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Increasing Shop Efficiency

Some time ago we referred in these columns to the "everybody busy" principle as applied to shop work. An example of a shop recently visited may be cited to illustrate the practice followed. In most machine shops there are always certain operations which employees can satisfactorily supervise without giving all of their time to them. Under the "everybody busy" principle recognition is taken of this feature and those men who tend the larger machine tools that require attention only in starting and stopping

are not meanwhile idle. Instead, they utilize their time in handling small work which can be put down at any instant that the large tool for which they are responsible requires attention. For example: In the shop mentioned the machinist who operated the wheel lathe, after getting a long cut well under way, turned to a work bench which had been built close by and filled in his time between one end of the cut and the other by repairing brush holders, track jacks and doing other small bench work. Frequently this man was also called upon to lay out centers for the drilling of small parts and to repair such air-brake equipment as could conveniently be brought to his bench. A machinist tending another one of the large lathes, after starting a long cut, utilized his time, which otherwise would have been non-profitable, in tending a milling machine which stood close by the large lathe. Many other instances of like character were found. It would not be possible to follow this practice in all classes of shops, but it will easily be recognized that where the situation is such that the attendants of the large tools can profitably fill in idle time, a considerably larger amount of work can be handled in the shop with the same number of employees.

Cost of Car Service During Rush Hours

There is a popular misconception that the cost of operating a car a mile on any particular system is the same at any time during the 24 hours. The amount of power used may be the same and the platform charges may be identical, but the cost of operation is very much higher during the rush hours than at any other time. This is partly due to the fact that the chance of accident is greater, but more because the rolling stock and the power equipment required to operate the cars are earning money for a short time only, whereas the interest and depreciation charges are continuous on this equipment over the entire day. For this reason the establishment of what are known as "workingmen's fares" not only tends to crowd the cars still further during the rush hours and thus reduce the comfort of the traveler, but also reduces the income per passenger at a time when the operating expenses are the highest. The condition of crowding is more easily recognized than the cost, but the remedy is not apparent to the lay mind. Thus the newspapers report that in Muscatine, Ia., where a 3-cent fare is charged between 6 a.m. and 8 a.m. and 5 p.m. and 7 p.m., a bill has been introduced in the City Council embodying the "No seat, no fare" proposition. Independent of other considerations, it is difficult to see how such a plan, if practicable, would relieve overcrowding. We should imagine, if this ordinance went into effect, that a great many of the 16,000 inhabitants of Muscatine would stop walking during the rush hours and jump on board the first car which came along, thus adding to the discomfort of

those on board. A more logical plan, if the cars are crowded during the rush hours, as they are apt to be in every city with which we are acquainted, is to establish a 5-cent fare at all hours of the day and see whether that will not better distribute the loading of the cars.

The Efficient Use of Large Tools in the Small Shop

The apparent extravagance of installing expensive, yet little used, tools in the moderate-sized railway shop often has been criticised by drawing a parallel with the practice of manufacturing establishments. It is unjust, however, to consider street railway repair tools from the standpoint of use-factor alone, since the railway shop is largely an emergency plant, where "that also serves which only stands and waits." No one disputes that the isolated railway must have a shop with a well-rounded group of tools, but it is not generally appreciated that even in manufacturing districts it is difficult to find independent machine shops where heavy and frequently unexpected repairs can be made with the dispatch and accuracy demanded by the pressing needs of electric railway operation. To have means for rapidly returning cars to the line is a prime essential for a company which desires to get the highest mileage with the lowest amount of equipment. Bearing this condition in mind, it is plain that the saving in unit costs shown by giving the work to outside shops must be largely superficial. The reasons for this lie largely in the fact that the railway company must wait the pleasure of those beyond its control, who may or may not turn out repairs promptly, according to the press of orders from other sources. The only way this condition could be overcome would be by having a large reserve of material in the shop, the interest on which might well equal or exceed that on a few machine tools.

The real trouble with many of the small railway shops is not their equipment of large tools for fundamental needs, but their multiplicity of unnecessary special devices. Many master mechanics appear oblivious of the fact that tools such as lathes, wheel presses and boring mills can be adapted to several kinds of work. It is not unusual to find, for example, that a tool has been rigged up for slotting commutators, while at the same time a lathe is standing idle for hours every day. Similar instances will occur to those familiar with shop practice. It would seem that a closer study of the uses of the different forms of power available from each machine would result in securing from these large tools a much higher efficiency than is obtained at present.

Connecting Transmission Systems

It is most desirable that an interurban road take every precaution to assure the continuous operation of its high-tension transmission system. The first requisite for such a condition is, of course, a well-designed and carefully operated power plant; the second, a transmission system so built and protected that it can withstand severe windstorms and the hazards of lightning disturbances. To these two fundamental factors for uninterrupted current supply may be added a third, a tie line, which is feasible if the lines of two companies intersect or if the distance between such lines is not more than a few miles. Granting that the

lines of two interurban railway companies are within these limits and distribute current of the same frequency, there are, no doubt, many localities where connections could be made between the two transmission systems in emergency.

Some of the larger interurban systems, whose lines not only radiate from one generating station, but close upon themselves at some distance from the source of current supply, have found this geographical arrangement very valuable, because of the possibility for economically looping the transmission system through a number of substations. In the instance of the Aurora, Elgin & Chicago Railroad, built about six years ago, the main portion of the transmission system forms a triangle, with the generating station at one apex. This triangle is about 20 miles on a side, and feeds rotary converters at four locations. The transmission line also extends beyond each apex of this triangle to serve an outlying substation. The value of the loop arrangement on this line is best recognized when repairs must be made to the high-tension pole line and its fittings, when, of course, current must be cut off from the high-tension wires so that the employees may safely work on the pole line. Were it not for the loop it would then be necessary to shut down some of the substations, but with the power station at one apex of the triangle any side or portion of the triangle between two substations may be made dead, yet current will be fed at full potential to all the substations.

In the case of this road the geographical location of the main line and branches assisted materially in making this transmission loop economically possible, but there must be many instances where adjoining interurban lines, using current of the same frequency and voltage, could materially assist each other in times of transmission line troubles, if provision were made for connecting the transmission circuits. This assurance of continued current supply might be available also for some of the larger systems if short connecting transmission lines were built cross-country between the ends of radiating branches. The question of whether such a connection should be made is one that can only be answered when the estimated cost of the connecting link of transmission line with its switch, and possibly transformer equipment, is balanced against the value of uninterrupted service.

Interchanging Cars by Electric Railways

The adoption of rules and a schedule of per diem and mileage charges governing the interchange of cars between connecting electric lines by the Central Electric Railway Association, and their immediate acceptance by 11 companies in the Central territory, was recently announced in these columns. Simultaneously, a report was published of the substantial progress being made by the Central Electric Traffic Association in the compilation of joint tariffs for both freight and passengers. The arrangements consummated for interchanging equipment are a step further in advance toward the building up of long distance through traffic, and may be said to be the direct outgrowth of the movement for joint tariffs which is now well under way. Whether they will prove mutually satisfactory in their present form remains to be seen. Much depends on the spirit with which their enforcement is tempered.

The committee in formulating the rules under which equipment is to be interchanged, included the following:

The delivery and interchange of this equipment at junction points shall be made under the rules now in effect on steam lines covering the interchange of equipment, so far as these rules will apply.

The steam road rules of interchange have been years in the making; they are as specific and inflexible as it is possible to draw them, and each year they are revised and modified to better meet the conditions to which they apply. They are not statutory law in any State, nor are they enforced as a whole by the order of any regulating body or commission. They are simply a "gentlemen's agreement," in effect by common consent, without penalty or reward attached, yet their interpretation is often the cause of disagreement, and the services of a standing committee on arbitration are required to pass on points of dispute. Some 750 cases presented to and decided by this committee since the rules were first drawn up are taken as the law and accepted without question. The rules covering the interchange of freight cars contain 138 clauses and cover 50 pages of printed matter, and the separate passenger car rules contain an additional 25 clauses. The prices of all repairs are specifically agreed upon, and the responsibility for replacing damaged or wornout parts is designated.

These features of the steam road rules are cited as showing the complexity of the problem of interchanging equipment and the restrictions which it has been found necessary to incorporate in the rules. In some respects the interchange of electric motor equipment involves even more complications than is the case in the interchange of steam road equipment, for much of the apparatus is not accessible for inspection at junction points, and there would be greater difficulty in determining responsibility for damage.

Briefly, the spirit of the steam road rules may be summed up in the following four clauses:

(1) Car owners are responsible and therefore chargeable with repairs to their cars necessitated by ordinary wear and tear in fair service.

(2) Railroad companies handling cars are responsible for any damage caused by unfair usage, derailment or accident of any kind whatsoever, including acts of God.

(3) Each railroad company shall give to foreign cars while on its line the same care as to oiling, packing, inspection and adjusting brakes that it gives to its own cars.

(4) Cars offered in interchange must be accepted if in safe and serviceable condition, the receiving road to be the judge in all cases.

These basic principles are fair and equitable, and around them could be built up a new set of specific rules adapted to meet the special conditions of electric railway interchange. Such a code will have to be gradually formulated if the initial experiment of interchanging among the roads which have accepted the tentative plan proves as successful in promoting long distance traffic as it is hoped it will. In this connection the more general adoption of standards in equipment parts and dimensions will be of great assistance in facilitating the maintenance of cars when running on foreign roads. This has been one of the strong arguments in favor of standardization, which heretofore has been lacking in its application to electric railways.

The Necessities of the Situation

Some readers of the strong article by Charles V. Weston, published elsewhere in this issue, will think that he has overstated the necessities of existing conditions; others will think that he could have marshalled facts and arguments that would have been even more convincing than those he presents. No one, however, who desires the permanent protection of the rights of the security-holders of street railways can fairly deny the accuracy of Mr. Weston's characterization of the present situation as a crisis for some companies.

If the permanent protection of the rights of security-holders is to be assured, it implies the conservation of the capital investment in the property. No argument is needed to show that a railway which does not receive sufficient revenue to meet all expenses of operation, including allowance for depreciation, taxes, a reasonable return on the investment and such surplus as may be required for provision for necessary amortization, is unprofitable. If the capital investment as it stands on the books represents the reasonable investment in the property and the road is unprofitable in the light of the requirements which its revenues should meet, the conclusion is reached that either the construction of the property was an economic mistake, which the development of after years might or might not rectify, or that its rates for transportation are too low.

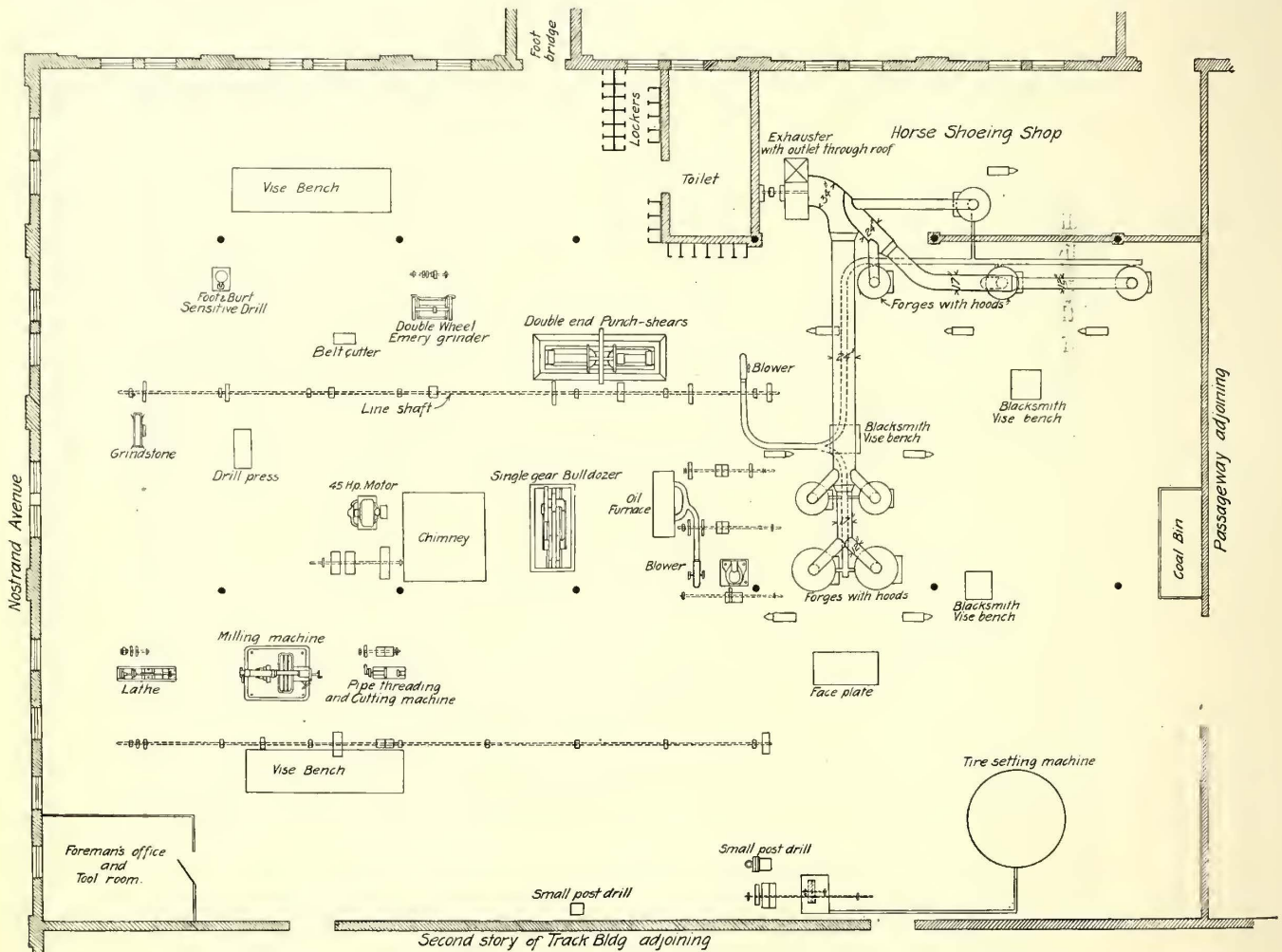
The theory of an economic mistake is one that cannot be raised with justice by many, if any, communities in this thriving, populous country; it certainly could not fairly be contended that loss of the funds of investors in a public service corporation that seemed to be of doubtful success was inevitable until all steps possible had been taken to place the property on a paying basis. If a road, properly capitalized, had been built, for instance, to afford what appeared to the projectors to be a reasonable haul for 5 cents, and the resultant revenue fell so far short of the expected amount as to be alarming, it might be wise, provided there were no legal limitations preventing it, to make the rate of fare 12 or 15 cents, according to the urgency of the necessities of the road. If the traffic would bear the rate charged, the integrity of the capital of those whose investment was irrevocable would be assured. The sole question to be determined in such a case should be whether the service justified the public in paying the rate required if a proper return was to be permitted. If all efforts failed to make the investment self-supporting, the owners of the property might prefer to await the development and better returns which future years might bring, rather than to admit their mistake at once, and wipe out securities representing, as we have assumed, actual cash invested for original construction purposes.

