crop report, made public during the week, was not so encouraging as to spring wheat as were the estimates published in July, but the figures showed that the principal crop yields would be greater than ever before and brought the assurance that at prevailing prices the money return to the producers would be many millions in excess of any previous year. Another thing that has done much to strengthen the situation in financial circles and to create confidence is the understanding which has evidently been reached between the Morgan and the Harriman interests. The immediate effect of it has been the rescue of the Gould properties from rather perilous positions. Arrangements for protecting their bondholders have been made and they will no longer be a disturbing element in the market. It is now intimated that Erie will be attended to later. There is very little interest in politics, and no presidential contest has ever been so indifferently treated. Money continues easy with light demand. Call money is 1@1¼ and 90 days 2@2½ per cent.

### Other Markets

In a week of rather active trading in stocks in Chicago, tractions had but little part. There was some little trading in subway stock and the price was advanced to 24, reacting a trifle at the close Aug. 11. Metropolitan Elevated was traded in to some extent with prices about stationary. Telephone and lighting shares also received attention and were active.

In Philadelphia there has been considerable activity among traction securities during the week and a rather annoying pressure to sell. Philadelphia Rapid Transit and Union Traction were both heavy and sold lower. Each decline was checked by the withdrawal of offers, but on every upward move shares came freely into the market.

While there has been little activity in recent weeks in traction securities on the Boston market, there is undoubted strength, and sales when made are generally at advanced figures over previous transactions. Every stock is now selling for many points above the low figures of 1907, and holders seem fully confident that prices will continue to go higher.

There has been little trading in tractions in Baltimore except in bonds. These have been fairly active. United Railways funding 5s have led the market, the ruling prices being from 80 to 80½. Baltimore traction 5s were less active and closed at 109½.

Quotations for various traction securities as compared with last week follow:

	Aug. 4.	Aug. 11.
American Railways Company, Philadelphia.....	44	46
Boston Elevated Railway.....	132	132
Brooklyn Rapid Transit Company.....	52¾	55½
Chicago City Railway.....	a180	a180
Cleveland Railway.....	95	—
Consolidated Traction Company of New Jersey.....	69½	a69½
Consolidated Traction Company of New Jersey, 5 per cent bonds.....	a103½	a103½
Detroit United Railway.....	a40	a40
Interborough-Metropolitan Company.....	11¼	13½
Interborough-Metropolitan Company (preferred).....	32¾	37¼
Manhattan Railway.....	138¾	139¾
Massachusetts Electric Companies (common).....	10¼	10
Massachusetts Electric Companies (preferred).....	49	47
Metropolitan West Side Elevated Railway, Chicago (common).....	a17	a15
Metropolitan West Side Elevated Railway, Chicago (preferred).....	a48½	a46
Metropolitan Street Railway.....	a30	38
North American Company.....	65¾	64½
Philadelphia Company, Pittsburg (common).....	38½	38½
Philadelphia Company, Pittsburg (preferred).....	41	39¼
Philadelphia Rapid Transit Company.....	15	14½
Philadelphia Traction Company.....	88	88
Public Service Corporation, 5 per cent collateral notes....	a96	a97
Public Service Corporation, certificates.....	a70	a70¾
Twin City Rapid Transit Company, Minneapolis (common).....	a91¼	a90¾
Union Traction Company, Philadelphia.....	50	49¾
a Asked.		



**Reorganization Plan of Virginia Passenger & Power Company**

The reorganization plan and agreement of the Virginia Passenger & Power Company, of Richmond, Va., the Richmond Passenger & Power Company and the Richmond Traction Company and controlled lines have been issued by the reorganization committee.

It is proposed to form a new company under the laws of the State of Virginia with an authorized capital stock of \$12,500,000, of which \$5,000,000 shall be 5 per cent preferred stock and \$7,500,000 common stock. The preferred stock shall be entitled to non-cumulative dividends up to 5 per cent per annum until and including Jan. 1, 1914, and thereafter up to 6 per annum, non-cumulative. The authorized bond issue will be \$15,000,000 of 25-year 5 per cent bonds secured by a first and refunding mortgage which will be a first mortgage lien on a large part of property of the new company, including, if the same be acquired, the properties of the Southside Railway & Development Company, the Richmond & Petersburg Electric Railway Company and certain lines in and about Richmond and Manchester, and as to the remainder, will be subject to the liens of mortgages securing bonds aggregating \$2,158,000 provided all of the properties are acquired. Of the authorized issues of securities there will be reissued for the retirement of the underlying bonds and issued in exchange for the securities of the old companies \$9,600,000 of the proposed bonds, \$4,500,000 preferred stock and \$7,500,000 common stock.

The present outstanding capitalization is: Bonds (including accrued interest), \$19,057,066; stock, \$13,168,700; total, \$32,225,766. The new capitalization under the plan proposed would be: Bonds, \$9,597,627; stock, \$8,606,684; total, \$18,204,311.

The committee requests that deposits of securities be made with the Bowling Green Trust Company, of New York.

In a summary of a report by Ford, Bacon & Davis, of New York, accompanying the reorganization plan and agreement, that firm states:

"The Richmond city franchises of these companies are unsatisfactory both from the standpoint of the public and of the companies. These franchise requirements are such as to prevent the companies from earning a fair return on the value of their physical property, without reference to the actual capital invested.

"We believe that the best interest of all parties is that the railway company furnish in return for its right to do business at a fair price, the best construction and equipment and render the best service possible. In order to effect this result for the public, it is necessary that fair and reasonable terms be allowed the company upon which to place its securities and obtain the necessary capital for carrying on, developing and extending the business. In this way the company makes its return to the public by keeping pace with and furthering the development of the city.

"We would recommend that, if possible, a new agreement be entered into with the city to enable the consolidated company to give the best service to the public and to develop its business along lines of reasonable profit.

"The Manchester, Interurban & Petersburg franchises are perpetual and reasonable. The water power rights in Richmond and Petersburg are perpetual.

"Based upon the present method of operation and upon sufficient service to provide for the increased business, and with the construction expenditures as above recommended, we estimate the income account of the property under efficient management for the next five years as follows:

	1908.	1912.	Four years' increase, 1912 over 1908.	Per cent.
Gross earnings.....	\$1,800,223	\$2,261,350	\$461,127	25.6
Operating expenses.....	991,747	1,215,140	223,393	22.5
Net earnings.....	\$808,476	\$1,046,210	\$237,734	29.1
Income from other sources....	13,100	14,700	1,600	12.2
Gross income.....	\$821,576	\$1,060,910	\$239,334	29.1
Deductions from income:				
Taxes .....	\$114,458	\$149,777	\$35,319	30.8
Interest on car trust certificates	4,080	1,200	-2,880	-70.6
Interest on new money required at 6 per cent. from July 1.	.....	101,279	101,279	...
Total deductions from income	\$118,538	\$252,256	\$133,718	112.8
Net income applicable to reserves, sinking funds, interest on bonds, dividends and surplus .....	\$703,038	\$808,654	\$105,616	15.0

A summary of a similar report by J. G. White & Co., Inc.,

is also published with the plan. The summary states in part:

"The railway system comprises 119.94 miles of track, which is in generally good condition, large expenditures for betterments and replacements having been made during the last few years out of earnings. No extensions are considered necessary within the next five years, with the exception of about 1.3 miles into a new residence section of Richmond which is growing rapidly. A rearrangement of lines in some sections would be desirable, as it would give equal or better service to the public, and at a materially reduced operating cost to the railway. The consent of the city authorities would have to be obtained to this plan.

"During the next five years some reconstruction and betterments of the existing mileage will be necessary, partly as the result of depreciation and partly owing to the probable requirements of the city in the way of paving. An improvement in alignment at the Petersburg end of the interurban road is also desirable for efficiency of operation.

"The rolling stock is sufficient for present requirements, and is for the most part well maintained, but some of the older cars and equipments must be replaced within the next two years, and additional cars must be ordered within the next five years to take care of increased business. The car barn facilities are inadequate, and additional capacity should be provided as soon as possible."

**Carbon Street Railway, Mauch Chunk, Pa.**—This company has been reorganized as the Carbon Transit Company. On Aug. 3 it was sold to a syndicate composed of J. M. Wolff and J. F. Geiser, Waynesboro, Pa.; L. H. Mountney, Mauch Chunk, Pa.; C. H. Latta, Bethlehem, Pa.

**Central Illinois Traction Company, Mattoon, Ill.**—It is announced that this company will soon be taken from the hands of the receiver. To do this it will be necessary for the stockholders to pay over \$85,000, which represents the outstanding indebtedness. There are now outstanding receiver's certificates to the amount of \$41,000, issued to pay the damage claims which were compromised out of court. The \$5,000 judgment taken by the Colonial Trust Company, Chicago, which precipitated the receivership, is unpaid, as also are the court costs, attorneys' fees, etc. After this money has been paid and certified to, the stockholders will petition the Coles County Circuit Court to dissolve the receivership. The road has been under the jurisdiction of the court since the wreck of Aug. 30, 1907, when 18 lives were lost.

**Columbus (Ohio) Railway & Light Company.**—The shareholders will vote September 8 upon a proposition to lease all of the property, franchises and privileges of the Columbus Light, Heat & Power Company, said property and franchises having been purchased by the Columbus Light, Heat & Power Company from the Columbus Public Service Company. The Columbus Light, Heat & Power Company was incorporated at Columbus on Aug. 1, 1908, with \$2,000,000 of authorized capital stock in shares of \$100 each, \$750,000 being common and \$1,250,000 6 per cent preferred (redeemable after Jan. 1, 1912) and an authorized issue of \$1,000,000 6 per cent first mortgage bonds, to purchase in the interest of the Columbus Railway & Light Company the property of the Columbus Public Service Corporation by an exchange of stock. The last-named company has outstanding \$1,500,000 common stock, which is exchangeable for \$200,000 new common and \$250,000 preferred stock (sold) which is exchanged for new preferred; it also has an issue of \$750,000 6 per cent bonds, the plan of 1905 to exchange these bonds for preferred stock never having been consummated. The successor company will have outstanding \$420,000 preferred stock (\$250,000 plus \$170,000) on which under the lease to the Columbus Railway & Light Company, that company will pay as rental 5 per cent per annum; also \$200,000 common stock on which the rental dividends will be as follows: July 1, 1909, 1½ per cent; Jan. 1, 1910, 1½ per cent; July 1, 1910, 2 per cent; Jan. 1, 1911, 2 per cent; April 1, 1911 and thereafter, 1¼ per cent quarterly, or 5 per cent per annum. The officers of the Columbus Light, Heat & Power Company are Edwin R. Sharp, president; George Hardy, first vice-president; William K. Lanman, second vice-president; Harford T. Stewart, secretary and treasurer.