With proper accounting and financial methods, there should be no failure on the part of urban railways conservatively built in growing communities to be profitable. The law should afford such properties a just return on the investment. The problems which Mr. Weston discusses have been latent possibilities for irreparable harm for years. It is now time that these problems should be confronted and solved with protection to the various interests concerned.

THE LINE AND TRACK DEPARTMENT HEADQUARTERS OF THE BROOKLYN RAPID TRANSIT SYSTEM III.—SHOPS, STORAGE AND TRACK DEPARTMENT QUARTERS

The two preceding articles in this series* on the Brooklyn Rapid Transit Company's line and track department headquarters dealt respectively with the general features of the entire installation and with the utilities of the first group of buildings containing the line department offices, the printing plant, the covered wagon storage, the stable, the record storage, the register and turnstile shop and the emergency crew quarters. The present article will conclude the series with the following description of the other two groups of buildings which contain the shops, supply storage and track department quarters:

The general connection between the different shops is shown in the second-floor plan printed on p. 1488 of the Dec. 5 issue and also in the sectional view of the stock and shop building accompanying this article. The plan, in particular, shows how the combination of wagon elevator, bridge and enclosed driveway makes it possible to carry out the work with minimum effort. For instance, if a wagon requires attention it can be placed on the elevator with horses attached, raised to the bridge level and then taken directly into the carpenter shop on the left or into the paint shop at the other end of the roadway. In the same way wagons bearing supplies needed immediately can be unloaded on the spot where the material is wanted. The shops are also served by a 2-ton elevator which carries up miscellaneous supplies from the stockrooms on the first floor or from the basement. Consequently, the shops are



Brooklyn Line and Track Headquarters—Plan of Machine and Blacksmith Shops Showing Location of Tools

GENERAL SHOP LAYOUT

One of the noteworthy features of this line and track department headquarters is the effective arrangement of the shops. The building construction in itself leaves little to wish for, as every shop has plenty of headroom with abundant natural light and air through the large skylights and the numerous windows on two sides. All of the shops are on the second floor level, thereby bringing them directly in line with the foot and wagon bridges from the line department and stable. The foot bridge is simply a means for the convenient movement of the employees, but the wagon bridge is of great importance in facilitating the movement of repair work throughout all the shops.

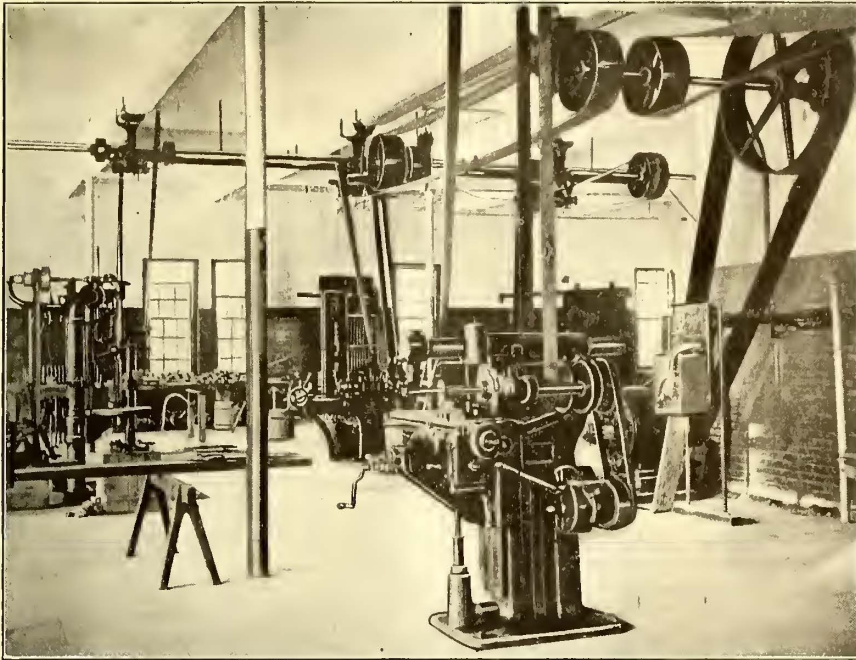
kept clear from the accumulation of supplies which are not necessary for the day's operations. It will be noted from the plan on page 1488 (Dec. 5 issue) that the horse-shoeing room is isolated from the rest of the blacksmith and wheelwright shop, but opens directly on the bridge leading from the stable and wagon elevator.

In arranging for the equipment of these different shops the Brooklyn Rapid Transit Company bore in mind the fact that the advanced line and track construction standards of to-day called for a more thorough equipment of machinery than is usually associated with this branch of electric railway maintenance. The tools, therefore, are of a character which permits the work to be done with the greatest practicable degree of refinement.

*ELECTRIC RAILWAY JOURNAL, Dec. 5 and Dec. 19, 1908.

BLACKSMITH AND WHEELWRIGHT SHOP

The blacksmith section of the main shop contains eight Buffalo forges, two of which are 4 ft. diameter and the remainder 3 ft. diameter. The location of each forge was



Brooklyn Line and Track Department Headquarters—Machine Shop

decided by the class of work done at it. The purposes for which these forges are used are extremely varied, comprising heavy wagon repairs and maintenance, horse-shoeing, suspenders for the overhead conductors, iron troughs and conductors for junctions, crossings, switches, frogs, tools, etc. The general arrangement of the forges is clearly shown in the plan of the shop and in one of the half-tone illustrations. Blast for the forges is supplied by a 7-in. Buffalo blower hung from the ceiling. The smoke from the forges is thoroughly exhausted through the galvanized hoods and piping by a 70-in. exhaust fan suspended from the ceiling, and is discharged through a steel plate chimney extending 6 ft. above the roof.

A 125-hp Beaudry power hammer has been installed between the oil furnace and forges for the manufacture of switch tongues and heavy wagon parts. Opposite the larger pair of forges there has been placed a blacksmith's face-plate weighing 3000 lb. This plate has a surface of 6 ft. x 3 ft., with a planed face divided by deep grooves into 12-in. squares. The blacksmith's vise benches are of all-steel construction.

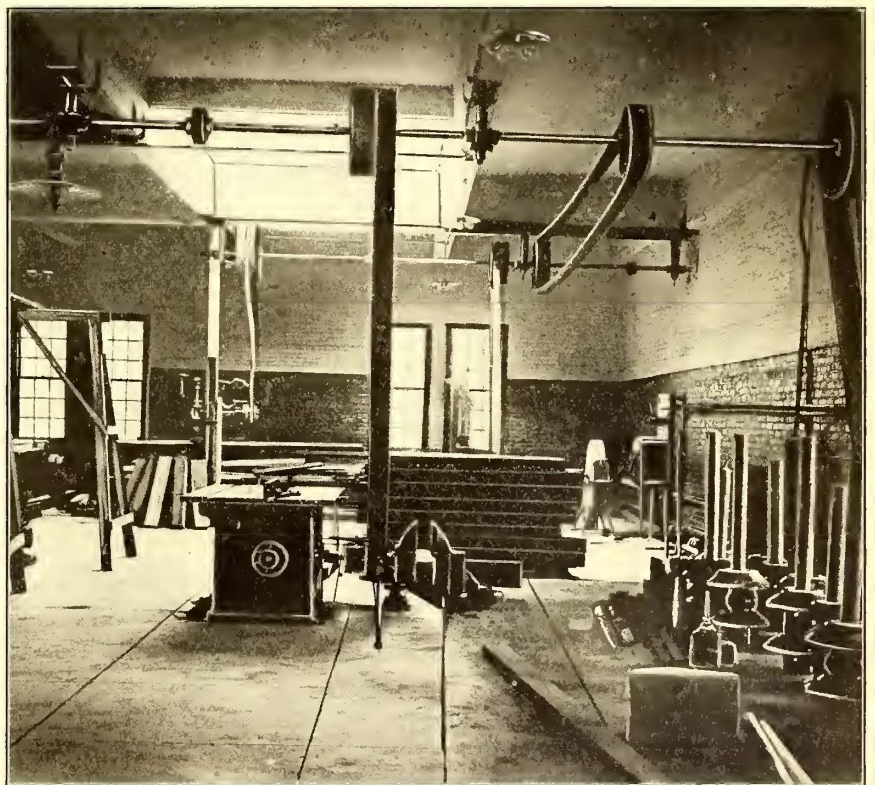
For convenience in handling heavy work, such as switch tongues and axles, which can be forged on the bulldozer, there is installed an oil furnace made by the Rockwell Furnace Company. This is equipped with two low-pressure burners and a No. 7 Buffalo blower delivering air at a pressure of 14 oz.

The tire work is cared for by a National "Hercules" hydraulic tire setter operated with a three-plunger power

pump. This machine will set a tire on a wheel in a few seconds without heating, which method has been found a great improvement over the tedious practice of shrinking on the tire. A Williams-White No. 1 bulldozer has been installed, as a great deal of the overhead trough work is carried by bar hangers bent to uniform shapes. A No. 15 double-end punch and shears from the same maker is conveniently placed near the oil furnace and forges.

Among the other tools are the following: No. 1½ Le Blond plain milling machine, which takes care of a multitude of slotting and shaping formerly done by hand; a Sebastian 13-in. screw-cutting lathe for general work; a 36-in. drill press and a 15-in. sensitive drill press; a single-bolt threader with a capacity up to 1¼ in. for bolt and pipe threading; a pipe-threading and cutting machine up to 4 in. capacity; a Springfield double-wheel emery grinder with wheels 26 in. x 4 in. and one 36-in. x 6-in. grindstone. Two large machinist's vise benches complete the equipment of this shop.

The power for driving the various machine tools is supplied by a 45-hp Northern Electric constant-speed compound-wound motor operated at 750 r.p.m. This motor has a separate panel on which is mounted a starting box, a single-pole automatic circuit breaker and a quick-break switch. The motor drives a countershaft which in turn



Brooklyn Line and Track Department Headquarters—Carpenter Shop

transmits power to two line shafts each 60 ft. long. Power from these line shafts is transmitted to the different machines through their respective countershafts.

The foreman's office is located in the southwest corner

of the shop and is combined with a tool room where the men secure their taps, dies, drills, etc.

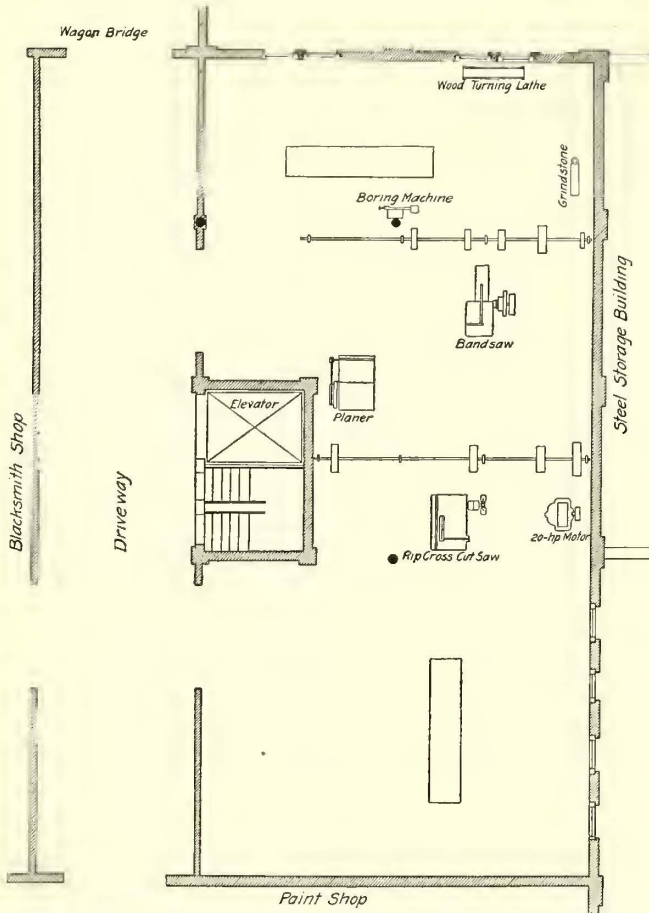
CARPENTER SHOP AND MILL ROOM

The carpenter shop and mill room is placed just oppo-

shafting by a 20-hp Northern Electric shunt-wound motor

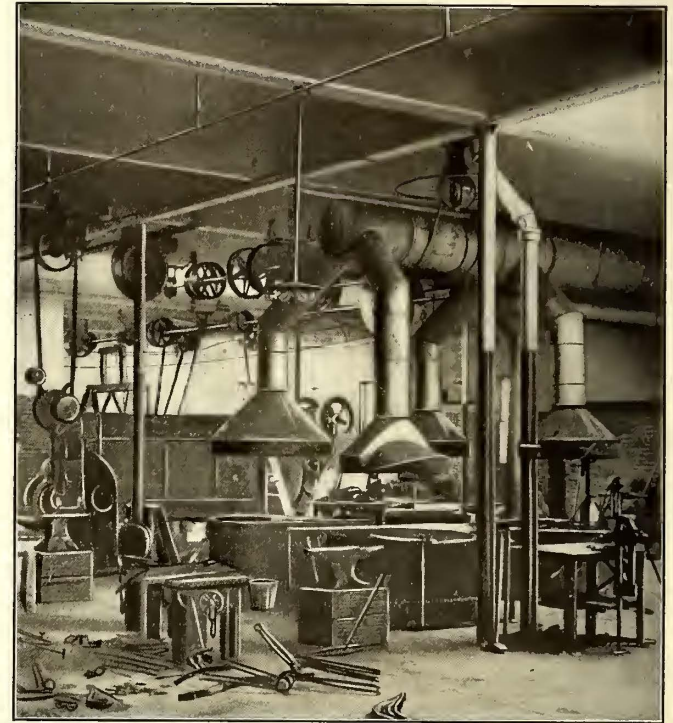
PAINT AND LAMP REPAIR SHOP

The second floor of the track department building running along Carroll Street has been divided by a partition into a paint and lamp repair shop. The paint shop is at the rear and has an opening on the second floor roadway so that wagons are brought into this portion of the property from the main elevator. The adjoining lamp repair shop takes care of all the electric light maintenance required on the entire system.



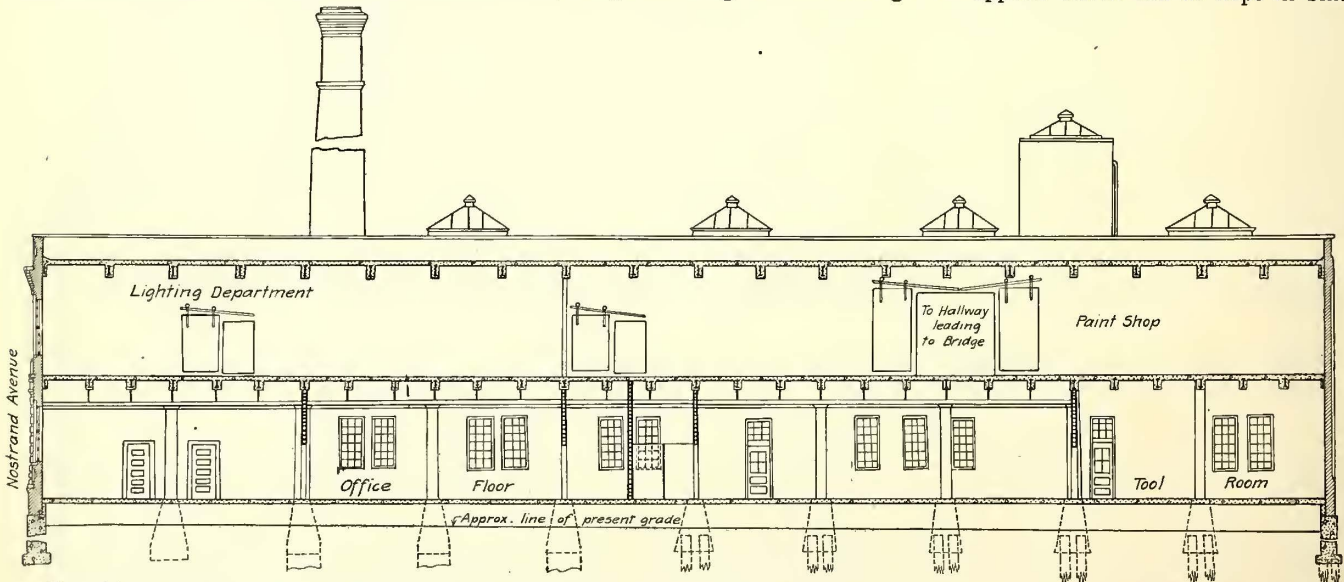
Brooklyn Line and Track Department Headquarters—Plan of Carpenter Shop

site the machine and blacksmith shop on the other side of the driveway. As shown on the accompanying plan, it is furnished with a 24-in. rip and cross-cut saw, a 30-in.



Brooklyn Line and Track Department Headquarters—Blacksmith Shop

SUPPLY STORAGE IN THE STOCK AND SHOP BUILDING
Ample facilities have been provided in the central building for the storage of supplies which can be kept in bins.

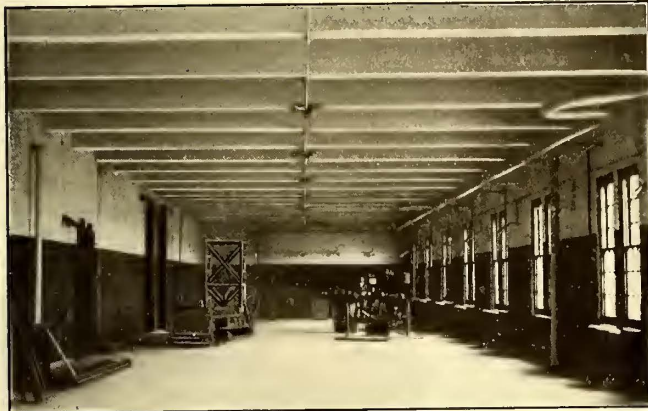


Brooklyn Line and Track Department Headquarters—Longitudinal Section of Track Department Building, with Shops on Second Floor for Lamp Repairs and Painting

band saw, a 20-in. single-surface planer, a post borer and a pattern-maker's lathe. Two large carpenter's vise benches and a wheelwright's bench complete the equipment. As in the other shop, all the machines are run from line

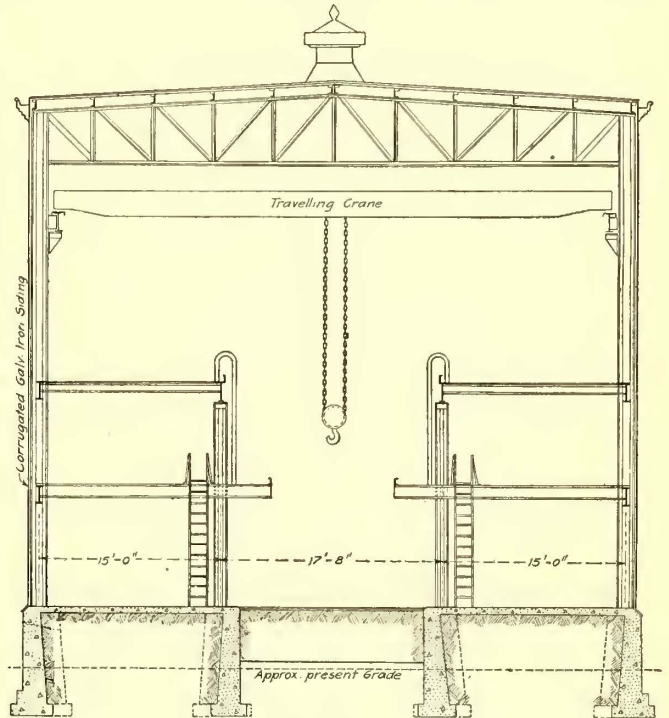
The entire first floor, which is 65 ft. x 51 ft. area, and that part of the basement not required for the heating plant is used for this purpose. The storage bins are built up of iron pipe racks with wooden shelves. The means for un-

loading and unloading material are excellent, concrete platforms being provided on both sides of the building so that reception and shipment of supplies with cars or wagons can go on at the same time without interference. These platforms are of reinforced concrete; two of them are 22 ft. x 3 ft. 3½ in., one being placed on each side, in addition to a third platform on the main driveway, which is of the same width but 36 ft. 3½ in. long. Three Howe scales are installed as follows: 100-ton track scale in the open driveway, 2-ton stockroom scale and a 6-ton scale used in the heavy storage building. The elevator in this building is adjacent to the delivery room so that little handling is necessary in cases where material is delivered for the immediate wants of the shops above.



Brooklyn Line and Track Department Headquarters—Paint Shop with Wagon Way Opposite Tower

storage levels consisting of the ground floor and two galleries, all of which are supplied by one 7½-ton Maris crane running on an I-beam track through the alley down the middle of the building. For convenience in placing

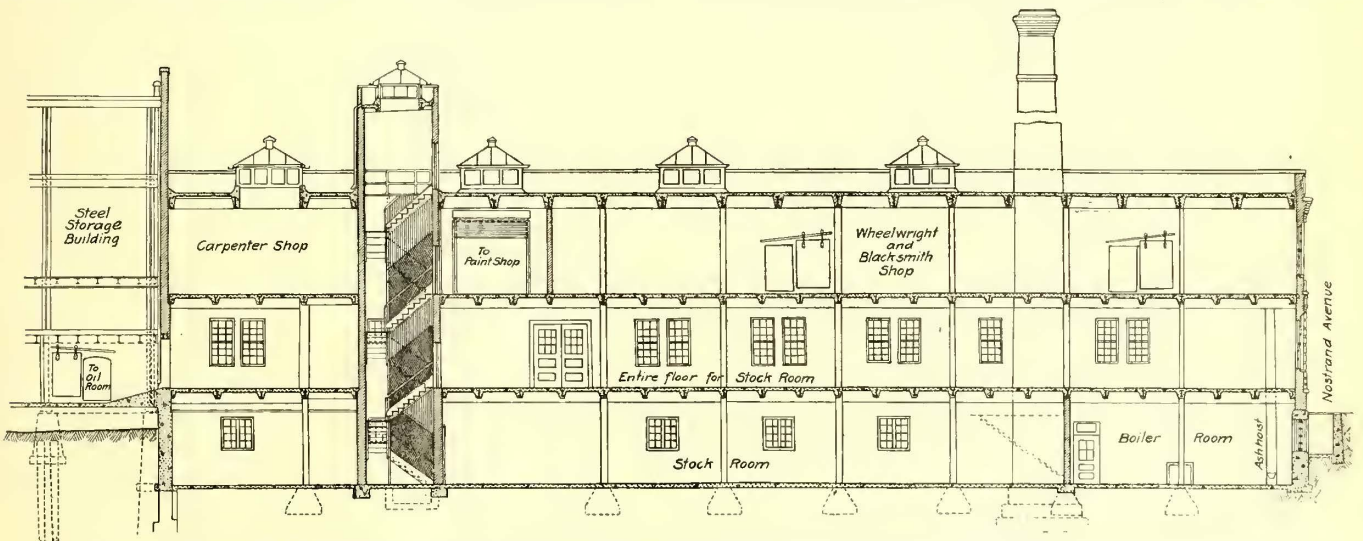


Brooklyn Line and Track Department Headquarters—Section A-A Through Heavy Material Storehouse, Showing Galleries and Crane

THE STORAGE BUILDING

The building which differs entirely from all the other structures on the property is that for the storage of heavy material, located back of the stock and shop building and therefore invisible from the surrounding streets. This building and adjoining pole storage covers an area of 132 ft. 6 in. x 47 ft. 8 in. It consists of a steel framework covered with galvanized sheet iron with a roof of channel purlins, to which nailing strips are secured for the 1½-in.

material the first gallery is wider than the second one, as shown in the cross-sectional view. The galleries are built up of I-beams covered with riveted steel plate for the support of the extremely large and heavy cable reels. By means of the loop track running through the rear of the building reels are taken off the cars by the crane and stored on any level of the shed, or if poles are taken off they are placed on the other side of the loop, the whole forming a very convenient method of storing heavy material. The



Brooklyn Line and Track Department Headquarters—Longitudinal Section of Stock and Shop Building Adjoining the Steel Storage

tongued and grooved roof boards. The boards are covered with Johns-Manville roofing. Ventilation is provided by two 3-ft. cowl ventilators.

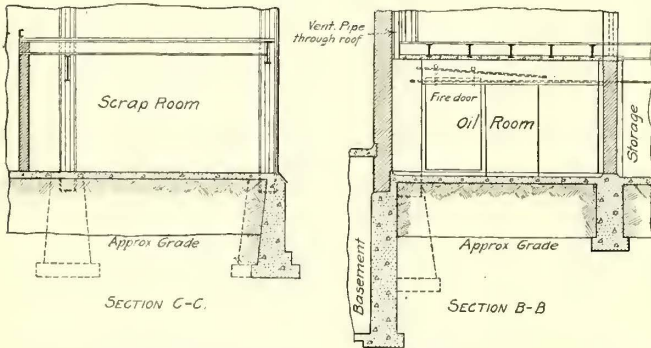
The interior of the building is arranged to afford three

shed is well lighted throughout as both gallery levels are supplied with windows. A high spiked fence with gate prevents entrance to the storage shed when the crane is not in service.