**Grand Rapids (Mich.) Electric Railway.**—This company has filed a \$250,000 mortgage at Napoleon, Ohio, to the Cleveland Trust Company to secure funds for use in the construction of the line. The proposed route is from Alpena to Grand Rapids and from Grand Haven via Grand Rapids south through Michigan and the Ohio counties of Williams, Fulton, Henry and Wood to Fostoria. It is probable the road will follow the Coldwater bed and parallel the D. T. & I. from Wauseon.



# Traffic and Transportation

## Segregation of New York City Lines

The relinquishment by the Metropolitan Street Railway, New York, of the lease of the Fifty-ninth Street Crosstown and the east and west side belt lines on Aug. 6 and the termination on that date of the transfers between the Metropolitan Street Railway and the Central Park, North & East River Railroad, known as the Belt Line, was preceded on Aug. 5 by a hearing before Wm. R. Wilcox, chairman of the Public Service Commission of the First District, on the service to be furnished by the Central Park, North & East River Railroad following its independent operation. Mr. Wilcox was assured that arrangements had been made between the Central Park, North & East River Railroad and the Metropolitan Street Railway by which the latter would supply power and equipment sufficient even to improve the service of the company following its separation from the Metropolitan Street Railway, but that no arrangements had been made between the companies for the exchange of transfers. Mr. Wilcox said that while under the law creating the commission that body has the power to fix joint rates, it would be impossible to take action in the matters until an inventory of the properties had been completed, as no order by the commission that was confiscatory, would be upheld by the courts.

On Aug. 7, however, the Public Service Commission served a formal order on the companies to show cause why they should not enter into a joint agreement and restore the transfer system. This action followed the disorder attendant upon the discontinuance of transfers on Aug. 5 at midnight. Disputes between passengers and employees of the Central Park, North & East River Railroad were numerous, and the police had to be called upon in a number of instances to protect the company's property. The patronage of the company also suffered materially, especially during the rush hours. In bringing the subject before the commission on Aug. 7, Chairman Wilcox said: "Since our last meeting the line known as the Central Park, North & East River Railway has undertaken to conduct its service independently, owing to the fact that the lease existing between it and the Metropolitan Street Railway has been canceled, and as a result of the independent management the transfer arrangement existing between its present route and the north and south routes has been shut off. For several years the so-called Belt Line has paid large dividends by virtue of the rental received from the lessor, and the same lessor has paid large dividends to some of the other lines that it had been operating, and has been exchanging passengers with the Belt Line. This has been continuing for years upon a one-fare basis, and this present situation, doubling, and in some cases tripling, the fare, is a matter that has produced a great deal of trouble at some points. It is certainly a matter that ought to be taken up by the commission. I therefore have had an order prepared calling upon the receivers and the Belt Line to show cause why a joint rate should not be made between the two operating companies."

The chairman then presented a resolution directing the receivers of the Metropolitan Street Railway and the Central Park, North & East River Railway to keep a separate record of receipts and expenses for a period of 30 days, beginning on Thursday, Aug. 13. At the end of that period they will be expected to file a report of such receipts and expenses with the commission as a basis for determining whether the commission can consistently issue an order directing the restoration of the transfers.

John D. Crimmins made public on Aug. 7 a statement in which he reviewed the transit situation as affected by the discontinuance of transfers, and said that the necessity for curtailing the transfer privileges was to be deplored because of its economic bearing. He referred to the non-issuance of transfers as a hardship to the workers who are compelled to patronize the cars, and said that its effect upon the distribution of population would soon be felt. He suggested that the Mayor call into consultation the members of the Public Service Commission, the officers of the several surface railways in New York and the officials of the city with a view to adjusting the situation to the best interests of the companies and the citizens. Merchants along the route traversed by the Central Park, North & East River Railway are organizing under the leadership of H. C. Bloomingdale, of Bloomingdale Brothers, large retail merchants, to protest against the discontinuance of transfers.

The Public Service Commission on Aug. 11 ordered the receivers for the Metropolitan Street Railway and the offi-

**Manhattan Railway, New York.**—This company, which operates the elevated railways in New York, is offering through Redmond & Company for public subscription \$11,712,000 consolidated first mortgage gold bonds dated Feb. 26, 1890, and due April 1, 1990. The earnings of the company for the year ended March 31, 1908, as reported in connection with the offer of the bonds, shows:

Gross earnings .....	\$14,716,495
Operating expenses and taxes.....	7,696,498
Net earnings .....	\$7,019,997
Interest charges .....	1,809,680
Surplus .....	\$5,210,317

The number of passengers carried for the past 9 years, being the time that has elapsed since electricity was installed as a motive power, has been as follows: 1899, 174,324,575; 1900, 184,164,110; 1901, 190,045,741; 1902, 215,259,345; 1903, 246,587,022; 1904, 286,634,195; 1905, 266,381,930; 1906, 257,796,754; 1907, 282,924,273.

**Metropolitan Street Railway, New York.**—Judge Lacombe, of the United States Circuit Court, has issued an order permitting the Guaranty Trust Company to file an amended and supplemental bill of complaint in the suit against the Metropolitan Street Railway and to join as a defendant W. W. Ladd, receiver of the New York City Railway. In its application for the order the Guaranty Trust Company stated that, because of the surrender to the receivers of the Metropolitan Street Railway of the property of the New York City Railway, it desired to bring in additional parties and make the necessary allegations for appropriate relief for the preservation of the rights of the bondholders it represented.

**Missouri Electric Railway, St. Louis, Mo.**—This company, which was organized recently to take over the property of the St. Louis, St. Charles & Western Railway, has filed a mortgage at Clayton securing bonds to the amount of \$1,000,000, with the Mercantile Trust Company as trustee for the bondholders. The deed sets aside \$700,000 for refunding present indebtedness and for extending and repairing the system.

**San Bernardino (Cal.) Traction Company.**—It is announced in Los Angeles that Henry E. Huntington has purchased the interest of Henry Fisher, J. H. Fisher and A. G. Hubbard in the San Bernardino Valley Traction Company and the Redlands Central Railway, thus securing control of these properties.

**Toledo Railways & Light Company, Toledo, Ohio.**—According to report Ford, Bacon & Davis, New York, have been employed to make an examination of the street railway, lighting and interurban properties under the control of the Toledo Railways & Light Company. They will determine the value of the properties, report on their physical condition and also as to the owners of the stock and securities of the various corporations. This is necessary in order that the bond refunding committee may properly perform its duties and to give a basis upon which to issue whatever new securities that may be necessary to take the place of the old ones.

**Underground Electric Railways, London, Eng.**—The holders of this company's shares and the holders of its "profit-sharing secured notes" were offered last week the privilege of subscribing at 93 per cent at the offices of Speyer & Company, New York; Speyer Brothers, London, E. C.; Lazard Speyer-Ellissen, Frankfurt-on-Main, and Teixeira de Mattos Brothers, Amsterdam, for £1,000,000 5 per cent prior lien bonds, due Nov. 1, 1920, but subject to call in any amount, when drawn by lot, at par and interest on six months' notice. The issue cannot in any case exceed £1,250,000. The underwriting syndicate will take the considerable block of the present issue of £1,000,000 remaining unsubscribed for.

**Winnebago (Wis.) Traction Company.**—The property of this company was sold under foreclosure on Aug. 6 for \$950,000 to Oliver C. Fuller, Fred C. Best and Russell L. Smith, of Milwaukee, who will act as a reorganization committee. The property, it is reported, is to be reorganized with Milwaukee and Oshkosh capitalists as officers and directors, Clement C. Smith, Milwaukee, president of the Eastern Wisconsin Railway & Light Company, to be president. Mr. Smith is quoted as saying: "A company has been formed to take over the Winnebago Traction Company. As to the consolidation of the company with the Eastern Wisconsin there is nothing to that story at present. Nor do I think the two companies will be merged. They will be operated separately, but under a community of interests."



cial of the Central Park, North & East River Railroad Company to establish through routes and joint rates between Thirty-fourth and 116th Streets via Fifty-ninth Street, by Aug. 24. This action was taken after a hearing on the order to show cause why such an arrangement should not be made. By this action, which contemplates the introduction of the "zone" system, the commission hopes to bring about a restoration, with slight modifications, of the transfer system formerly in operation between the north and south lines of the Metropolitan system and the Fifty-ninth Street road. If it is announced later that no agreement can be reached between the companies, the commission will have to apply to the courts to enforce its order and collect penalties or will have to start a new proceeding which will result in the commission itself fixing the rate.

**Long Island Commuters vote on Train Service**

The Long Island Railroad has taken a vote from the commuters with the idea of learning the wishes of the daily riders as to the time of running trains. Two propositions were submitted, one as to starting trains from eastern terminals 10 min. to 15 min. late in the morning and the other as to starting trains from the western terminal earlier in the afternoon. It is found that by using the New York subway under Flatbush Avenue and Fulton Street and the East River tube, in connection with the electric service over the Long Island Railroad between Jamaica and Flatbush Avenue, Brooklyn, commuters are able to reduce the time heretofore necessary for the journey about 15 min. The railroad company, wishing to consult the desires of a majority of its patrons, had printed ballots handed to all the commuters on the trains as follows:

**"TO COMMUTERS**

"To meet the changed conditions caused by the electric operation on Atlantic Avenue, connecting with the subway, and to give regular daily riders the benefit of the saving in time at home, it is proposed, on the fall time-table taking effect in September, to schedule commission hour trains so that they will leave eastern terminals 10 min. to 15 min. later in the morning, and leave western terminals 10 min. to 15 min. earlier in the afternoon. The company would like to get an expression from regular commuters on these propositions:

"1. Schedule westward commission hour trains so that they will leave eastern terminals 10 min. to 15 min. later in the morning.

"2. Schedule eastward commission hour trains so that they will leave western terminals 10 min. to 15 min. earlier in the afternoon.

"The Annex Service between Long Island City and Pier 8, New York, will be discontinued after Oct. 1, 1908.