At the rear of the shed there has been installed on the ground floor an oil room and scrap room on opposite sides of the ramp leading to the stock and shop building. The oil room is surrounded by brick walls and all steel work therein is thoroughly encased in concrete for protection from fumes. An 8-in. wrought-iron pipe extends through the roof for the proper ventilation of this oil room. The scrap room is also walled in with exits to a loading platform and the stock and shop building.

TRACK BUILDING

The track building is of substantially the same design as the line department building. It is 31 ft. x 164 ft. 8 in. in area and two stories high. The first floor is occupied by the roadmaster and inspector's office facing Nostrand Avenue,



Brooklyn Line and Track Department Headquarters—Sections C-C and B-B Through Heavy Material Storehouse, Showing Scrap Room and Oil Room

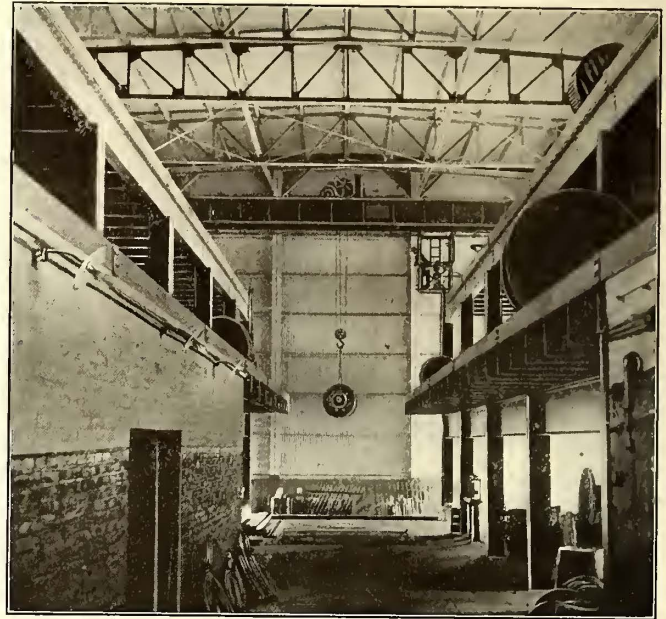
the general offices, special storeroom and vestibule leading to the loading platform, men's room and tool room. The latter two rooms also face loading platforms.

Part of the second floor is used by the lighting department to repair the various arc and incandescent lamps used throughout the Brooklyn Rapid Transit system and the rest serves for the paint shop.

CONCLUSION

In concluding this series it is desirable to add that this installation, which probably represents the finest of its kind

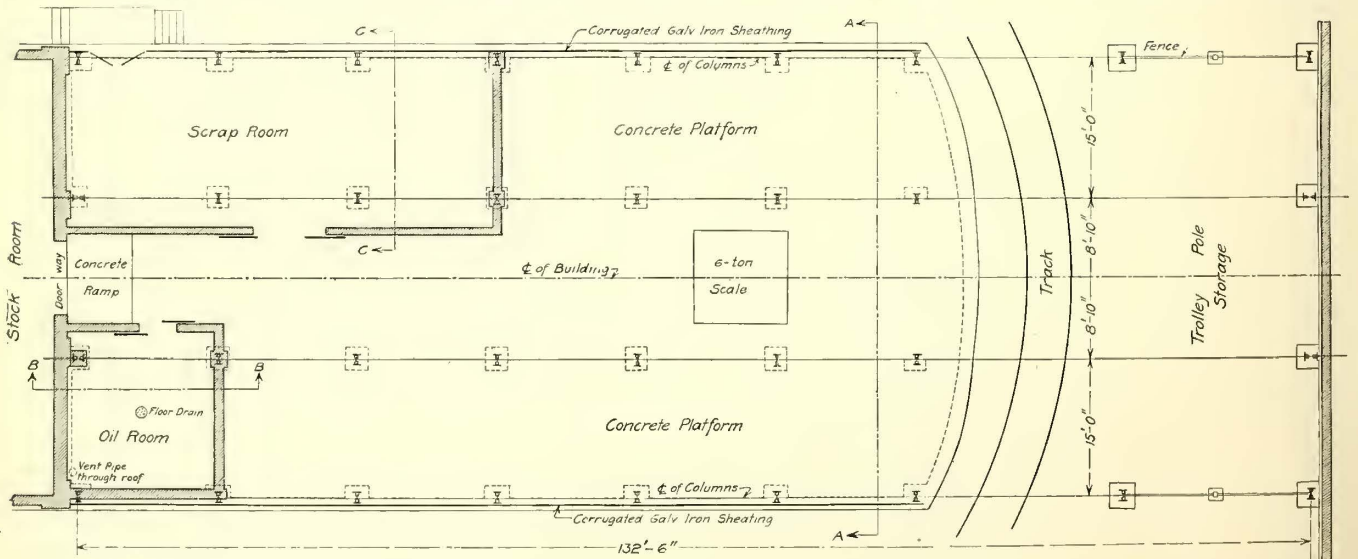
which will appear in an early issue, and several other details of the layout will also be elaborated upon when actually completed. The installation as it stands to-day is



Brooklyn Line and Track Department Headquarters—Crane Delivering Wire Reels to Storage Galleries

well worth the visit of all men who are interested in this branch of railway maintenance.

It is well to close these articles with some reference to the management of the property. As the installation is made up of several distinct departments, the buildings were placed in the care of one custodian, C. A. Biebrich, who reports directly to the general manager. This prevents any possible friction which might arise from a division of authority among the different departments. Individually, however, the internal affairs of each section are subordinated as follows: Line department under C. E. Roehl,



Brooklyn Line and Track Department Headquarters—Plan of Heavy Material Storehouse, Showing also the Loop for Cars and Wagons Which are Unloaded by a Crane

thus far designed and built, will contain when completed many interesting details of which little or no mention has been made in these articles. The specifications for the 600-volt lighting have been summarized in another article,

electrical engineer; track department under W. S. Menden, chief engineer; printing department, records and register repair shop under C. D. Meneeley, secretary and treasurer.

ACTION NECESSARY TO ASSURE A REASONABLE RETURN ON THE INVESTMENT—I.

BY CHARLES V. WESTON, PRESIDENT, SOUTH SIDE ELEVATED RAILROAD, CHICAGO

How imminent is the crisis which confronts the urban transportation companies in the United States? Perhaps that can be answered only in general, because the conditions which affect the transportation lines of, for instance, Chicago are not quite the same as those which are menacing the systems of New York, Philadelphia and Boston. Yet there is no division of opinion that there is an ever-increasing peril for the traction company, wherever located. Men qualified in the highest degree to judge are a unit in declaring that unless there comes in the near future a better understanding between the public and the corporation, a spirit on the part of the people and the law-making bodies of greater fairness to the public service corporation, there inevitably awaits a crash which will send financial interests into a chaos from which no man can say when they will emerge.

This peril is not of sudden or recent origin. It began to take form many years ago, but the development has been gradual. What, six or eight years ago, was a sort of vague, mist-like danger, seen only as some far off possibility, to-day becomes a well-developed destroyer, thundering at the door of every street car line in the union. There are few cities of the United States of any considerable importance but are wrestling with the problem, and, on the part of the people, wrestling largely with a sort of Frankenstein monster, whose outlines take form as they are made in each man's mind. Receiverships there are in plenty, and municipal and legislative-made bodies are battling wearily with conditions that seem destined to a perpetual life.

What is the cause of all this? Simmered down to a finality, it is the attitude of the public. Taking that concrete premise, we must diverge. One may reasonably ask: What, in the beginning, turned the public mind into a hostile channel? Why has it so continued, in the face of a constantly improving transportation service? Why is it to-day as vigorously to the fore, perhaps more so, than it was five or ten years ago?

Public opinion, led for years along one channel, is not easy to change. For decades the people have been influenced against the public service corporation. In some part this has been due to the corporations themselves; but in a larger way it has been due to demagogues and self-exploiters, both in and out of law-making bodies.

For many years urban transportation lines were controlled by men who believed the affairs of their companies were no concern of the public, and by other men who were not only of the same mind, but who went further, in that they used the corporation and its stocks solely for gain in the market. Times have changed, though urban residents for the most part do not seem to have recognized the fact—and in one way they are not wholly blamable, because little effort has been made from the corporation standpoint to enlighten them. They do not understand that conditions which, 20 years ago, permitted of a reasonable net gain by a street car company, to-day are so altered that the corporation barely keeps its head above water, or, worse yet, shows a considerable deficit. Urban railroad builders of a decade or two ago were for the most part guilty of an error of judgment as to what it would cost to render the service they proposed to give. To a

much greater extent these men erred in their system on which the lines were developed; they utterly overlooked the principle that the costs of service should be distributed among the users in an equitable manner. The evils which grew out of these errors increased as the railroads extended.

No sane man disputes the proposition that public service corporations should be subject to all fair regulation by properly constituted bodies, and, at least in latter days, with practically all such concerns in the control of men who conduct them as fair and square business propositions, there is no tendency to combat this. The rub comes in that what many regulating bodies deem equitable terms are obviously unfair to the corporation.

City councils, legislative bodies and commissions, in such matters as the granting of franchises or the passage of rules or orders, are enthusiastically supported by the people. Why? Because the people have so long felt an antagonism toward the corporation that anything which bears the semblance of the "big stick" is hailed with cheers. A student of political economy recently observed that if the matter of taxation were left to a vote any community in the United States would elect to saddle the entire burden of taxation on those companies popularly known as corporations.

The aldermanic history of the cities of the Union is the story of the exploitation of the people's rights; the holdup of vested interests; the granting of special privileges; the sale of franchises and the licensing of vice. A determined public has relegated corruption, and, in general, honorable municipal bodies now prevail, but the sting is in the minds of the people, and without discriminating, regardless that many public service corporations obtained their franchises honestly, or since have fallen into the hands of reputable men, all companies are tossed into one common lot; so that even in this day of enlightenment almost any ordinance, however drastic or confiscatory, meets with popular support.

The situation with which the corporations must deal is one of the utmost seriousness—so serious that it affects the very life of the company. There can be no doubt that an indefinite continuance of the present policy of requiring increased service, regardless of the cost, inevitably must result in financial ruin. To prevent this, a determined effort must be made to acquaint the public with the facts as they exist. History has revealed that a properly informed public, a public which has been fairly presented with all the evidence for and against, can be depended upon to render an honest judgment. Were this not so, there would be no republic of the United States.

In the case of the railroad, there are a number of elemental economic principles which cannot but appeal to any fair-minded man. Transportation is a co-ordinate branch of industry. One might say it is an industry. It must be independent and self-supporting, and therefore it must be governed by as fair rules of income and expenditure as would a manufacturing plant or a grocery store. In its carrying capacity it has goods for sale, and there is no rule of business which orders a man to sell his products at a price which denies him a reasonable profit. In other words, the rates charged for service by a transportation company should be sufficient to meet legitimate operating expenses, provide for repair and renewal of the physical property, and to return to the owners profits on the investment commensurate with the risks undertaken. These economic costs should be distributed among the users of

the service in an equitable manner. In other words, each person hauled should pay a rate of fare which not only meets the cost of carrying him, but gives a reasonable profit to the carrier.

Urban transportation companies being for the most part in that condition known as "hand-to-mouth," it follows that rates cannot be reduced. The courts have held that neither legislative bodies nor their agents can, under the guise of regulation, reduce transportation rates below the point where they will suffice for the expenses of operation and also give a fair return on the investment. In this regard steam railroads have a very considerable advantage, in that they can appeal to the courts as against rate reduction, while street railways, having contracted by charter or franchise to render their service for a fixed compensation, must appeal to the granting body to remedy their mistakes.

In this connection there may at once be raised the point: "What do the corporations consider a fair net return?" In answer to this is offered a quotation from a lecture given by G. Kemmann, of the Berlin Elevated & Underground Railroad, before the Society for Railway Investigation in Berlin, on Dec. 10, 1907. Mr. Kemmann said:

I believe that even in future better times, with a slowly decreasing tendency of the money value, roads paying 4 per cent can hardly be counted with the paying ones, while those below that must, under all conditions, be regarded as non-paying. This is true also of municipal enterprises, for the times are gone when cities can borrow money at less than 4 per cent. Placing the limit of return at 4 per cent, we find the paying rapid transit roads in Paris, Berlin and New York. All others, without exception, belong to the non-paying roads, for the Central London will hardly be able to keep up its 4 per cent dividend on account of the decrease in traffic.

The statement of Mr. Kemmann that roads paying 4 per cent can hardly be counted with the paying ones cannot reasonably be questioned. It is probable that when a solution of the problem of what constitutes reasonable return on street railway investments is reached, the result will fall at some point between 6 per cent and 10 per cent, depending in some degree upon the conditions and limitations of the franchise grants.

The growth of area of American cities and towns has been phenomenal, and is a direct result of cheap transportation, which permits persons of limited means to live at greater distances from their work and in districts more healthful and pleasant. This expansion of urban passenger traffic lines has resulted, to the transportation companies, in a situation very much like "hoist by his own petard." From the day of the horse car until the present it has been the pride of the traction men to extend their lines into new and unsettled territory. This has redounded to the monetary advancement of the acre-tract dealer and the "build you a house on installments" man, but it has decidedly reduced the contents of the purse of the street railway stockholder. The new line, laid at a heavy expense over ill-paved streets, or even on dirt roads, and equipped at further large outlay with cars and power and crews, was a fine thing for the man seeking a home in the outlying district, but the "outliving men" were so few and the haul so long that profits of short haul routes were not only eaten into, but were wiped out.