"Below please find space to write 'Yes' or 'No' to both propositions. Please hand this back to representative at once, so that it can be turned in to proper official, who will keep account of the votes.

Proposition No. 1	Proposition No. 2
(Yes).....	(Yes).....
(No).....	(No).....
Signature .....	Signature .....
Station .....	Station .....
Train No. ....	Train No. ....

About 65 per cent asked that both changes be made. A large number sent letters expressing satisfaction with existing conditions, and asking that no changes be made. A close analysis is being made of the expression of opinion, and the train service for the fall schedule will be governed accordingly.

**Indiana Commission on Uniform Bills of Lading**

Under date of Aug. 1 the Railroad Commission of Indiana addressed the following circular to all the steam and interurban railroads in the State:

"The Interstate Commerce Commission has recently suggested that carriers of interstate freight adopt, not later than Sept. 1, 1908, uniform bills of lading, copies of which, together with conditions appearing upon the reverse side thereof, are given in the printed report of the Interstate Commerce Commission, cause No. 787, issued June 27, 1908. One of these bills of lading, used in case of 'straight consignments' as distinguished from 'order consignments,' is made non-negotiable by its title.

"The Railroad Commission of Indiana desires to call your attention to the fact that a bill of lading, similar to the above mentioned 'straight consignment' bill, could not lawfully be used by common carriers in Indiana with respect to exclusively intrastate shipments, since our statute expressly provides that 'it shall be unlawful for such common carrier to limit by contract or otherwise the negotiabil-

ity of any bill of lading.' (Acts 1907, p. 476.) A penalty is assessed by Sec. 12 of the same act for violation of the above provision. (Acts 1907, p. 477.)

"Your notice is also directed to Sec. 3 of the conditions appearing upon the back of said bills of lading, reading in part as follows: 'No carrier is bound to transport said property by any particular train or vessel or in time for any particular market or otherwise than with reasonable dispatch; unless by specific agreement indorsed hereon.' Such a section, if adopted for use in local shipments, could not operate to nullify the express requirements of the 'Shippers' Bill' of 1907 (Acts 1907, p. 435), prescribing that intrastate freight shall move forward to destination not less than an average of 50 miles every 24 hours, subject to exceptions named in the act.

"Should you anticipate adopting, for business originating and ending in Indiana, a uniform bill of lading modeled after the forms suggested by the Interstate Commerce Commission, it would avoid misunderstanding between carrier and shipper, and liability, under the penal provisions of the statute, if such local bill of lading is made to conform strictly to the statutes of this State, as above.

"In this connection the commission desires to emphasize the necessity for stating, in all bills of lading issued on intrastate shipments, the classification of the freight, and rate at which same is carried.

"Respectfully yours,  
"CHAS. B. RILEY, Secretary."

**Fatal Collision in Ohio.**—Three men were killed, seven were injured seriously and a score, including passengers and members of the train crews, were hurt in a head-on collision of limited cars on the Western Ohio Railway, 9 miles north of Piqua on Aug. 9. The cars met opposite the Shelby County infirmary, due to a misunderstanding of orders, because a seldom-used switch was indicated as the meeting point as the southbound car was overdue.

**Fitchburg & Leominster Street Railway Gets Freight Rights.**—The Fitchburg & Leominster Street Railway, which requested permission of the Massachusetts Railroad Commission to carry light freight and express matter in Leominster, was granted the right by the Selectmen on August 4. Among the conditions of the grant are that the company shall not haul steam freight cars, and shall carry gravel, cracked rock and stone to be used by the town at a price to be agreed upon.

**Oneida Railway Advertised by Blotters.**—The Oneida Railway has issued as an advertisement a blotter containing a map of its line between Utica and Syracuse, N. Y., including the lines of the Utica & Mohawk Valley Railway and the Syracuse Rapid Transit Railway. The limited trains of the Oneida Railway on the run between Syracuse and Utica stop only at Canastota and Oneida. Trains leave Syracuse and Utica at 7:05 a. m. and hourly to 7:05 p. m., then at 10:05 p. m. Local trains, stopping at all stations, leave hourly from 5:30 a. m. to 11:30 p. m.

**Police Powers for Indiana Conductors.**—A number of interurban railways in Indiana which have experienced an unusual amount of trouble this summer with disorderly passengers have notified the public that they have secured police powers for their conductors authorizing them to make arrests when necessary to maintain order on the cars and to protect passengers. The conductors are also authorized under the statute granting them police powers to arrest on all cars passengers playing any game of chance for money.

**Ohio Electric Railway Limited Service.**—On Aug. 15 the Ohio Electric Railway will put on a service between Lima and Springfield that will require cars to make a speed of 35 m.p.h., including stops. The line between Lima and Bellefontaine has only two short curves and the 34 miles will be run in 50 min. The 32 miles between Bellefontaine and Springfield, however, will require an hour. New 60-ft. cars have been provided for this run. The track is being rebalasted. The time from Lima to Toledo will probably be 1 hr. 50 min., which is 30 min. quicker than the Cincinnati, Hamilton & Dayton Railroad makes the run.

**Yonkers Fare Suit Dismissed.**—Supreme Court Justice Morschauer, on Aug. 9, dismissed the writ of mandamus obtained by the City of Yonkers against the Yonkers (N. Y.) Railway to compel the company to continue carrying passengers from Yonkers to New York for 8 cents. The court declined to decide the case on affidavits. After dismissing the writ it issued an order for the company to show cause why the fare should be raised. The question will come up again on Saturday, Aug. 15, when it is expected a referee will be appointed to take testimony and report. The receiver of the Yonkers Railway says that he has been buying transfers on all New York business at a loss since August of \$15,000.



**Workmen's Tickets in Massachusetts.**—Workmen's tickets are issued by the Connecticut Valley Street Railway for use over the Millers Falls line at the rate of 3.6 cents a ride. The tickets are sold by the book of 50, but the cost is \$1.80 a book, instead of \$1.50, as formerly. The Railroad Commission was petitioned soon after the increase of the fare on the line from 5 cents to 6 cents, but the commission sustained the action of the road, stating that the earnings of the division were such that the increase was justified. The commission advised the issuance of workmen's tickets at a reduced rate, but did not specify as to the rate. The rate at which the tickets are sold now, 3.6 cents, still gives a substantial reduction from the regular fare as it formerly was.

**Philadelphia Subway Profitable.**—The number of passengers carried over the elevated-subway line of the Philadelphia Rapid Transit Company on Aug. 3, when the service was inaugurated, was 120,000. Charles O. Kruger, general manager of the Philadelphia Rapid Transit Company, says the number of persons who paid cash fares at the elevated and subway ticket offices was 110,000, while those who paid 5-cent fares on the surface cars and were transferred to the subway system numbered 10,000. The gross returns for the day on account of the elevated-subway route were, therefore, \$6,000. This, of course, is abnormal, and is due to curiosity seekers. Taking the management's own estimate, \$3,000, as the daily average receipts, the year's gross returns would be \$1,095,000.

**Massachusetts Transfer Withdrawal Not Approved.**—The Massachusetts Railroad Commission has dismissed the petition of the Western Massachusetts Street Railway, Westfield, Mass., for approval of the withdrawal of free transfers in Westfield. The company proposed to install round trip tickets at 10 cents each, entitling the holders to ride on the Holyoke line from Westfield Square to the boundary line between Westfield and Holyoke, and return, thus decreasing the existing fare for a through ride to Holyoke and to Hampden Park. At the hearing citizens of Russell, Huntington and Montgomery, served by the Huntington line, protested against the proposed withdrawal of free transfers. The board states that the issue involves conflicting public interests, and that it is unable to find it in the interest of the public. In case it is petitioned that the fares in Westfield need readjustment the board will consider the problem.

**Indianapolis to New York by Trolley and Steam.**—The Indiana Union Traction Company has issued a special folder calling attention to the connection made by its lines at Ft. Wayne with the Pennsylvania Railroad's special 18-hour train to New York, affording the only noon service out of Indianapolis and making it possible to transact business in Indianapolis in the morning, spend an hour in Ft. Wayne and connect with the Pennsylvania flyer so as to be in New York the following morning. A parlor car buffet service is operated by the Union Traction Company over this line, and arrangements have been made by the company so that berths on the Pennsylvania Railroad can be reserved through the Union Traction Company's offices. Schedules are given of east bound and west bound trains via the Union Traction Company's lines and the Pennsylvania Railroad and of north bound and south bound trains via the Union Traction Company's lines and the Chicago, Cincinnati & Louisville Railway for Chicago.

**Temporary Through Routes Cause Trouble in Chicago.**—Complaints from patrons of the "temporary through routes" now operated jointly by the Chicago City Railway and the Chicago Railways have led the board of supervising engineers to oppose further experimentation with the lines. Members of the advisory board as well as officials of the company regret the installation of the temporary routes as ill advised. They have been a constant source of worry, creating the impression that the enforcement of the franchises would prove a farce and interfering with progress along the lines of general improvement. Bion J. Arnold said: "We installed them, not because we thought the time had come, but in response to a public demand, and they have given little satisfaction. Their benefit to the public has been vague, and they have occupied more time than they were worth." Mr. Arnold further said the board recognized the advisability of concentrating its efforts on the work of rehabilitation now in hand. An inquiry into the cause of this constant condition struck at the nub of a great part of the through routing trouble. This is the compelling of agreements between the two companies as to the number of cars each shall provide for the through routes. Each sends 16 cars over the Wentworth-Clark line, and the Chicago City Railway, which already has expressed its willingness to place its cars on any through route named by the board of engineers, is willing to add others; but the Chicago Railways feels that it would be inexpedient to take away more cars from its regular lines.

## Personal Mention

**Mr. Warren J. Bicknell**, president of the Cleveland Construction Company and formerly president of the Lake Shore Electric Railway, has been elected president of the board of directors of the Toledo Railways & Light Company and will act in an advisory capacity to Mr. A. E. Lang, president of the company.

**Dr. Howard M. Woodhead** and **Dr. Milo M. Quaife**, of the University of Chicago, have been appointed to obtain for the city of Chicago information regarding the manner in which the subway systems of European cities and the United States are being operated. Dr. Woodhead will go to London and Paris at once and Dr. Quaife will visit New York, Philadelphia and Boston. The information it is expected to obtain has been divided into the following heads: Bibliography, systems of control, history of the situation leading up to the installation of subways, engineering features of the projects, finances and every detail of the practical operation of subways.