Few street car patrons have any knowledge of the manner in which they are considered as a profit or loss proposition to the railroad. The citizen probably thinks, "there are so many passengers carried at 5 cents each and the expenses of the company are so much. Subtract, and there is the profit or loss."

In a way, of course, the citizen is right in his calculation, yet the transportation company arranges its computations in quite a different manner. Patrons of a transportation company receive a service which is most conveniently measured in terms of passenger miles. That is, the service each individual receives is proportional to the number of miles he is carried. In order to render this service the company operates vehicles, and the extent of the service provided is measured in car miles. That is, the cost of the service is the cost per car mile. This cost per car mile comprises two elements:

First, those charges which are independent of the number of car miles run, such as salaries of general officers and interest on investment.

Second, the charges which vary directly with the number of car miles, such as the wages of train crews and repairs to rolling stock, etc. There are, to be sure, other items of expense which fall between these two classes.

It is evident that as the density of traffic on a given line increases the cost per unit of service rendered, the cost per car mile will decrease, since the fixed portion of the cost of the total service is distributed over a greater number of units. As the capacity of the track is approached, however, the possibility of further reducing the cost per car mile is correspondingly diminished, and the expense of the company will increase almost directly as the car miles increase.

It is true that in America the revenue received per passenger is constant. That is, despite the question of transfers, the fare unit is 5 cents, regardless of the length of the ride. Thus, while the revenues of the company vary directly as the number of passengers, the expenses fluctuate as the number of passengers carried multiplied by the average distance each travels. It, therefore, is self-evident that the second factor, the average distance of haul, determines whether the company, as a business proposition, lives or dies.

If the average haul is less than the critical distance, the company is prosperous; if it be greater, bankruptcy is inevitable. The exact length of the critical distance is a question to be determined in each case, but when the average haul is too long it is quickly made apparent in the company's balance sheet.

The transportation of passengers along city streets began on a basis that to-day brings a smile to traction man and citizen alike. The cars were 12 ft. or 15 ft. long, and the "outfit" consisted of the car, the team, a set of rope tugs, the lines and a patient driver on the front platform. The roadbed was laid at a cost of perhaps \$15,000 a mile. And the fare? Well, the fare was the same as it is to-day, 5 cents. Then came the day of the cable road, an interesting institution that had no right to existence in any city save such as was burdened with heavy grades.

Yet, with the cable and, later, with the trolley, the elevated and the subway, there came such an enormous development of traffic that traction line owners were inspired with a perilous optimism. The nickels came in so fast that elements which to-day are of the first importance were entirely overlooked. Managers could see no limit to the growth of traffic, which in itself is not so bad, but they failed to take into account the durability of equipment and the lessening value of the nickel as it represented the constantly increasing length of haul.

To the pioneer street railway manager the 5-cent piece stood for a profit. He failed to see that it might represent a loss when it meant the price of carrying a passenger over

a line which had been extended from 3 to 6 miles, or more. The early companies paid large dividends, therefore, out of what seemed to be earnings, but in the light of more modern business principles it is seen they were paying profit out of capital. They thus opened an inviting field wherein unscrupulous operators could exercise their financial legerdemain and extract even larger sums, to the ultimate loss of the investors.

The results achieved and the dividends paid were accepted by the public as evidence that street railway profits were huge, and hence that rates of fare were unreasonably high. Here was the beginning of that antagonistic attitude on the part of the people and their elected lawmakers. City councils were quick to heed the popular cry, and there followed ordinances limiting franchises to a relatively short term; requiring that extensions be built at the will of the municipality; that free transportation be introduced or extended; that the railway companies pave, clean and light the streets along which their rails were laid, and in some cities that fares be reduced to 4 cents, or even 3 cents.

The heirs of a preceding régime of traction management yielded in a large measure to the popular cry, because they felt that their business lives were at stake, because they admitted there was a measure of justice in the popular demand, and because they still were in an uninformed state of mind as to the real, exact business principles of the industry. Even in that day their yielding was with the suspicion that they (the companies) were placing themselves in a position where the financial outcome would be such as to make for serious entanglements.

This, therefore, was the situation which street car companies faced for a period running up to, say, the last three, four or five years—constantly increasing concessions to the public, extension of lines, enlargement of power houses, development of equipment, a wider granting of transfers. And is this all? No! On top of all this, there has come a great increase in the cost of labor and materials, both of which items—particularly the first named—are of prime importance in the question of profit or loss. Neither street railway transportation companies nor any business can long be conducted on such a basis. The large manufacturer or merchant cannot long face similar conditions. Either he makes a reasonable profit or he "gets out" or fails.

Were the concrete question put to the people of any city, "Would you prefer your street railway transportation conducted by prosperous companies, giving the very best service, though it might in some instances be at a slightly increased rate over the present? Or would you prefer the present rate, with companies running on a bankruptcy basis?" There can be no doubt what the answer would be.

The trouble is that it has been, and is, difficult to convince the people that the question they must answer is exactly the one stated. In some way they feel that courts and receivers are going to give them the last word in perfection of service. Alas! the history of receiverships, the country over, has failed to afford basis for any such happy delusion. The service that will be the best from now on will be that given by the company enabled to charge a rate of fare which means to it a moderate profit for each passenger carried.

It is impossible to believe the people will not come to realize this. Indeed, we know there is a slow awakening in many parts of the country; an awakening that proves the contention that the life of the urban transportation

company depends on the removal of false ideas. That there is a note of optimism leavening the people, a note which only needs to be expanded to bring about a happier condition, is heard in the conversation of two men passengers pretty well jammed into an elevated train at the rush hour a few nights ago:

"Whew," said the first man, as he reached for a strap. "Well, it might be worse, and, anyway, we're all good natured."

"You bet it might be worse," said the second man. "I wouldn't mind having a seat, but when I think of the days I used to ride clean up to the Ravenswood district on a horse car, change at the barns, pay another 5 cents, tuck my feet in the straw on the floor, and never get a peep at a newspaper, because there was no light in the car, this looks pretty good."

In New York the Public Service Commission of the First District has made concessions to traction lines on proof that such concessions were imperative to prevent further losses. The same commission has also authorized increased charges on the part of electric lighting and gas companies. In Massachusetts the State Railroad Commission has permitted sundry companies to increase the rates charged, either by shortening the distance of the haul or by adding to the fare.

Too many regulating bodies—perhaps there is no exception—have made their calculations on the basis of the lowest possible fare—5 cents, 4 cents, 3 cents—and then have proceeded to demand universal transfers, new equipment, a rebuilt roadbed, and what-not. There seems to have been few instances wherein such controlling bodies have made a serious attempt to determine what a truly fair rate for different distances would be.

Urban transportation builders, too, have been given small credit for the willingness with which they have sought to extend their lines. In many cases this willingness has, as before stated, led to their own undoing, yet there are many cities where, without competition to prompt them, they have endeavored to afford a service which would meet with the demands of even a small portion of the population. Nor has the development been along the older established lines. The cable road in level cities was superseded by the trolley, and in reaching for further facilities for affording the people quick, safe and cheap transportation, men built elevated railways and then, unable to extend their activities further on the surface or in the air, burrowed beneath the ground and undermined cities with a honeycomb which carries a busy people quickly to and from their homes. In Chicago the underground scheme of travel has not been reached, but all indications point to its not distant development.

With the elevated and subway comes, of course, an enormous increase in the amount of capital invested, an investment that 30 years ago would have appalled the "magnate." Yet the builders of elevated and subway systems gained only a little on their predecessors. They knew how to construct more stable lines, better cars and give faster service, yet they failed equally in determining that final balance which means the difference between profit and loss. The projectors of these aerial and subterranean structures made their premise largely on the proposition that such structures, being freed from the delays incident to the surface cars, would capture a larger share of the long-haul traffic and also would attract a sufficient amount of short-haul business to equalize the cost of carrying passengers to an extent which would make these costly schemes profitable

at the same flat rate of fare that was charged by the surface lines.

In the matter of capturing the long-haul business, the elevated roads were (in the light of present rates) unfortunately successful, but their anticipations in respect to the short-haul traffic, as in competition with the surface lines, were not realized. Experience has demonstrated that practically all of the annual increase in traffic coming to the elevated lines, except in New York, with its dense population spread along the full length of the road, is long-haul business from which there is left a very small margin of profit, and this even after deducting only necessary operating costs. The term "necessary" operating costs is used, because it has been charged that public service companies hide their profits under excessive expenditures. Such charges could not be sustained against, at least, the elevated railroads of Chicago. On the contrary, if any charge can be made and upheld, it is that some companies, in their desire to make a good financial showing, have not made a proper allowance for maintenance.

In the matter of service, irrespective of any financial consideration, a foreign investigator of European and American railroads has clearly brought out a point which bears on one of the very gravest criticisms which our surface, elevated and subway roads face—that is, the congestion during the rush hours. This critic says:

In regard to the economy of the roads the magnitude, manner and division of occupation must be considered. In such decidedly business cities as New York, the traffic is especially heavy, and it is not unimportant whether the work of large classes of people begins and stops at the same hour, or whether the hours for different lines of work differ within certain limits.

These differences are not yet fully appreciated from the standpoint of transportation. We find the limit is in American cities, where the working population has to be carried to its place of work in a shorter time than anywhere else. The same is true when the people return to their homes in the evening. The traffic curves of these cities show especially high peaks in the morning and evening hours. Where the work is so concentrated as in North America the noonday rest does not affect the traffic curve considerably, because the business man usually takes his lunch near his place of business.

That the words quoted are relevant may be clearly discerned when it is realized that one of the greatest complaints against urban transportation services comes from that vast majority which uses the cars in the morning and evening rush hours. There is a range of about 90 minutes in the morning and evening when a vast army of people must be hauled. To meet this maximum requirement the company must have a "top-load" equipment which is working only three hours daily, idle the balance, but drawing interest on the investment the full 24 hours. Overcrowding comes at a time when the majority uses the car lines, and the adverse opinion engendered by such conditions becomes the majority opinion.

Whether a total absence of overcrowding at the rush hours can be prevented is a matter of opinion among traction experts, but it is indisputable that conditions which would give the carrying companies returns permitting of larger and faster tracks and cars would help greatly in reducing such troubles.

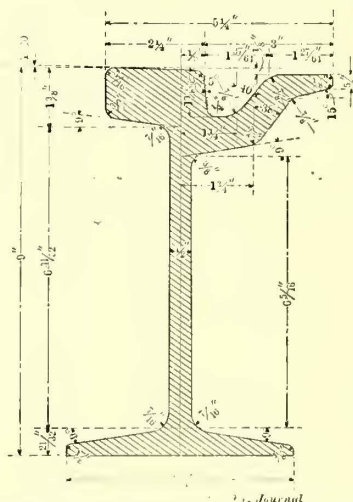
(To be continued.)

The Government of Holland has granted to the Flushington-Middelburg Tramway Company a concession to convert from steam to electric traction its railway between the two cities.

TRACK RECONSTRUCTION IN NEW YORK

During the working season of 1908, now about over, the receivers of the Metropolitan Street Railway Company have carried on extensive track improvement work on all of its principal lines. For a number of years prior to the appointment of receivers in September, 1907, maintenance of track had not been adequate, and the general condition of the roadbed on a large part of the company's mileage was allowed to fall below the standard requisite for lines of heavy traffic. The receivers ordered last spring the complete renewal of the tram rails on approximately 20 miles of track and the thorough repair of the rails and substructure of an additional 36½ miles of track. Light repairs were also ordered wherever needed, and a large amount of special work was purchased for renewals. All this work has been carried out with the company's own forces under the most difficult conditions, as will be discussed further on. The following is a detailed list of the improvements made:

On Broadway both tracks were entirely renewed, including new tram rails and slot rails, between Canal and Twenty-third Streets and Thirty-second and Forty-fifth



Standard 9-in., 115-lb. Grooved Rail Section

Streets. The iron tubing with which the old cable slot was lined was removed, and standard yokes substituted for the old cable track yokes, which were left in when the line was changed over for electric operation in 1901. In addition to this complete reconstruction, 3½ miles of single track were thoroughly repaired, joints renewed, worn and broken rails replaced, and the track brought up to good surface, which involved in some cases resetting the cast-iron yokes. Three crossovers and nine crossings with intersecting lines were renewed, and all curves relaid with new rail on wider spacing, center to center of tracks, so as to make it possible to operate long pay-as-you-enter cars when they may be put in service on this line.

On Sixth Avenue 4.4 miles of single track were relaid with new tram rail, and an additional 4 miles were thoroughly repaired. Three crossovers and three double-track crossing turnouts were renewed.

On Madison Avenue 7.5 miles of single track were relaid with 9-in. rail, 1 mile of roadbed was entirely rebuilt and 7 miles of track repaired. Two crossovers, one crossing and four double-track turnouts were renewed, and an entirely new special work layout installed at the car house at Fourth Avenue and Thirty-second Street.

On Lexington Avenue 1.7 miles of single track were relaid with 7-in. rail and 0.7 mile of feeder duct installed in the roadbed foundation. A new crossing was put in at Lexington Avenue and Forty-second Street and a complete new layout of special work installed in front of the car house at Lexington Avenue and Ninety-ninth Street, to permit the long pay-as-you-enter cars in service on the Madison Avenue line to be stored there.

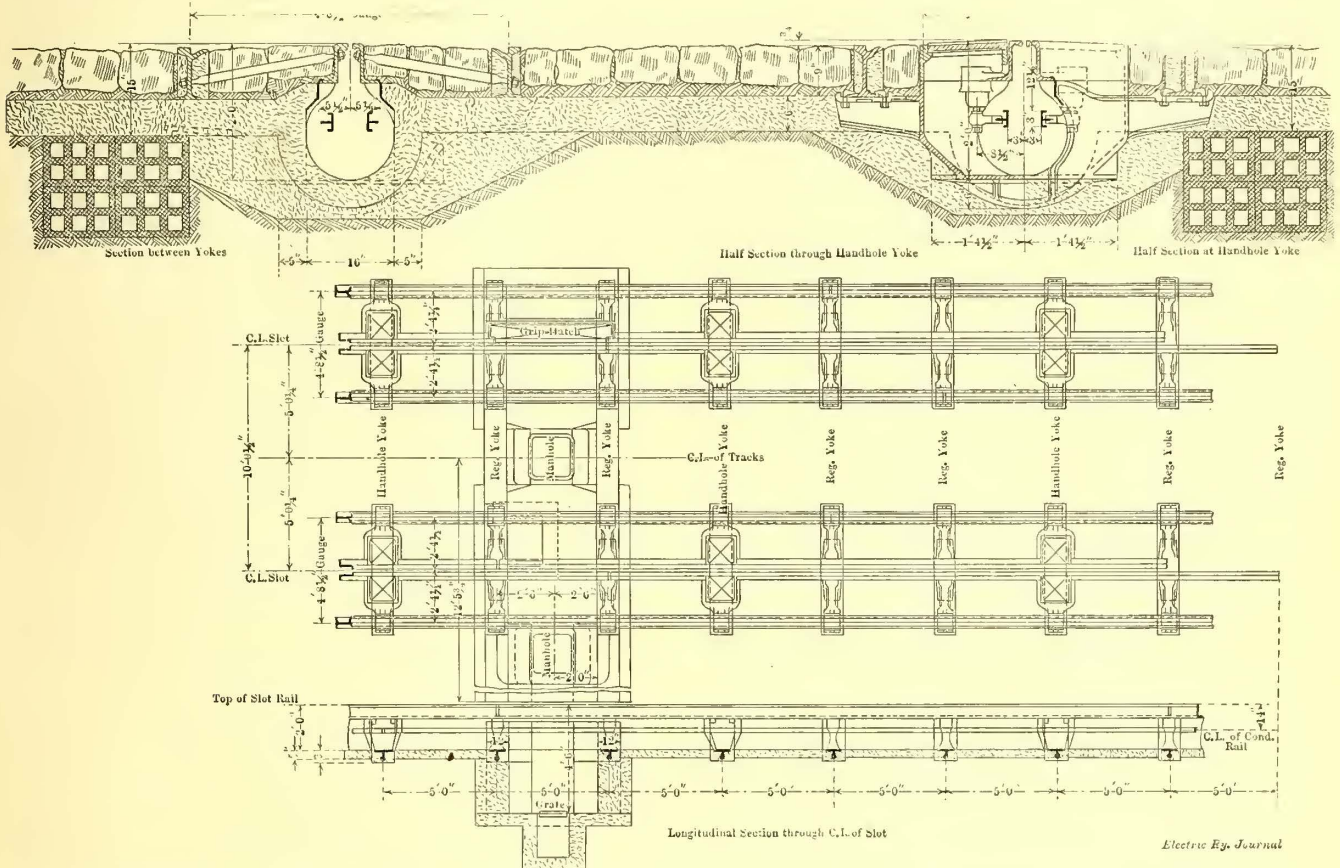
On Thirty-fourth Street 1.1 miles of single track were relaid with 9-in. rail and 2 miles of track were repaired. Two double-track crossings and one single-track steam railroad crossing were replaced with new special work.

On Fifty-third Street 0.63 mile of track was relaid and a new crossing and double turnout installed at the intersection with Seventh Avenue.

In addition to the work outlined above, 20 miles of single track, scattered over various other lines, were thoroughly repaired. Six double crossings, seven crossovers, five double-track and three single-track turnouts were renewed at different points, and a new special work layout was installed at the 146th Street car house, to permit the operation of pay-as-you-enter cars from this terminal.

Much of the track of the horse-car lines was badly in need of repairs, and 19.62 miles were relaid with heavy rail during the season. The old track consisted of strap

and embedded in concrete support the track rails at their ends, and the Z-bar slot rails in the center. No wooden ties are used. The conductor rails are a special flanged T-section, supported in the trough by suspended insulators spaced 15 ft. apart and accessible for renewal and inspection through hand holes in the pavement at every third yoke. The slot rails and track rails are connected with tie rods between each pair of yokes, so that the entire structure is tied together laterally at intervals of 2 ft. 6 in. The slot rails rest on shoulders cast on top of the yokes and are bolted through their bottom flange to the top flange of the yoke with a bolt on each side of the yoke web. Two methods are used for fastening the track rails to the ends of the yokes, depending on the height of the rail section. With the 7-in. rail, used in streets paved with asphalt between tracks, the rail is bolted through the web with three 1-in. bolts to the ends of the yokes. When 9-in.



Metropolitan Street Railway Company—Standard Track and Trolley Conduit Construction, Using 9-in. Rail

rails spiked to longitudinal timbers, and the timbers in many places were completely rotted away. The partially worn out 9-in. rail removed from the electric lines was used for the reconstruction of the horse-car lines, with the exception of 1600 ft., which was relaid with 7-in. rail, also removed from the electric lines. This second-hand rail, which had outlived its usefulness under the heavy traffic of the electric lines, is good for many years of service on the horse-car lines. In addition to this general track reconstruction on the horse-car lines, four new curves and one crossover were installed to replace worn out special work.

TRACK CONSTRUCTION

The standard track construction followed by the Metropolitan Street Railway in all reconstruction and new work is shown in the accompanying drawing. It is a modification of the construction originally employed when the cable lines were first built. Cast-iron yokes spaced 5 ft. apart

rail is used, however, the construction shown in the drawing is followed and the rails are hook bolted over the bottom flanges with four bolts passing through the top flange of the yoke on which the rail rests in a shouldered seat. The 9-in. rail is used in streets in which the space between tracks is paved with cobblestones.

RAIL SECTIONS

Two standard rail sections are used, rolled by both the Lorain Steel Company and the Pennsylvania Steel Company, and respectively designated as 7-in., 110-lb. section No. 278 and 9-in., 115-lb. section No. 279. Both are Trilby sections having precisely the same design of head, but differing slightly in the dimensions of the web and base. A drawing of the 9-in. section is reproduced herewith. The 7-in. section, No. 278, weighs 5 lb. less per yard, has a web 9/16 in. thick, but only 4 7/8 in. high, and a base 5 in. wide and 21/32 in. thick. These two sections were designed about three years ago. The old rails

rolled before that time were an eccentric section with the gage line well inside the center line of the web. In redesigning the section the gage line of the web was moved out so that it is but $\frac{1}{2}$ in. inside the center line of the web, which gives practically a center bearing rail. The thickness of the web of the 7-in. section was also increased to 9/16 in., as it was found that the rails were splitting through the web at the bolt holes where they were fastened to the ends of the cast-iron yokes. The rails are laid in 55-ft. and 60-ft. lengths. For the 9-in. rail 12-bolt Continuous joints are used and for the 7-in. section 8-bolt Continuous joints. Inasmuch as the track rails are not depended upon to carry the return power circuit, they are not bonded. On the Lexington Avenue reconstruction where 7-in. rail is used, the joints have been welded with thermit.

CONSTRUCTION METHODS

Owing to the fact that all of the surface lines in the Borough of Manhattan are operated with the underground conduit trolley system, repairing the tracks without seriously interrupting traffic is especially difficult. During the extensive track reconstruction which is a part of the rehabilitation scheme of the surface lines in Chicago, it has been the practice to either reroute the cars to other lines or to build a temporary track next to the curb on the roadway and rebuild one track at a time. Neither of those schemes is practicable with the conditions existing in New York. All of the track reconstruction outlined in the preceding paragraphs has been carried on without abandoning any tracks or seriously interfering with the regular operation of cars. Furthermore, the work has been carried on principally in the daytime. In relaying track rails as fast as the old rails were removed new rails were put in place and the cars kept moving. Some idea of the difficulty of carrying on work of this kind may be gained when it is stated that on the Broadway line cars are operated at intervals of from 30 seconds up, and during the rush hours on the other lines traffic is equally heavy. Another obstacle to be overcome is the lack of any place for storing material near the reconstruction zones. City authorities and the property owners will not allow paving blocks, sand, stones, rails and other material to be stored along the curb or on the sidewalks and it was frequently necessary to cart away the paving stones, old rails, dirt and other materials taken out of the old track and store them in the company's storage yards and bring them back again within, sometimes, less than a day.

In spite of the difficulties under which the work was carried out a rather remarkable record was made in the reconstruction of the Broadway line. The 4.53 miles of track, entirely renewed with new tram rails, slot rails and yokes, were reconstructed in the short space of five weeks. The work was carried on in three sections by three gangs of 150 men each. The first section extended from Canal Street to Fourteenth Street, the second section from Fourteenth Street to Twenty-third Street and the third section from Thirty-second Street to Forty-fifth Street. Only one track at a time was opened up. The construction gangs consisted of an average of 103 laborers and 45 iron workers, who cut out the old rail, put the new rail in place, fitted the joints and adjusted the alignment and surface of the track. Not more than 600 ft. to 700 ft. of track was opened at a time and as fast as the reconstruction was completed the paving was temporarily restored until the paving contractors could relay the new asphalt. The concrete required for track foundations was hand mixed on boards placed in the side streets from which it was carried in wheelbarrows to the point where it was required.

The track reconstruction work was in charge of William T. Dougan, engineer of maintenance of way, Metropolitan Street Railway Company. Ford, Bacon & Davis, consulting engineers for the receivers, had supervision over the work.

TELL TALES AND HEATERS TO PREVENT FREEZING OF SPRINKLER SYSTEMS

About a year ago an automatic sprinkling system was installed in the shops and car houses of the Chicago & Milwaukee Electric Railroad at Highwood, Ill. The controlling valves for the sprinkler piping system are closely grouped at one end of a car-house bay and it is especially necessary that every precaution be taken to prevent the freezing of these valves, both on account of their first cost and because of maintaining the sprinkler system in working condition. For these reasons the valve group has been enclosed in a tight-fitting wooden compartment in which an electric heater is installed. The heater takes its supply of current from the shop circuit and because it is tightly enclosed in the wooden covering with the valves some means was desired to give a positive indication to the watchman that the heater is at all times in working condition and thus protecting the valves from freezing. To serve this purpose a red bull's-eye from a signal lamp is set in the side of the compartment enclosing the valves and behind this bull's-eye a low candle-power lamp has been placed. Current for operating this lamp is obtained by connecting the leads from the lamp to the heater circuit, using a portion of the heating coils as a shunt for forcing enough current through the lamp to keep it lighted; thus, whenever the watchman passes near the controlling valves for the automatic sprinkler system he can readily note whether or not the lamp behind the bull's-eye is burning, and if so he may feel assured that the heater within is protecting the expensive valves from frost.

In connection with this sprinkler system there is a pressure tank supported on a high tower in the shop grounds. The intake and discharge pipes to and from this tank are enclosed in a wooden box reaching from the ground to the bottom of the tank. To protect these pipes from freezing another heater has been installed and similarly a lamp shunted across the heater circuit is installed behind a bull's-eye which, when illuminated, can be seen from the shop.

STATISTICS OF ELECTRIC RAILROADS IN NEW YORK STATE

Volume II of the first annual report of the New York Public Service Commission, Second District, covering the six months of its existence ended Dec. 31, 1907, contains reports for the fiscal year ended June 30, 1907, of street railroads under the jurisdiction of the commission. As the commission was not organized until July 1, 1907, the reports were made in accordance with the forms prescribed by the Board of Railroad Commissioners and the Commission of Gas and Electricity. The figures in the accompanying table were taken from the report, which was prepared under the direction of William J. Meyers, statistician for the commission.

Many statistics in addition to those shown in the table are presented in the report. Among them are the figures of the numbers of tons of freight carried by various electric lines. The International Railway Company carried the largest aggregate reported, 219 tons, while the Eastern New York Railroad was second, with 118 tons.

THE REASONS FOR INCREASED FARES ON MASSACHUSETTS STREET RAILWAYS.—V

The Haverhill & Southern New Hampshire Street Railway is controlled, with other properties in northeastern Massachusetts and southern New Hampshire, by the New Hampshire Electric Railways. The 110 miles of track owned by the companies which the New Hampshire Electric Railways controls through ownership of securities include several properties on which fares have been increased recently. The Haverhill & Southern New Hampshire Street Railway, one of the roads, is located in Massachusetts, and another line, the Portsmouth & Exeter Street Railway Company, is in the State of New Hampshire. The Lawrence & Methuen Street Railway, on a portion of which fares have been increased, is a small road forming part of the Massachusetts lines of the system.

The unit of fare on a portion of the Haverhill & Southern New Hampshire Street Railway was increased from 5 cents to 6 cents on Nov. 1, 1908.