**Mr. B. W. Arnold** has been appointed superintendent of all lines of the Illinois Traction System south of Springfield, with headquarters at Staunton. Since June 1 Mr. Arnold has been superintendent of the Lincoln, Decatur, Champaign and Bloomington divisions of the Illinois Traction System, with headquarters in Springfield, Ill. He was located in Springfield for some time as superintendent of terminals and was later sent to Decatur as superintendent of the various divisions running into that city, returning to Springfield to take charge of the divisions north and east of that point. Mr. Arnold will be succeeded at Springfield by Mr. W. W. Street, who was formerly superintendent of the southern lines, with headquarters at Staunton.

**Mr. William B. Wheeler** has been appointed superintendent of the Westchester Electric Railway, New York. Mr. Wheeler began his career as a conductor with the Atlantic Avenue Railroad, Brooklyn, in 1894, and remained with that company until June, 1897, when he resigned to become connected with the Metropolitan Street Railway, New York. In January, 1898, he was appointed starter for this company on the Lenox Avenue division, in which capacity he served three years. He was then made superintendent of the Lexington Avenue division, which had been equipped with the underground conduit system. Subsequently he was transferred to the Fourteenth Street division.

**Mr. Edward M. Wharff** has been appointed electrical engineer of the Syracuse & South Bay Railroad, Syracuse, N. Y., in addition to his position of electrical engineer of the Syracuse, Lake Shore & Northern Railroad. The Syracuse & South Bay Railroad will probably be opened for traffic this month and Mr. Wharff will then have charge of the power house, cars, car house and overhead work for both companies. Mr. Wharff graduated from Syracuse University, being a member of the College of Liberal Arts, class of 1903, and subsequently graduated from the I. C. Smith College of Applied Science. He was connected with the Rochester, Syracuse & Eastern Railroad for a time after graduation.

**Mr. Albion E. Lang** has been elected president of the Toledo Railways & Light Company, to succeed Mr. Henry A. Everett, whose resignation was announced in the last issue of the *ELECTRIC RAILWAY JOURNAL*. Mr. Lang, previous to the control of the company by the Everett-Moore Syndicate, was connected with the Toledo Railways & Light Company as president, and has been identified with Toledo and Ohio interests practically all his life. He was born at Huntington, Lorain County, Ohio, and settled in Toledo in 1869, entering at that time the employ of the Western Union Telegraph Company. He remained with that company until 1874, when he entered business for himself in Toledo. In 1881 he purchased an interest in the Monroe & Dorr Street Railway and soon thereafter was elected president of the company. In January, 1885, while acting as president of the company, he effected a consolidation of several of the local companies, and in 1888 was elected vice-president and general manager of the Toledo Consolidated Street Railway. Soon thereafter followed the consolidation of all the street railway companies in Toledo, including the Robison lines, under the name of the Toledo Traction Company. Mr. Lang was elected president of this company and was also placed at the head of the Toledo Consolidated Electric Company, which for a time owned and operated all the electric plants in the city. In 1901 the Toledo Traction Company passed to the control of the Everett-Moore Syndicate, and was reorganized as the Toledo Railways & Light Company, Mr. Lang remaining as president until 1902, when he resigned and was suc-



ceeded by Mr. H. A. Everctt. Mr. Lang retained a large interest in the company and since 1901 has annually succeeded himself as a director and chairman of the board of directors. Since severing his active connection with the company, however, he has spent a large part of his time abroad and at his summer home in Windsor, Vt.

**Mr. A. L. Drum**, who was recently appointed representative of the Calumet & South Chicago Railway on the Board of Supervising Engineers, Chicago Traction, is a graduate of the Massachusetts Institute of Technology. He began his engineering work in the power station and meter and underground cable departments of the Boston Electric Light Company, and later became assistant to the general manager of the Suburban Light & Power Company, of Boston. Subsequently he became a correspondent for the *Boston Globe*, but returned to the electric light field as manager of the Middleboro gas and electric plant. Then he entered railway work as manager of railway and lighting companies for Stone & Webster. As general manager and constructing engineer for the Indiana Union Traction Company, Mr. Drum



A. L. Drum

built the Indianapolis, Logansport & Peru line, Elwood-Tipton line, Logansport City lines, Winona & Warsaw Railway and Mattoon-Charlestown line, making in all about 160 miles. He also had charge of reconstructing the local lines of the Indiana Union Traction Company in Marion, Muncie, Fort Wayne and Anderson in Indiana and the interurban line between Indianapolis and Muncie. This latter reconstruction permitted the inaugurating of a limited service every two hours and a local service every alternate two hours, which reduced the number of cars required to give hourly service from Indianapolis to Muncie from eight to five, saved platform and car maintenance expense and increased the passenger travel. After leaving the Indiana Union Traction Company, Mr. Drum became general manager and construction engineer of the Chicago & Milwaukee Electric Railroad, and in this capacity constructed the line from North Chicago to Kenosha and reconstructed the line from Evanston to Wantagan. In May, 1906, he opened offices in Chicago as a consulting and constructing engineer and expert in the management of electric railway, electric lighting and gas properties, in which capacity he has the management of the South Chicago City Railway and the Calumet Electric Street Railway, which are now the Calumet & South Chicago Railway, the Hammond, Whiting & East Chicago Electric Railway, of Indiana, and the Marquette County Gas & Electric Railway, of Michigan. Mr. Drum as constructing engineer is now completing the Chicago & Milwaukee Electric Railroad from Racine to and into the city of Milwaukee, and is in charge of the rehabilitation of the Calumet & South Chicago Railway in Chicago and also the Hammond lines. The latter system comprises about 145 miles of single track serving the population of Chicago from Fifty-third Street, the junction with the South Side Elevated Railroad, and the Chicago City Railway, to Pullman, West Pullman and South Chicago, and Hammond, Whiting and East Chicago, Indiana. The ordinance of the city of Chicago, passed March 30, 1908, gave the Calumet & South Chicago Railway a 20-year franchise and provided for the complete rehabilitation of its lines within 3½ years. This work is now being carried on under the direction of the Board of Supervising Engineers, composed of Mr. B. J. Arnold, chairman; Mr. Geo. Weston, representing the city of Chicago; Mr. A. L. Drum, representing the Calumet & South Chicago Railway; Mr. H. B. Fleming, representing the Chicago City Railway Company, and Mr. John Z. Murphy, representing the Chicago Railways Company.

#### OBITUARY

**Charles K. Modlin**, roadmaster of the Detroit (Mich.) United Railway, is dead. Mr. Modlin had been connected with the Detroit United Railway and its constituents 17 years. He entered street railway work as assistant roadmaster of the Fort Wayne & Belle Isle Railway. Later he became roadmaster. For five years he was roadmaster of the Pontiac and the Farmington & Northville divisions of the company.

## Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (\*) indicates a project not previously reported.

#### FRANCHISES

**Oakland, Cal.**—The Board of Supervisors has granted permission to A. W. Maltby and Joseph Naphtaly to operate an electric street railway through the Alameda County part of the Alameda-Contra Costa tunnel, back of Claremont. [E. R. J., May 23, '08.]

**Oxnard, Cal.**—The City Council has awarded a franchise to the Bakersfield & Ventura Railroad to run a street railway on A Street. The cars must be run by some motive power other than gasoline.

**Red Bluff, Cal.**—The Northern Electric Railroad, now operating an interurban system between Sacramento, Marysville, Oroville, Chico and Hamilton, has applied to the City Trustees for a franchise to lay tracks and operate its system in this city. It claims it will build its road from Chico and connect with Red Bluff within one year.

**Wilmington, Cal.**—The Board of Trustees has granted a franchise to the Pacific Electric Railway to follow the new harbor line in a new route to Long Beach.

**Marion, Ind.**—The Grant County Commissioners have granted a franchise to the Elwood & Swayzee Traction Company, which proposes to operate a line between Elwood and Swayzee, 17 miles. Gasoline-electric cars will be operated. [E. R. J., July 25, '08.]

**Needham, Mass.**—The Needham Selectmen have granted to the Newton & Boston Street Railway a franchise for an extension to its system from the present terminus at Chapel Street, across Great Plain Avenue and along Chestnut Street to the bridge near the Needham Junction station of the New Haven Railroad.

**Jersey Central Traction Company, Keyport, N. J.**—This company has asked the Board of Freholders for an extension of time of 10 months to build its line across the Raritan River between Perth and South Amboys. The board will give a public hearing on the application on Sept. 3.

**Ithaca, N. Y.**—The Public Service Commission, Second District, has granted the application of the Ithaca Street Railway for permission and approval to exercise franchises granted by the City of Ithaca on May 13, 1908. The effect of these franchises will be to cause the double-tracking and other needed improvements of the street railway system in that city. The franchise has been given for a term of 9 years.

**\*Portland, Ore.**—F. B. Holbrook has applied for a franchise to build a double-track electric railway from the intersection of East Thirteenth and Alberta Streets, in the northeast side district, along Thirteenth Street, northward to and across Ainsworth Avenue.

**Huntingdon, Pa.**—The Town Council has granted the Juniata Valley Electric Railway a franchise for an extension through West Huntingdon to the borough line in order to reach Cold Springs Park, 3 miles beyond the town. An amendment to require them to turn over 1 per cent of their gross earnings to the Borough Council was voted down. The franchise asked for by the Brookside Electric Street Railway Company was held over until certain surveys could be made.

**\*Georgetown, S. C.**—H. C. Case, president of the Georgetown Electric Company, and Laurens Mouzon, local manager of the electric light plant, have applied to the City Council for a franchise to build a street railway in Georgetown.

**\*Plainview, Tex.**—The City Council has granted a franchise to the City Railway to build an electric street railway in Plainview. C. D. Lovelace is the promoter of the road. The line will first be built to the depot, then to College Heights.

**Waterville, Wash.**—James Fullerton, of Seattle, has applied for a franchise for an electric railway from a point on the Columbia up Grand Coulee, with a branch to Waterville.

#### NEW INCORPORATIONS

**Bakersfield & Ventura Railway, Bakersfield, Cal.**—This company has been incorporated to purchase, maintain, operate, extend and complete the railway formerly owned by the Bakersfield & Ventura Railway Company, which was sold to the Title Insurance & Trust Company, of Los Angeles, to E. W. Phelps as special administrator. The railroad property consists of a main line between



Hueneme and Round Mountain, a main line between Los Angeles and Santa Cruz, a branch line between Sargents and Hollister and other possessions. Incorporators: Charles T. Carnahan, John A. Ewing, Marton M. Hamma, Samuel M. Thompson, Jr., and H. Ferguson. Principal office, Denver.

**\*Burlington Interurban Railway, Denver, Col.**—Incorporated in Colorado to operate an electric railway in the counties of Denver, Adams, Larimer and Weld and will have terminals at Denver, Fort Collins and Crow Creek in Weld County. The existence of the corporation is 50 years. Incorporators: Ray C. Watson, Frederick O. Olsan, John P. Klug, Frank K. Hatch, Charles I. Moore, Clarence A. Fletcher and Milton L. Chapman. Capital stock, \$2,500,000. Principal offices, Denver.

**Marion & Logansport Traction Company, Marion, Ind.**—This company has been incorporated in Indiana to build and operate an electric railway through the counties of Grant, Miami and Cass. The cities through which the lines propose to run are Marion, Sweetser, Micr, Converse, Amboy, McGrawsville, Lorie, Bunker Hill, Logansport, Anoka and Onward. Capital stock, \$40,000. Headquarters: Marion. Directors: John O. Spurgeon, Mead S. Hays, John C. Wilson, Alva Williamson, Lewis S. Marks, Victor S. Wise and John Minnick. [S. R. J., May 2, '08.]

**\*Charlotte (N. C.) Power Company.**—This company has been incorporated under New Jersey laws to build and operate an electric railway, besides electric and gas plants. The Southern Power Company, of Charlotte, is a stockholder therein, other stockholders being connected with the latter company thus: W. S. Lee, vice-president and chief engineer; L. C. Harrison, assistant secretary; R. B. Arrington, treasurer, and W. H. Martin, assistant treasurer. The new company, it is said, contemplates building an electric railway to connect with other towns, but an officer is quoted as saying that nothing definite is determined. Capital stock, \$300,000.

**Columbus (Ohio) Light, Heat & Power Company.**—Incorporated at Columbus, Ohio, for the purpose of taking over the properties and franchises of the Columbus Public Service Company. The new company will then lease them to the Columbus Railway & Light Company, which holds leases on all the street railway lines and all the electric light plants in Columbus, except those now held by the Public Service Company. By the new arrangement the Columbus Railway & Light Company will absolutely control the railway, light and power business of the city. Capital stock, \$2,000,000. Incorporators: Edwin R. Sharp, Henry S. Waite, William K. Lanman, George Hardy and Harford T. Stewart.

**\*Belleville & Reedsville Railroad, Altoona, Pa.**—Governor Stuart has approved the application for a charter for this company, which will build a line 10 miles long to connect those Mifflin County towns. Capital stock, \$100,000. Officers: L. M. Yoder, Belleville, president; S. M. Patterson, Avondale, vice-president, and F. W. Warner, Belleville, treasurer.

**\*Huron (S. D.) Street Railway.**—Incorporated in South Dakota to construct about 10 miles of track in about Huron. Capital stock, \$50,000. Incorporators: John W. Smith, Henry M. Stevens, Harry M. Jewett, of Huron, S. D.; William K. Coler, Brooklyn, N. Y.; Norton D. Walling, Milwaukee, Wis.

**\*Aberdeen (S. D.) Street Railway.**—Incorporated with a capital stock of \$250,000 to construct a street railway system for Aberdeen and vicinity, 20 miles in length. Incorporators: Charles T. McCoy, Frank H. Haggerty, H. W. Marple, Frank W. Brooks, S. H. Jumper, Lannar G. Johnson and John A. Houlahan, all of Aberdeen.

**\*Nooksack Valley Traction Company, Bellingham, Wash.**—Incorporated in Washington to build an electric railway from Bellingham to Blaine and Sumas. Headquarters: Bellingham. Capital stock, \$1,250,000. Incorporators: W. P. Alward, J. S. Wheeler, J. E. Morrison, Edward Brown, W. H. Jarrett and J. William Weleh.

**\*Central Wisconsin Transit Company, Kilbourn, Wis.**—This company has applied for charter in Wisconsin to build a railroad to be operated by electricity or steam from Kilbourn, through Adams County to Grand Rapids, Wis., a distance of about 65 miles. Capital stock, \$25,000. Headquarters, Kilbourn, Wis. Incorporators: J. J. Burns and Clyde F. Burns, Chicago, and Geo. H. Campbell, R. Wintermute and William Sweet, Kilbourn. Construction of this road will be in charge of Burns & Company, 705 Isabella Building, Chicago.

#### TRACK AND ROADWAY

**Nashville & Huntsville Railroad, Huntsville, Ala.**—Construction has begun near Huntsville, Ala., on this road,

Traey W. Pratt breaking the first ground for the line. W. J. Bennett & Company are the contractors, and J. E. Toney also has a contract for another section 5 miles long, upon which he will begin work soon. Other bids are being received for the rest of the grading. The building of this line will take in the grade of the Cincinnati, Huntsville & Birmingham Railway at many places, as this old road can be used by making some repairs.

**Edmonton, Alta.**—A proposal by Mayor McDougall at the City Council last week to construct and operate a street railway line in Edmonton and Stratheona before the end of the year at an estimated cost of \$100,000 or \$125,000 was favorably received by the aldermen. The matter is being discussed more fully this week, and if the scheme is as practicable as it seems at first sight, it is probable that prompt action will be taken to construct lines. The Mayor stated that there was a strong probability that the city could obtain possession of the charter held in Stratheona by the Strathcona Radial Tramway Company and could build and operate a line in that city. It is believed that the city would have sufficient power from the new power plant to operate this line.

**British Columbia Electric Railway, Chilliwack, B. C.**—Tenders have just been received and the contract will shortly be awarded for the construction of a second section of this company's extension to Chilliwack, embracing the stretch between Cloverdale and Abbotsford.

**Eburne, B. C.**—A proposition is being discussed for the construction of an electric railway for the municipality of Point Grey at an estimated cost of \$200,000.

**Windsor, Ont.**—Arrangements are now being completed here to organize a company to build an electric railway to Detroit by way of the Michigan Central Railway tunnel. J. A. Smith, Dr. Revell, A. J. Nelles, G. L. Leggett, W. Bong, of Windsor, Ont.; G. Bouteiller, of Walkerville, Ont., and G. King, of Detroit, are interested.

**Denver & South Platte Railroad, Denver, Col.**—W. J. Coursin, of Pittsburg, Pa., has been awarded the contract for the construction of the Denver & South Platte Railroad Company's 25-mile electric railway from Littleton to Roxbury Park, in the western part of Douglas County. The road may be completed to Colorado Springs before June 1, 1909, as it is the plan to make Roxbury Park a summer resort.

**Kansas-Colorado Railroad, Pueblo, Col.**—The contract for the work on this company's line from Pueblo to Dodge City and from Garden City to Scott City was let by the board of directors to A. B. Hulit, who represents the Northern Electric Company, of Madison, Wis. The contracts let by the board include the grading, ties, rails and bridges for the entire length of the road between the places named. The contract provides that the line must be begun within 90 days and must be completed by July 1, 1910. [E. R. J., July 4, '08.]

**New York, New Haven & Hartford Railroad, New Haven, Conn.**—The contract for the construction of the electric railway from the present terminus in Wethersfield to Middletown has been awarded by this company to C. W. Blakeslee & Son, of New Haven, for \$400,000. The proposed layout runs through the towns of Wethersfield, Rocky Hill and Cromwell, and will connect with the Middletown trolley. It is understood that the contractors will begin work on the extension at once. A contract has also been awarded to Lathrop & Shea, of New Haven, for constructing a line from Willimantic to South Coventry.

**Baltimore & Washington Transit Company, Washington, D. C.**—William A. Mellen, general manager, writes that this company will place contracts during the next five weeks for the building of 3¼ miles of single track.

**\*Elk City, Lewiston & Spokane Electric Railway, Elk City, Idaho.**—It is reported that this company is being organized to construct an electric railway from Orogrande and Elk City down the south fork of the Clearwater River to Camas Prairie and there to connect with a line to Lewiston. Stock to the amount of \$200,000 has been subscribed for on this end of the line, and, it is said, engineers will be in the field inside of 30 days. O. G. Kinny, secretary of the Butte & Orogrande Mining Company, is promoting the scheme in Idaho and Spokane.

**Ft. Wayne & Springfield Railway, Decatur, Ind.**—This company will build two new steel bridges, 40 ft. and 44 ft. long.

**Chicago, Lake Shore & South Bend Railway, South Bend, Ind.**—This company has completed its line from Hammond into Gary and began service between these points Aug. 1. The distance is about 10 miles. The work on the line between Michigan City and Hammond is progressing favorably. The company expects to begin through service between South Bend and Chicago Sept. 1.



**St. Joseph Valley Traction Company, Elkhart, Ind.**—It is announced that this company will build a line from Middlebury into Elkhart by way of Bristol in order to give the road a western terminus and connections. The company is asking the farmers to give the right of way and nearly all are complying. The Elkhart business men propose to reimburse the company for such right of way as they are compelled to purchase.

**Cincinnati, Newport & Covington Light & Traction Company, Covington, Ky.**—Dr. James P. Riffe is said to be at the head of a movement to have this line extended from St. Marys Cemetery to Erlanger, Ky. He states that President White has promised the extension on the proposition to furnish \$60,000 on 4 per cent bonds and that this can be done.

**Hutchinson, Kan.**—It is reported that the interests which control the Water, Light & Gas Company, of which W. E. Hutchinson is president, propose to build an interurban line through Nickerson and Sterling, a distance of about 40 miles. There is also to be a line east or southeast from Hutchinson.

**Kansas City, Kan.**—Plans are being perfected for the organization of a trust company in Kansas City to be known as the Kansas City Union Trust Company, and the purpose is to finance a system of interurban trolley lines out of Kansas City. The company that is to build these lines is known as the Interstate Railway & Power Company. The proposed system will link Kansas City with Lawrence and Topeka, with a line to Coffeyville, through Ottawa, Garnett, Iola, Humboldt and Cherryvale, with branch lines to Parsons and Independence. Later it is proposed to extend the line from Coffeyville to Oklahoma City by way of Tulsa with spurs to Guthrie, Shawnee and Muskogee. Another proposed extension is from Topeka to Salina and Hutchinson. It is also proposed to build from Parsons to Joplin.