The following table shows a comparison of results for the month of November, 1908, with the corresponding month of 1907, in the number of passengers carried and the revenue derived therefrom on the lines where 6-cent fares were installed on Nov. 1 by the New Hampshire Electric Railways:

Western division.	Passengers		Decrease, per cent.	Cash		Increase, per cent.
	1907.	1908.		1907.	1908.	
Haverhill to Wilson's Corner	29,135	27,240	6.50	\$1,415.30	\$1,607.17	13.55
Wilson's Corner to Point A	19,037	17,377	8.72	925.17	1,037.67	12.16
Point A to Hampshire Road	12,530	11,239	10.30	613.72	673.77	9.80
Point A to Pelham	14,824	12,730	14.12	720.60	753.51	4.57
Pelham to Hudson	15,275	12,879	15.62	739.03	743.92	...
Hudson to Nashua	20,097	16,837	16.21	948.56	950.00	...
Pelham to Dracut	10,739	7,153	33.38	522.50	424.50	†18.77
Dracut to Lowell	19,872	13,697	31.07	741.96	635.73	†14.32
Eastern Division.						
Amesbury to Smithtown	9,902	8,210	16.92	480.53	478.00	...
*Portsmouth to Exeter	31,234	26,639	...	1,479.46	1,524.57	3.05

*Fare advanced to 6 cents April 1, 1908. †Decrease.
 NOTES.—1. On Western division the fare limits given are located upon through interurban lines between Lowell, Lawrence, Haverhill and Nashua.
 2. In 1907 tickets were sold at 120 for \$5; the only tickets sold in 1908 are on the Portsmouth & Exeter at 100 for \$5.

It will be observed that the table gives the results on the Exeter-Portsmouth line, where the rate of fare was advanced to 6 cents on April 1, 1908. The number of passengers carried showed a uniform decrease, but the traffic results assume a somewhat different aspect when the varied changes in earnings are noted. The decline in the number of passengers carried extended from 6.50 per cent to 33.38 per cent and the total for the lines shown decreased 15.7 per cent in November, 1908, from the total in the corresponding month of the previous year. The total increase in revenue in this period was 2.8 per cent. In explaining the decline in the volume of traffic it should be stated that, so far as can be told, the decrease in travel was due in some part to causes entirely remote from the advance in the rate of fare; this is demonstrated by the fact that on the lines where no change was made in the rate of fare there was a material decline in travel.

The only announcement of the advance in fare on the Haverhill & Southern New Hampshire road was made through tariffs posted in the cars. These were joint passenger tariffs, as required by the interstate commerce law, and were concurred in by the various other lines in the system which were affected. The local newspapers in the towns affected were given the facts about the change.

With the readjustment of fares the gross revenue per passenger-mile, taking the system as a whole, is low, but it will be improved if the change is sustained by the Board of Railroad Commissioners and maintained by the company. With the new fare arrangement the average rate per pas-

senger-mile on the entire system is 1.2815 cents; before the partial readjustment was made on some lines, the average rate per passenger per mile was 1.2292 cents. The increase amounts to 12.4 per cent. The following shows the revenue per passenger-mile:

DISTANCES AND AVERAGE REVENUE PER PASSENGER MILE.
 Nov. 1, 1908.

Western Division.	Distance.	Per mile	
		Revenue, old schedule.	Revenue, new schedule.
From Haverhill to Wilson's Cor.	5.95	0.840	1.008
From Wilson's Cor. to Point "A"	3.78	1.323	1.587
From Point "A" to Pelham	5.43	0.921	1.105
From Pelham to Dracut Line	3.05	1.639	1.967
From Pelham to Hudson	6.23	0.803	0.963
From Dracut to Lowell	4.93	1.014	1.217
From Hudson to Nashua	3.05	1.639	1.967
From Haverhill to North St.	4.45	1.124	1.124
From North St. to Lawrence	5.95	0.840	0.840
From Lawrence to Hampshire Road	4.45	1.124	1.124
From Hampshire Road to Point "A"	2.54	1.968	2.362
From Hampshire Road to Salem Depot	3.64	1.374	1.648
From Lawrence to Methuen Junction	3.32	...	1.506
From Methuen Junction to State Line	2.48	...	1.210
From Lawrence to State Line	5.80	0.862	1.379
Eastern Division.			
From Haverhill to Pine St.	3.75	1.333	1.333
From Pine St. to Peaslees Cross	3.58	1.396	1.396
From Peaslees to State Line	3.82	1.309	1.309
From State Line to Amesbury	4.09	1.222	1.222
From Amesbury to Smithtown	4.40	1.136	1.363

Conditions affecting fares, and therefore governing revenues, are different on the lines in this system from those that prevail on a number of properties where the question of the reasonableness of the existing rates for transportation has arisen. About 50 per cent of the total gross revenue from operation is received during four months of the year when the summer and tourist travel is at its height—June, July, August and September. During the winter months, or from November to March, operation of one line aggregating 6.13 miles of track, is discontinued because the traffic would not justify any service that could be given. The density of traffic on the lines in the system is light, averaging 86,000 passengers per mile of track. The extreme variation in travel, due to the seasons, may be realized when it is stated that in the two months of July and August, 1908, the number of passengers carried on the entire system aggregated 2,794,121, or 34 per cent of the total for the fiscal year ended Sept. 30, 1908, while the revenue from passenger traffic in the two months named reached \$138,254, or 30 per cent of the total for the year. Taking the figures of two winter months for comparison, it is shown that in February and March, 1908, the number of passengers carried on all lines of the system was 927,000, or 9.77 per cent of the total traffic for the fiscal year, while the revenue therefrom was \$44,446, or 9.78 per cent of the total gross operating revenue in the fiscal year.

These conditions have led the officials to consider whether it would be advisable to maintain the fares on the 6-cent lines of the Haverhill & Southern New Hampshire Railway on that basis during the winter months only, restoring the rates to 5 cents in the summer months. No reduction in rates is under consideration with reference to the Lawrence & Methuen Street Railway. The advisability of restoring the lower rate for the summer months on the Portsmouth & Exeter line is not under consideration, as the travel on that line is light and is not affected in an important degree by the pleasure and resort traffic in the summer. No decision has been reached upon the advisability of a fare arrangement of this character for the Haverhill lines.

ARGUMENT OF THE COMPANY

The commission heard arguments in the Haverhill case on Nov. 25. In explaining the position of the com-

pany David A. Belden, the president, submitted a brief, of which an abstract was published in the *ELECTRIC RAILWAY JOURNAL* of Dec. 5, 1908, page 1533. The following extracts from the brief, amplifying the abstract mentioned, will be of interest:

The Haverhill population affected by the increase in fare to which objection is made is practically confined to Ayers village, a community with a population of 150 and 45 houses, which is 5.15 miles from the center of Haverhill proper.

The intervening territory is an ordinary farming community with few houses and small population.

If Ayers village had a population of several thousand or if the territory between it and the city of Haverhill was thickly built up, it is likely that the patronage of the cars would be such as to make a 5-cent fare a reasonable charge and adequate to produce the necessary earnings. This is not so and the rate of the fare must make up for the insufficient patronage.

It is clear that the road could not be operated a day if it had to depend upon its local business, and it has only survived this far on the earnings obtained from its share of the through travel to and from points beyond.

If the summer business should in any manner be lost or even diminished seriously the Haverhill & Southern New Hampshire Street Railway Company would either have to suspend operation or charge a much higher fare than is now in force.

On June 1, 1904, seeing the necessity of increasing the earnings of this company, a rearrangement of 5-cent fare limits was made, which resulted in a 10-cent fare for Ayers village people and all others living along the line beyond Lake Street, a point 3.4 miles from the end of the line in Haverhill.

The city of Haverhill, in behalf of the residents of Ayers village, protested to your board, and after a hearing, it was recommended that a lower fare be established.

The company therefore restored the 5-cent rate, although for a time maintaining the 10-cent fare for through passengers.

On Nov. 1, 1905, the company petitioned your board for a revision of the order of June 27, 1904, and in its finding of Feb. 26, 1906, it was said:

"When the location was granted (for this road) it was well understood that in this State a 5-cent fare is ordinarily the maximum charge within the limits of a city or town. Moreover, the 5-cent fare was made an express condition of this grant of location and therefore, although no contract was created, all persons who might succeed those then in control of the railway were duly warned of the understanding." And further:

"No community can afford to drive so sharp a bargain with those who would promote public enterprise as to insist upon entire loss of the capital invested in order to make an assurance in regard to fares. On the other hand, in this instance, the stockholders might well have been, and they undoubtedly would have been, asked to prove their good faith in respect to this fare by subsequent sacrifice of dividends for a considerable period of time, the question being for how long a time."

"Whether or not this be the test, and without attempting to lay down any rule for general application, we think upon all the evidence that the petitioner can fairly be asked to continue the present fare between Haverhill Square and Ayers village a while longer in the effort to conduct its business in conformity with the assurance given to those who invested it with the right to occupy the highway."

Instead of again attempting to gain approval of and maintain the 10-cent fare to Ayers village, the increase is but 1 cent and is uniform with other increases at various points on connecting and associated lines made at the same time.

Believing that we had waited a reasonable length of time, and failing by other means to improve the net earnings, and also being forced to advance the rate to 6 cents on the New Hampshire connecting lines, we put in force the increase of which complaint is now made and trust that it may be approved.

It is clear that this company is not earning a sufficient amount to pay its operating expenses, taxes, interest and

depreciation, to say nothing of a dividend, to which its stockholders are entitled.

Because of a bad bargain made by the promoters of the line, who were undoubtedly looking only for construction profits, we are asked by the people of Haverhill to continue a fare entirely out of proportion to the service rendered.

To be sure the purchasers should have been upon notice with respect to this fare agreement or condition, but we submit that we have sufficiently well paid for the error, and that we should not longer be required to conform to a condition which the Supreme Court has held to be irregular and without force or effect, and which deprives the company of its just and proper income.

PREVIOUS ARGUMENT

Prior to the announcement of the decision of the commission in 1906, to which reference is made in the foregoing, Mr. Belden filed a memorandum dated Dec. 1, 1905, discussing the position of the company. Mr. Belden said in this memorandum:

While agreeing with the board in that a 5-cent fare within thickly settled communities and between towns of considerable population lying upward of 5 miles apart is a proper and convenient rate and one calculated to promote the best interests of both public and company, we do contend that the situation under consideration is not one to which this rule applies.

The accepted unit of street railway fares being 5 cents it may seem somewhat inconsistent to apply it to a mileage plan where the fare charged bears a direct relation to distance, as in steam-road practice; but it is obviously impracticable to adopt fractional fares for varying distances, so it becomes necessary in arranging the rates for interurban lines to take a sort of middle ground and apply the 5-cent fare to each zone or section which the car travels through, and this is now the universal practice on interurban lines in this country.

In laying out and determining the boundary lines for these zones it seems necessary to first settle upon the total fare between terminals of the line, which may be determined by considerations of:

1. Distance.
2. Population and volume of travel.
3. Expenses of operation.
4. Competition.

With the total fare fixed upon, we believe the total distance should be divided into zones, the number of which shall correspond to number of 5-cent fares within the total fare, and the boundary lines placed and marked accordingly. These lines or fare boundaries should be approximately equal distances apart, elastic within reasonable limits to meet special conditions. If, for instance, a fare point or boundary line came within a few hundred yards or even one-half mile of a community or place where a considerable number of persons regularly took the cars, it would be proper to extend the limits of that zone and not compel these people to pay another 5-cent fare for a short ride in the succeeding zone. In this way the general interest of both public and road will be served. When, however, the community is located two-thirds of the distance across the next fare zone, as in the case under discussion, it would obviously disarrange the plan to extend the limit to it.

The custom so long favored in this State of charging a 5-cent fare between communities and within town and city limits, irrespective of distance, seems to be a plan devoid of any good system or basis, as widely varying conditions as to township areas, density of population, community of interest promoting travel and volume of business are met with in nearly every case.

In the present instance the city limits of Haverhill in the direction crossed by two of our lines (the Haverhill & Southern New Hampshire and the Haverhill & Plaistow) are over 8 miles apart, and, in granting location, the authorities specified that a 5-cent fare should be the limit of charge within the city limits, and to this end we should give transfers. Fortunately there is no demand for these transfers, else we should probably be before the board for refusing to carry a passenger 8 miles for 5 cents.

If Ayers village had a population of several thousand instead of 150, or if the territory between it and the city

of Haverhill was thickly built up so as to constitute a practically continuous community furnishing a changing patronage along the whole distance, it is likely that 5 cents would be a fair charge and sufficient to adequately compensate the company. But Ayers village is a settlement, geographically, as separate and distinct from Haverhill as if it were 100 miles away, and the intervening section is sparsely settled by farmers.

The whole question of fares can be settled, however, on a basis of the average earnings per car-hour, but this indirectly brings in the mileage basis, as the number of miles per hour averaged by interurban cars in this territory does not vary substantially on different lines. The main costs of operation are in direct relation to the time the car is in service and so the income must also reach an average per car-hour that will cover the costs. If, therefore, the volume of business at a certain fixed fare is inadequate and cannot be increased, there is no other way than to increase the fare to a point where the same number of passengers, by paying more, will increase the revenue of the company.

The next step, then, is to determine what that increase shall be and here, again, the population and volume of business enters, as it is clear that the percentage of increase can be in inverse relation to the amount of the business.

In this case Ayers village residents have had a 5-cent fare ever since the establishment of the road, the first fare point being located, in accordance with the terms of the grant, near the Haverhill limits, a short distance beyond the village and some 6 miles from the Haverhill city terminus.