**Manchester (Ky.) Traction Company.**—The *ELECTRIC RAILWAY JOURNAL* is advised that this company will build an electric railway connecting Barbourville, Ky., and Manchester, a distance of about 24 miles. Capital stock, \$100,000. Officers: Louis des Cognets, Lexington, Ky., president; Robert Carnahan, Oneida, Ky., vice-president; Dr. Hugh R. Manning, Manchester, secretary and treasurer. [S. R. J., March 14, '08.]

**\*Middlesboro, Ky.**—It is reported that a plan is under way to build an electric railway from Pineville to Straight Creek, a distance of about 9 miles. N. R. Patterson, William Burchfield and B. R. Smith, all of Pineville, are back of the project. The people of Pineville have already subscribed \$16,000 toward the movement. Baring Brothers, bankers, of London, Eng., in a communication to one of the promoters, stated that the London firm would be in a position to handle the bonds if issued by the electric company.

**Cape Shore Electric Railroad, Lewiston, Maine.**—This company has been granted permission to extend its line, a portion of the location for which has already been granted, from South Portland Heights to the Ocean House along the middle road.

**Oregon (Mo.) Interurban Railway.**—It is reported that active construction work has been begun on this proposed electric railway. The contract is in the hands of M. A. Wagoner, of Leavenworth. The road will connect Oregon, Mo., with the Chicago, Burlington & Quincy Railroad at a point about 4 miles distant. B. F. Morgan, president. [E. R. J., July 4, '08.]

**Orange Mountain Traction Company, West Orange, N. J.**—Frank Brewer, president, writes that this company will build a half-mile extension from Cable Lake over the top of Orange Mountain at once.

**Lima-Honeoye Electric Light & Railroad Company, Lima, N. Y.**—E. D. Watkins writes that this company has about completed the surveys for an extension to Atlanta and Rochester, comprising 69 miles of track. Mr. Watkins states that nothing can be done until the company gets a decision from the Public Service Commission.

**South Shore Traction Company, Patchogue, N. Y.**—A mortgage made by the South Shore Traction Company to the Empire Trust Company, as trustee, for \$3,000,000, of which \$100,000 is advanced, was recently recorded in the county clerk's office. James T. Wood, of Sayville, is president of the traction company, which proposes to build an electric railway connecting the south side villages. The mortgage covers all the property and franchises of the corporation.

**Toronto, Ont.**—It is stated that an application will be made by the Toronto Suburban Railway for a 25-year ex-

ension of its franchise and for the right to extend its line through Swansea to the Lake Shore Railroad.

**Kingston, Ont.**—Arrangements are being made to submit a by-law to the ratepayers to determine whether the city shall buy out the Kingston, Portsmouth & Cataraqui Street Railway and run it as a municipal enterprise.

**Ontario West Shore Electric Railway, Guelph, Ont.**—J. W. Moyes, president, announces that construction work on the Goderich to Kincardine section will start in a few days. The work will be begun at the big cut to be made at Port Albert.

**Rogue River & Oregon Southern Railway, Grant's Pass, Ore.**—G. A. Collins, chief engineer, writes that this company proposes to build an electric railway from Grant's Pass to Selma, Ore. The surveys are now being made and it is expected that construction work will be started in December. Incorporation papers will soon be filed. Headquarters, Grant's Pass. [E. R. J., July 25, '08.]

**Indiana (Pa.) Street Railways.**—The directors of this company have let the contract here for the extension of its line from Homer City to Josephine, a distance of 5 miles. As soon as the right of way is secured the contract for the rest of the road to Blairsville will be awarded.

**Brookings & Sioux Falls Railway, Brookings, S. D.**—Neil Stewart writes that this company will build a railway system, 65 miles in length, connecting Brookings, Flandreau, Dell Rapids and Sioux Falls. Construction work is now under way. Gasoline electric cars will be operated. Capital stock authorized, \$1,000,000. Officers: Neil Stewart, president and general manager; F. J. Carlisle, vice-president; A. B. Crosier, secretary; J. D. Wilson, treasurer, all of Brookings. [E. R. J., June 27, '08.]

**Chattanooga, Tenn.**—Pennsylvania capitalists are said to contemplate building a trackless trolley from Chattanooga to the top of Walden's Ridge. Nothing definite has yet been announced regarding the project.

**Lakeview Traction Company, Memphis, Tenn.**—This company has awarded the contracts for the first section of the interurban road between Memphis and Lake View, Miss., to M. J. Roach. The contract calls for the completion of the roadbed and the track-laying by Jan. 1, 1909, and it is expected that the road will be in full operation next summer. The first section, about 12 miles in length, will cost, including all equipment and rolling stock, about \$189,000. As yet only the construction work has been awarded. It is announced that Horn Lake is to be converted into a summer resort, being equipped with a modern hotel, bathing and boating pavilions and a fairyland park. [S. R. J., April 18, '08.]

**Cleburne, Tex.**—J. H. Ransom, of San Angelo, who secured a street railway franchise from the City Council of Cleburne a short time ago, is reported to have begun the preliminary work for his line. Mr. Ransom states that he expects his engineers here within the next day or two, that he is making up an order for track construction material, and that work on the line will begin actively within 10 days.

**Uvalde (Tex.) Street Railway.**—John T. Smith has announced he has already bought 3 miles of 52-lb. steel rail for the beginning of the construction of the Uvalde Street Railway. This railway will be built around the city of Uvalde. It is said that actual construction will commence on or about Aug. 20, 1908. [E. R. J., July 18, '08.]

**Emigration Canyon Railroad, Salt Lake City, Utah.**—Le Grand Young, Jr., writes that this company is constructing a standard-gage electric railway from Salt Lake City to Emigration Canyon. The grading has been completed and 9 miles of track have already been laid. Mr. Young states that the road will be finished by this week. The system will comprise about 14 miles of track. The overhead trolley system will be installed and current will be generated at Big Cotton Wood Canyon, where the company proposes to locate its power station. The repair shops will be built at Emigration Canyon. The company contemplates operating 12 cars. Capital stock, \$300,000. Headquarters, 1337 East Fifth Street, Salt Lake City. Officers: Le Grand Young, president; O. W. Moyle, vice-president; Leslie G. Young, secretary; Edgar S. Hitts, treasurer; Le Grand Young, Jr., superintendent and chief engineer.

**South Richmond Railway, Richmond, Va.**—It is stated that Col. C. P. E. Burgwyn and a corps of engineers have begun the survey for a line from West Point, on the York River, to Urbanna, in Middlesex County, on the Rappahannock, a distance of about 25 miles. The road is to be run with gasoline electric motor cars and will be a high-speed road, traversing a section of the State which now has no modern transportation facilities. Northern capitalists are said to be back of the enterprise, and as soon as



the preliminary survey is made the work of grading the line will be started. [S. R. J., April 18, '08.]

**Seattle (Wash.) Electric Company.**—The Stone & Webster Engineering Corporation of Boston has ordered from the Pennsylvania Steel Company 1000 tons of high T-rails for the Seattle Electric Company. These rails will be laid on streets which are being repaved, requiring the use of high rails.

**Cheyenne (Wyo.) Street Railway.**—This company is reported to have let a second grading contract covering 4000 ft. between the Boulevard and new Frontier Park, and grading will now be pushed from the city toward the Fort Russell reservation and from the reservation toward the city. Thomas A. Cosgriff, president. [E. R. J., July 25, '08.]

**Thermopolis & Hot Springs Street Railway, Thermopolis, Wyo.**—S. A. Broadwell advises the ELECTRIC RAILWAY JOURNAL that this company has already purchased material and will begin the construction of 2 miles of standard gage track within 60 days. The road will connect Thermopolis, Big Horn and Hot Springs. The overhead trolley system will be used, and the company will rent power from the Hot Springs Electric Light & Power Company. Orders for three cars have already been placed. Capital stock authorized, \$50,000; issued, \$10,000. Bonds authorized, \$25,000. Officers: S. A. Broadwell, president; C. M. Broadwell, secretary and treasurer; J. J. Conlon, general manager, all of Thermopolis. [E. R. J., July 25, '08.]

#### POWER HOUSES AND SUBSTATIONS

**Menominee & Marinette Light & Traction Company, Menominee, Mich.**—Edward Daniell, manager, writes that this company expects to place contracts during the next two weeks for the construction of a dam, power station and canal. The company will also award contracts in about five weeks for generators and hydraulic equipment.

**Kansas City (Mo.) Railway & Light Company.**—An order has been placed with the Westinghouse Machine Company for a Westinghouse-Parsons turbine unit of 10,000-kw capacity to be installed in this company's main generating station. An option also has been taken on a second unit. New Babcock & Wilcox boilers are being installed and it is stated that new coal handling machinery may be required.

**Lincoln (Neb.) Traction Company.**—This company has recently purchased a 750-kw Curtis turbine for Sept. 1 delivery. The company expects to purchase a number of condensers later. F. H. Brooks, purchasing agent.

**Barre & Montpelier Traction Company, Barre, Vt.**—This company is reported to have closed a contract with Dornisite & Nighlierini for a dam and power station on the Winooski River at Kinney's mills. Work has been begun and will be completed Nov. 1. The dam will be of crushed stone and cement, 178 ft. long and 18 ft. high.

**Milwaukee Light, Heat & Traction Company, Milwaukee, Wis.**—This company has closed contracts with the Southern Wisconsin Power Company for 8000 hp to be furnished from the new dam of the company in the Wisconsin River at Kilbourn for operating the western interurban lines of the Milwaukee Light, Heat & Traction Company.

#### SHOPS AND BUILDINGS

**La Habra, Cal.**—The Pacific Electric Railway has closed an option it held on a strip of land along its right of way in the La Habra Valley and will erect a \$6,000 concrete depot.

**Chicago & Joliet Electric Railway, Joliet, Ill.**—This company is planning to erect a large addition to its car house at St. Louis and Marion Streets, which when constructed will give storage room for all its rolling stock.

**Chicago (Ill.) City Railway.**—It was recently rumored that this company would build a car house at Thirty-eighth Street, to cost \$300,000. The ELECTRIC RAILWAY JOURNAL is officially advised that this report is erroneous.

**Interstate Traction Company, Duluth, Minn.**—This company expects to erect a new car house within one year.

**Ottawa (Ont.) Electric Railway.**—This company has purchased property on Cobourg Street, where a car house will be erected at once.

**United Railways, Portland, Ore.**—This company has purchased a 40-acre tract on Guild's Lake as a site for terminal yards.

#### AMUSEMENT PARKS

**Fort Wayne & Springfield Railway, Decatur, Ind.**—The ELECTRIC RAILWAY JOURNAL is advised that this company expects to purchase a merry-go-round.

**Weaverville Electric Company, Asheville, N. C.**—R. S. Howland writes that this company is open to propositions from amusement firms for attractions next season for a park at Weaverville.

## Manufactures & Supplies

### ROLLING STOCK

**Corry & Columbus Street Railway, Corry, Pa.,** expects to purchase a snow plow.

**Toledo & Indiana Railway, Toledo, Ohio,** has recently placed an order for an express car.

**Weaverville Electric Company, Asheville, N. C.,** expects to purchase two large excursion cars for use next summer.

**Columbus Railway, Light & Power Company, Columbus, Miss.,** expects to purchase two semi-convertible cars during the next three weeks.

**Fort Wayne & Springfield Railway, Decatur, Ind.**—This company is in the market for 10 second-hand flat cars. W. H. Fledderjohann, manager.

**Baltimore & Washington Transit Company of Maryland, Washington, D. C.,** expects to build during the next five weeks three semi-convertible cars for which it will purchase three sets of trucks, motors and other equipment.

**Ottumwa Railway & Light Company, Ottumwa, Ia.,** has purchased from the American Car Company, St. Louis, three semi-convertible cars equipped with 21-E trucks and GE-54 equipments. The cars are 30 ft. 8 in. long over all and 20 ft. 8 in. long over body.

**United Railways Company, St. Louis, Mo.,** has arranged to install 110 pay-as-you-enter cars. A portion of these will be new cars, but the others will be reconstructed in the shops of the company in St. Louis. It is expected that an additional order for this type of cars will be placed in the fall.

**Third Avenue Railroad, New York,** which was noted last week to have ordered 150 pay-as-you-enter cars from the J. G. Brill Company, Philadelphia, has just contracted with the General Electric Company for 300 65-hp motors for the new cars and for all other necessary equipment. This makes 325 full car equipments purchased from the General Electric Company by the Third Avenue Railroad since it went into the hands of a receiver last year.

**Northwestern Elevated Railroad, Chicago,** has placed an order with the Pullman Company for 20 cars. This order also includes trucks, but not wheels, for the cars. The wheels are not yet ordered. The new equipment will follow in general design the cars which the Northwestern Elevated Railroad has recently put in service over its Evanston extension. Each car will be equipped with GE motors. The new cars will seat 55 passengers.

**National Light & Improvement Company, St. Louis, Mo.,** has let contracts for several hundred tons of rails and other material for track work at Waco, Tex., where it has also recently installed a steam turbine and other steam and electric machinery. The company has also installed a 500,000-cu. ft. gas holder of heavy construction at Fort Worth, Tex., and gas bench and other similar construction is under way. The company is in the market for semi-convertible cars, a 500-kw, 2200-volt, two-phase turbo-generator, a 1500-hp condensing outfit and other machinery.

### TRADE NOTES

**National Conduit & Cable Company, Philadelphia,** has moved from the Real Estate Trust Company, that city, to 818 Perry Building, New York City.

**Parmenter Fender & Wheel Guard Company, Boston, Mass.,** has moved its office from 27 Doane Street to 84 Fiske Building, 89 State Street, Boston, Mass.

**Merritt & Company, Philadelphia, Pa.,** have moved their general office from Ridge Avenue, Philadelphia, to their works at Front and Arch Streets, Camden, N. J.

**Richard Voges,** who was connected with Gold Car Heating & Lighting Company, New York, for many years, has resigned from that company to become connected with the Ward Equipment Company, New York, as chief inspector of materials in its car-heating department.

**Electric Service Supplies Company.**—F. H. Jameson, who for the last two and one-half years has been manager of the Chicago office of the Ohio Brass Company, has resigned from that office and has accepted a position with the Chicago sales department of the Electric Service Supplies Company. Mr. Jameson has been with the Ohio Brass Company about six years, two of which were spent in its New York office and two and one-half years in charge of its Chicago office. He is well known in the electric railway field and has many friends in all parts of the country who will wish him success in his present undertaking.

**Glacier Metal Company, New York,** has been formed to manufacture and place on the market Glacier anti-friction



metal for use in all classes of machinery bearings. This metal has been exhaustively tested in Europe and America and is used by hundreds of the most prominent consumers in different countries of the world. The company has established offices or distributing agencies in nearly every State in Europe, besides India, Burmah, Straits Settlements, China, Japan, Australia, New Zealand and South Africa. Glacier anti-friction metal while especially recommended for high-speed and heavy pressure machinery, can be used to advantage where brasses or bearing metals are required.

**Allis-Chalmers Company, Milwaukee, Wis.,** says that an interesting feature during the past two years has been the introduction of Allis-Chalmers steam turbines into a great variety of industries, from factories of different kinds, where about the same quantity of power is used continuously during the day, to cement plants, steel mills, smelters, etc., where the load fluctuates violently. Flour mill and saw mill operators were among the latest to join the turbine users, and now the Pfister & Vogel Leather Company, one of the largest tanneries in the world, has just ordered two Allis-Chalmers turbine units, each of 1500-kw capacity, or a total of 4000 hp, for the new plant to be built in Milwaukee. Another unit of the same size has been purchased by the Pueblo & Suburban Traction & Lighting Company, Pueblo, Col., and the city of Holland, Mich., will install one of 750-hp capacity. These orders include exciters, condensers, pumps and auxiliary apparatus of every kind to complete the equipment of the power plants for which the steam turbines and generators are intended.

**Impregnating Plant of the Frank Ridlon Company.**—The Frank Ridlon Company, of Boston, Mass., has had an impregnating plant in operation at its South Boston factory for about three months, this being the first commercial plant of its kind in New England. The plant is operated on the Passburg system installed by the J. P. Devine Company and has a capacity of 50 coils per day. Field coils are mainly treated at the plant. The equipment consists of two steel tanks 3 ft. in diameter and 5 ft. high each, and a motor-driven air pump with the necessary connecting pipes. Steam coils are provided in each tank. In the operation of the plant an insulating preparation is first heated to the melting point in one tank, the coils to be treated being placed in the second tank and subjected to drying. A steam pressure of 110 lb. per square inch is used. The air pump is then started and the second tank exhausted, the vacuum drawing over the liquid insulating compound from the first tank. The air pump is reversed and a pressure of 80 lb. applied for four hours, forcing the liquid into the coils. The coils are then cooled, the outside thin tape is taken off and a new tape put on, and the coils are finally dipped in water repelling compound. The motor is a 5-hp, 230-volt, direct-current machine, and the compressor is of the single cylinder horizontal type. One man operates the plant when it is in use.

**Electric Cable Company, New York,** whose plant at Bridgeport, Conn., plant was destroyed by fire last February, has just completed a set of brick buildings which embody many of the best ideas in factory design looking toward the dual object of efficient handling of product and better working conditions for employees. The works are on a siding near the main line of the New York, New Haven & Hartford Railroad and about 1 mile east of Bridgeport. Owing to the grade conditions at the site, the lower floor of each building is sunk sufficiently to permit the upper or main floor to be flush with the floors of the cars going on and off the siding. The roofs are carried on white enameled steel girders and the walls, except for the gray doors, are also painted white. The skylights are of liberal size and the number of windows is limited only by structural conditions. This combination of white interior and great glass area gives a most cheerful and cleanly effect, making the workrooms places to be desired rather than avoided. The idea of securing the maximum natural light is not confined to the structural features of the building, but is exhibited in the complete elimination of overhead lines of shafting and belting, all machines being driven from below. Everything possible is done to maintain an immaculate appearance and, in fact, a prize is awarded at the weekly meetings to the foreman whose shop is the neatest; similarly, a prize is given to the foreman who has maintained the best discipline during the preceding week. The buildings are surrounded by fine grass lawns. The main building, called No. 1, has the shipping and receiving room in the front part of the upper floor while back of it extends for about 250 ft. what is probably the largest shop in the country used exclusively for magnet wire. The lower floor of this building serves for machine and carpenter shops. The power plant, behind building No. 1, contains an American Ball engine, Crocker-Wheeler generator, Bigelow water-tube boilers, water-feed regu-

lators, etc. The coal storage is back of the boiler. The offices are in the connecting wing between buildings Nos. 1 and 2. The upper floor of No. 2 is for the weather-proof department, which contains braiders of every size, while the lower floor is for handling rubber-covered wire. Building No. 3, which is behind No. 2, contains the impregnating and finishing department, the equipment of which includes several tanks for vacuum impregnation. This last building is entirely isolated to minimize the fire risk and is the only one away from the siding. Building No. 4 is a storehouse for raw material and No. 5 is for the storage of finished material. Behind No. 4 is a small garage for storing automobiles. Elevators are installed in all the shop structures. These are of the Springfield type and capable of raising two of the heaviest cable reels likely to be handled. Transportation of smaller objects along one floor is effected by Yale & Towne manual hoists. The machines in the different shops are all group-driven by Crocker-Wheeler motors. There are about 12 groups in all and the largest motor is 50 hp. This method is more economical than the old belted engine shaft driving.

#### ADVERTISING LITERATURE

**Northern Engineering Works, Detroit, Mich.**—This company has issued a little booklet, No. 24, on Northern cranes. It is of pocket size and has 36 pages, illustrating by means of about 40 half tones many of the designs of electric traveling cranes, handpower cranes, electric hoists, etc. The booklet may be used as a reminder to those who wish to keep before them a condensed memoranda of the types of Northern cranes in greatest demand, and as showing the varied application of these cranes, more fully described in the company's regular catalogs and bulletins.

**Electric Service Supplies Company, Philadelphia and Chicago.**—The *Keystone Traveler* for August, published in the interest of this company, contains advice concerning Nuttall gears, Samson spot cord, hydraulic pouches and compressors for applying "Protected" rail bonds, Garton-Daniels lightning arresters, the automotoneer and a number of other specialties of the company. On the back six reasons are given why Lyon sheet steel gear cases are better than any other. The desk calendars of the company for August and September are published with this issue of *The Traveler*.

**General Electric Company, Schenectady, N. Y.**—The company's Type F. Form K-7 oil switch is described in Bulletin No. 4575. It has been designed to meet particularly the requirements of induction motor installations, but may be used wherever a compact, reliable and inexpensive switch is desired. As the contacts are submerged in oil, there is no danger of igniting inflammable gases, floating dust particles or other combustible substances. Completely enclosed air-brake switches have been used where special protection from fire has been necessary, but the oil switch is recommended as best adapted for this purpose, and is suitable for use in cotton, flour, powder or saw mills, or for electric installations in connection with oil pumping and refining plants. The switch is made for 600 volts, 650 to 300 amp and 2500 volts, 50 amp. It can be furnished with automatic tripping device, and low voltage release. The company has also issued Bulletin No. 4596, describing heat resisting inner globes for arc lamps.

**Coleman Fare Box Company, Buffalo, N. Y.**—The method of handling fares on pay-as-you-enter cars with the Coleman fare box is fully described in an interesting illustrated booklet just issued by this company. The box itself is of metal, with a glass receiver so the conductor can scrutinize coins before tripping them into the receiver proper. Transfers are collected by the conductor, and returned separately to the company. The cash box into which the coins are finally deposited cannot be opened except with a key in the possession of the company. The box itself has the advantage of supplying by its own contents the complete record of the earnings of a car for a given period. The receivers into which the fares are finally deposited are interchangeable. The Coleman box was first used by the International Railway, Buffalo, to which the Coleman Fare Box Company refers interested railway officials for testimony as to the efficiency of the box and to the methods of counting and handling returns from its pay-as-you-enter cars.

#### ELECTRIC RAILWAY PATENTS

UNITED STATES PATENTS ISSUED JULY 28, 1908.

[This department is conducted by Rosenbaum & Stockbridge, patent attorneys, 41 Park Row, New York.]

**Car Fender, 894,194;** George W. De Clements, Kalamazoo, Mich. App. filed Jan. 27, 1908. Details of construction of a main fender and an auxiliary fender so mounted on the car and operatively associated as to cause a depres-



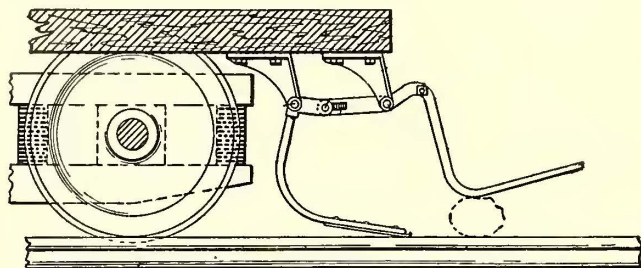
sion of the auxiliary fender should the main fender become raised by an object passing thereunder.

**Trolley Guard**, 894,212; George S. Keck, Baltimore, Md. App. filed Aug. 12, 1907. Consists of a pair of rollers pivoted in a horizontal plane on the usual harp to close over the usual wheel and wire.

**Electric Railway**, 894,217; Mathias A. Lazareff, New York, N. Y. App. filed Feb. 6, 1907. A railway signal having specially constructed tappets along the roadway adapted to close circuits to semaphores having a special construction of operating magnets.

**Car Seat**, 894,227; Charles K. Pickles, St. Louis, Mo. App. filed May 29, 1908. Details of a "walkover" car seat.

**Reinforced Concrete**, 894,253; John H. Bowditch, New Brighton, N. Y. App. filed Sept. 30, 1907. A reinforcing frame for concrete ties comprising two pairs of corrugated bars spaced apart and located one pair above the other, the ends of the lower bars being bent upward and connected with the upper bars, and wires interlaced with the bars to connect them together at spaced intervals and to form truss members between each upper and lower bar in the longitudinal spaces thus formed.



Car Fender—Patent No. 894,194

**Switch-Operating Mechanism**, 894,297; Arthur C. Tunison, Tacoma, Wash. App. filed March 8, 1906. Has a lever adapted to be depressed by the flanges of the car wheels, releasable means joining said lever with the switch tongue whereby the tongue is moved by the downward motion of the lever when said means is closed, and independent car operated mechanism for closing said releasable means.

**Brake Shoe Brace**, 894,309; William J. N. Aldridge, Springfield, Mo. App. filed April 16, 1908. Comprises a plate of metal cut into strips all of which are bent to form arcs and are connected at their ends and a loop secured to certain of said strips.

**Railway Switch Operating Mechanism**, 894,320; Patrick J. Glancey, Scranton, Pa. App. filed Nov. 14, 1907. A lever in the roadbed is depressed from a moving train to rotate a shaft whereby the switch tongue is thrown.

**Rail Chair**, 894,322; August Haarmann, Osnabruck, Germany. App. filed Dec. 23, 1907. A rail chair having means for securing a rail to a metallic sleeper. Consists of a bed plate having at one side a rail-engaging hook on its upper face and a sleeper-engaging hook on its under face, said sleeper being slotted for the reception of the last mentioned hook. Means at the opposite side of the rail chair to secure the rail to the chair and the chair to the sleeper.

**Electric Switch Register**, 894,326; John H. Jackson, Watonga, Okla. App. filed Feb. 18, 1908. Has a specially constructed tappet adjacent to the switch point and which closes an electric alarm circuit in case the switch point is open.

**Electrically Propelled Vehicle**, 894,333; Joseph Ledwinka, Philadelphia, Pa. App. filed May 10, 1906. Has means to automatically change the circuit connections of a motor vehicle from an external to an internal source of supply and conversely, whereby the motor is always in communication with one source of energy.

**Car Truck**, 894,342; Edgar Peckham, London, England. App. filed Nov. 10, 1906. Improvements relating to the truck and the suspension thereof. Improved means for suspending the motors and in the support and arrangement of the brake mechanism.

**Fender**, 894,357; Charles K. Wehm, Elyria, Ohio. App. filed Nov. 22, 1907. Details of construction.

**Railway Tie**, 894,360; Charles E. Barnum, Omaha, Neb. App. filed Oct. 30, 1905. A railway tie constructed of shale or clay and formed with an upwardly tapering body portion and lateral inclined ledges formed longitudinally thereof for conveying moisture from the road bed.

**Contact Switch Box for Electric Railway Systems**, 894,382; Charles A. Huse and John G. Douty, Williamsport,

Pa. App. filed Sept. 17, 1907. Has contact plates at spaced intervals, in place of continuous conductors. Has an armature supported in a certain way to operate the switch of the device.

**Metallic Railway Tie**, 894,403; John G. Snyder, Altoona, Pa. App. filed Sept. 3, 1907. A hollow, metallic tie having a filling of asphalt, bitumen and fiber, and having improved means for clamping the rails.

**Railway Signaling**, 894,471; Jacob B. Struble, New York, N. Y. App. filed July 13, 1904. A signaling system in which automatic tripping devices are located along the railway, which in their set position operate a train stop. The train stops are set by semaphore signals operated by the short circuiting of the track rails which are energized by a direct current.

**Railway Safety Appliance**, 894,476; Charles A. Ward, Forestville, Conn. App. filed May 29, 1907. The train is provided with depending shoes which engage interrupted trolley conductors between the track rails which are connected in lamp circuits so as to be exhibited along the roadway.

**Railway Tie and Rail Fastening**, 894,573; James U. Beatty, Arrow, Pa. App. filed May 23, 1907. A railway tie having recesses in the upper side thereof with curved bottom and side walls, and clamps in said recesses having jaws at their outer sides and having wings superposed upon each other and supporting the rail between said clamps, said wings when depressed affording means for advancing the jaws to clamp the rail flange.

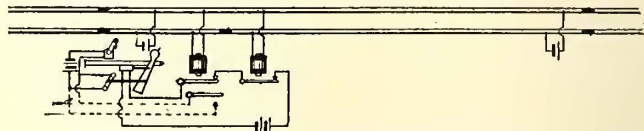
**Rail Fastener for Metallic Ties**, 894,580; Robert O. Blakey, Pittsburg, Pa. App. filed Feb. 20, 1908. Comprises two parts or members adapted to interlock with the tie, these parts or members being held in fixed position by a malleable spike driven between said members and automatically clenched.

**Semaphore Signal**, 894,591; Walter W. Brown and Arba G. Clark, Schenectady, N. Y. App. filed March 21, 1907. Relates to the construction of a semaphore signal of the "toppost" type in which the operating mechanism is inclosed in a casing surrounding the driving shaft of the semaphore arm. Is designed to reduce the size and cost of these signals.

**Trolley Contact**, 894,637; Laurence A. Hawkins, Schenectady, N. Y. App. filed Dec. 31, 1907. A trolley contact comprising a long flat continuous strip of conducting material supported directly above the trolley wire, and adapted to be engaged by the rims of the flanges of a trolley wheel in passing.

**Trolley Base**, 894,760; Charles M. Stokes and William E. Ensor, Bradford, Pa. App. filed Sept. 23, 1907. Means in trolley bases designed to provide a swiveled pole support of special simplicity. Has a spring plunger with a link connection to the pole socket.

**Car Switching**, 894,768; Frederick N. Wonderlin, Des Moines, Ia. Has an improved switch frog containing bell-crank levers for operating the switch point and so arranged that arms carried by the cars will be guided to the proper places in the switch frog for operating the bell-crank levers and at the same time provide a switch frog over which vehicles may safely travel in all directions without interfering with the mechanism.



Railway Signaling—Patent No. 894,471

**Rail Joint**, 894,712; Duncan Dunbar Wright, Arthurette, New Brunswick, Canada. App. filed July 2, 1907. The rails are halved at their ends and arranged in overlapping relation to form a continuous rail, the tread surface of the rail being depressed at the end surfaces of the sections and elevated at a point opposite the depressed portions, and means for connecting the rail sections together.

**Method of Forming Railway Bonds**, 894,720; Eugene M. Bournonville, Jersey City, N. J. App. filed Dec. 30, 1907. A form of bond adapted to be soldered or fastened upon the base flanges of the rail. Covers the method by which the contact is made by pouring molten solder into the cavities of the bond.

**Pavement Protector**, 894,732; Charles E. Fulleton, New Castle, Pa. App. filed April 24, 1908. Comprises a plate extending outwardly from the rail and a flange formed on the plate adapted to rest on the pavement.

**Fare Register**, 894,780; Wilfred I. Ohmer, Dayton, Ohio. App. filed May 4, 1903. Details of construction.