When it became necessary to increase the rates on the whole system, including the connecting lines of the Haverhill & Southern New Hampshire, it was naturally regarded as unfair to continue charging 5 cents for a 6-mile section and 5 cents each for two succeeding sections of less than 2 miles each, especially as Ayers village was of such small consequence as to population. The new divisions between the Haverhill terminus and a junction point near Salem, N. H., were then made, three in number, and the dividing lines were placed approximately equal distances apart. This brought Ayers village very near the second line and necessarily raised the fare from 5 cents to 10 cents.

Inquiries have been made by a letter worded in circular form of a number of interurban roads, mainly in the Middle West, where conditions are even more favorable than in New England in point of patronage and operating expenses, the questions asked being as to practice in fixing fares and in rates charged. The replies received show that the mileage basis of fare charges is the only one in use and that the rates average 2 cents per mile, and, in some cases, higher charges are recommended. The zone system of collections with 5-cent sections is also universal.

Statements showing financial results on the Haverhill & Southern New Hampshire Street Railway and its connecting lines we regard as sufficient evidence of the need to increase our fares and, in so doing, to call upon the residents of Ayers village to pay their fair proportion of such necessary increases for the service they are receiving; and we submit that the charge of 10 cents, with the commutation rates obtainable through purchase of a quantity of tickets, is not an excessive rate considering the condition of the company and the fares charged elsewhere under similar conditions. That there was a notable lack of foresight on the part of the promoters of the Haverhill & Southern New Hampshire company in fixing fare rates too low and in accepting grants of location with specified fares, we must admit; and in this case this lays us open to some extent to the charge of bad faith, but the present owners can hardly be expected to continue making up annual deficits as in the past three years.

LAWRENCE & METHUEN STREET RAILWAY

The fare on the "town farm" line of the Lawrence & Methuen Street Railway, another subsidiary road of the New Hampshire Electric Railways, was increased on Nov. 1 by the installation of an additional fare limit point. In this case the fare of 5 cents was maintained for a portion of the route, and a fare of 3 cents was established for the

balance of the line. Some opposition developed to this increase of fare, and the Board of Selectmen of the town of Methuen, Mass., considered the subject. Application was made later to the commission for a hearing in relation to this change. A letter sent by President Belden to the Selectmen of Methuen contained the following statement of earnings for the fiscal year ended Sept. 30, 1908:

	LAWRENCE & TOWN FARM LINE				Net Earnings for month.		
	Car mileage.	Per car mile cents.	Earnings. Amount.	Oprtg. Expenses Per car mile cents.	Amount.	Gain.	Loss.
1907.							
Oct.	6156	.1396	\$859.70	.2516	\$1,548.85		\$689.15
Nov.	5956	.1309	779.75	.1790	1,066.12		286.37
Dec.	6163	.1213	747.63	.1617	996.56		248.93
1908.							
Jan.	6041	.1463	884.00	.1727	1,043.28		159.28
Feb.	5581	.1195	666.55	.1829	1,020.76		354.21
March	6027	.1256	757.10	.1670	1,006.50		249.40
April	5835	.1234	720.00	.1790	1,044.46		
May	6032	.1569	946.17	.1684	1,015.79		69.62
June	6057	.2011	1,217.95	.1808	973.97	\$243.98	
July	6722	.2242	1,506.80	.1806	1,214.00	292.80	
Aug.	6754	.2161	1,459.65	.1546	1,044.17	415.48	
Sept.	6214	.1770	1,100.25	.1655	1,028.42	71.83	
						\$1,024.09	\$2,381.42
Year	73,538		\$11,645.55		\$13,002.88		\$1,357.33

An abstract of the letter from Mr. Belden, accompanying the statement, follows:

The protest of certain citizens of Methuen stated that the "town farm" car was frequently crowded during the summer months, and judging from outward appearances the line was doing a very profitable business at the old rates. This business was entirely confined to Sundays, and was due largely to the opening of a resort in Connelly's Grove, and while this was an addition to the regular travel of the line, it was too irregular and spasmodic to provide a very substantial increase in earnings. At the same time, if it were not for the extra earnings received largely through pleasure travel in the summer months, the line would show a loss in every month of the year.

From the statement submitted you will note that the line operates at a loss except during the four months from June to September, inclusive, and that the total loss for the year was \$1,357.33, this being bare operating expenses, with nothing figured for interest, taxes or depreciation.

The earnings shown do not fairly represent the income received on the mileage west of Methuen Junction (junction of this line with the Point A. line), because the car operates to the terminal at Essex and Hampshire Streets, and its average earnings come very largely from passengers traveling between Methuen Center and Essex Street, and it would be impossible to operate the line a day if the revenue depended upon the country population beyond the Junction, or even the summer business obtained there.

In arranging the new schedule the basis used in fixing the rates was, of course, the distance which a passenger might ride for a given fare, and this reduced to a rate per passenger mile.

Owing to locations of State and town lines, where it is almost necessary to fix a fare point, and to other practical difficulties, it is not possible to have all distances exact, but our effort is to make them as nearly uniform as possible.

RATE DISPROPORTIONATE

The rate per passenger mile on the "town farm" line under the 5-cent fare was less than on any other point on the system, the nearest being the rate between Lawrence and Haverhill, where the volume of travel is much greater. The new fare of 8 cents only brings this line up to a practical average with the balance of the territory, and while the distance from Essex Street, Lawrence, to Hampshire Street (State line) is a little longer than to Methuen Junction, and the rate per passenger mile is consequently somewhat less, the next fare limit to Point A, or Salem Depot, is shorter, and brings the average of the two limits to 1.37 cents per mile, or just the same as the new rate on the "town farm" line; therefore the "town farm" line is not discriminated against in any particular.

The Lawrence & Methuen Street Railway has been in operation about six years, and at no time in that period has it paid or earned a dividend, and for a large portion

of the time it has been in default of its interest. This is true of all the roads in our western division, and unless some way can be found to increase the earnings, the service must eventually be abandoned and the tracks taken up. The people served by our lines are the only people so far to benefit through their operation, and surely after six years of loss at the old rates we are entitled to make some effort to improve the situation.

In conclusion, I will say that if your board, or any responsible person interested, doubts the truth of the statements and figures submitted herewith, we will cheerfully exhibit our books and records to a properly accredited representative.

Notice of the increase of fare from 5 to 6 cents on the Portsmouth & Exeter Street Railway, controlled by the New Hampshire Electric Railways, was given by circular.

STATEMENT OF D. A. BELDEN

Discussing the situation, Mr. Belden said it was too early to judge the outcome of the 6-cent fare movement, as it had been the general experience of roads when rates were advanced to lose considerable travel as a result of the dissatisfaction of part of its patrons. Mr. Belden said it had been interesting to study the statement for November, where the variation was marked between the different points served by the system. On the Pelham-Dracut and Dracut-Lowell sections the heavy falling off in travel was occasioned, so far as the company could learn, by the fact that the business was diverted to a competing line, although, of course, a part of it was attributable to some public disappointment. These two limits were the only points where the loss in the volume of business was great enough to overcome the advance in the rate and indicate a loss in income. Mr. Belden expressed satisfaction that on two other limits there was an even break and on the balance a gain in cash receipts.

NORTHAMPTON STREET RAILWAY

The directors of the Northampton Street Railway Company have voted to increase the unit of fares from 5 cents to 6 cents on Jan. 1, 1909, and have issued the following statement to the public in explanation of their action:

The directors have voted to increase the 5-cent fare to 6 cents uniformly. The increase goes into effect Jan. 1, 1909. The necessity for this increase is a matter of regret, but the necessity is absolute and made necessary by the higher cost of everything which enters into the expense account of street railways. It is a necessity which is felt by a majority of the street railways in Massachusetts. This increase has been put into operation on street railways in the vicinity of Newton and South Framingham. The increase there has been cheerfully acquiesced in by the patrons when the facts of the case were understood. A summary statement of the need can be thus stated. Six cents has not to-day the purchasing power which 5 cents had 10 years ago, whether it be in paying for labor or for coal, or car equipment, or general supplies required in operating a street railway. The constantly decreasing part of every 5-cent fare remaining for dividends and depreciation after expenses, taxes and interest are paid is significant. It is a conclusive proof that the step is an absolute necessity.

During the last five years the expenses, taxes, damage claims and interest have absorbed 4.6 cents out of every 5 cents collected, leaving only 0.4 cent to pay dividends and depreciation, buy new cars and improve the service. During the previous five years, 1899 to 1903, inclusive, with the same expenses deducted, twice as much remained saved, or 0.8 cent. During the earlier five years, from 1894 to 1898, inclusive, there remained a saving of 1.5 cents. As to this last-named apparently comfortable margin over expenses in the earlier years when the road was new, everybody supposed it would be permanent. But street railway managers everywhere failed to foresee the tremendous increase of expense for maintenance as years went by. On a continuing 5-cent fare, with the present cost of everything requisite to operate our street railways, even if the very lowest dividends were to be paid, or none at all, it is probable that the road would have to reduce either wages or service to save itself from loss.

Another view of the facts may be instructive. In 10 years the increase in miles of track has been 42 per cent. The number of miles run by cars has increased 64 per cent, the gross receipts have increased 85 per cent, while all disbursements for expenses have increased in a far greater ratio. For instance: In 1898 coal consumed was 2,894,422 lb.; in 1907 coal consumed was 8,967,365 lb. The total power-house expense increased in that period from \$8,842.63 to \$25,147.19. The consumption of coal therefore increased 209 per cent; cost of power-house total increase 184 per cent. During the last 10 years the total taxes paid yearly have increased from \$5,838.78 to \$10,218.86. The cost of wages for conductors for the years closed Sept. 30 was \$35,126.28. The rate of pay was 21.9

NOTICE.

To the Patrons of the Portsmouth & Exeter Street Railway Company, March 16, 1908

Beginning April first the rate of fare on the Portsmouth & Exeter Street Railway Co will be increased to six cents. Ticket books now being sold for Five dollars will continue to be on sale, but at Six dollars each. School tickets will be sold at the rate of three cents, or \$1 20 for a 40-ride book.

Outstanding tickets will be accepted for full fare until retired.

This action is made necessary by the financial condition of the company and is taken with the hope that it will be followed by sufficient increase in receipts to warrant the continued operation of the road.

Since the opening of the line on September 11, 1902, it has accumulated a deficit of \$41,370.44 as of June 30, 1907, and there seems to be little, if any, improvement from year to year in the volume of its business the number of passengers carried in 1907 being an actual decrease of eight thousand from 1906.

The through fare was increased June 1, 1904, by rearranging the fare limits but no substantial increase in gross income resulted, so it is apparent that some other plan must be tried.

The small amount of through travel between Portsmouth and Exeter together with the thin population along the line of the road, is doubtless the cause of the unsatisfactory earnings and, in this case, if the road is to continue in operation it must unquestionably ask of its patrons a higher fare than would be required where the population was relatively more dense and the volume of travel greater.

The expenses of operation on this property have been reduced to a minimum. Small cars using less power, reduced schedules and a lower power charge have brought the expenses to the lowest possible notch without producing any net earnings applicable to bond interest or depreciation.

The average gross earnings of the Portsmouth & Exeter per mile of track per year since its opening have been \$1550, which is lower by 50% than any other street railway in New England and nearly \$1000 per mile less than is earned by the Exeter, Hampton & Amesbury company which has recently been through receivership.

The owners of this railroad do not feel that they are called upon longer to make up operating deficits out of their own pockets, and, as heavy charges for track and roadbed renewals are beginning to be demanded, in addition to the ordinary operating costs, it is clearly necessary either to obtain more revenue or abandon and take up the road entirely. It is the purpose, therefore, to try the six cent fare as a last resort, and it will then be for the road's patrons to determine whether it is to be kept alive or finally shut down.

D. A. BELDEN,
President

Circular Announcing Increase of Fares on the Portsmouth & Exeter Road

A copy of the circular is reproduced herewith. The following statement shows the results of the change of fare on this line during the six months ended Sept. 30, 1908:

PORTSMOUTH & EXETER STREET RAILWAY
New Hampshire

Comparison of Receipts: 5-cent fares in 1907; 6-cent fares in 1908.			
Six months ended Sept. 30.	1908.	1907.	Increase. Decrease.
Cash fares	\$12,195.60	\$10,418.10	\$1,777.50
School tickets	239.22	253.05	\$13.83
Tickets at 4-6 cents....	73.89	1,015.26	941.37
Tickets at 5 cents.....	445.50		445.50
Total receipts	\$12,954.21	\$11,686.41	\$1,267.80
Total passengers	222,008	242,851	20,843
Mileage	71,307	72,598	1,291
Earn'gs passenger car-mile	18.16	16.10	2.06
Increase in earnings			10.85 per cent.
Decrease in passengers			8.58 per cent.

Notes—
Scholars' tickets at 2½ cents 1907 and 3 cents 1908.
Commutation tickets at 4-6 cents 1907 and 5 cents 1908.
Commutation tickets sold in lots of 100 only.

This result cannot be regarded as otherwise than favorable for the company.

cents per hour. During the last 10 years the increase has been from 17½ cents per hour, an increase per day of over 30 per cent. The total payroll is now over \$60,000 per year.

In connection with this statement we note that the dividend declared for the six months ending Jan. 1, 1909, is to be only \$2.50 per share. The company reduces dividends as well as increases fares. The Northampton Street Railway operates its cars over 26½ miles of track. The total investment of cash actually paid in for stock or as money borrowed is \$737,929.09, of which \$400,000 is capital stock, the balance borrowed money. This sum represents the actual value of the property which the directors and officers have in their charge. For it they are responsible both to the public and to the stockholder. Both are entitled to fair consideration. The favorable consideration of the public is invited to this statement of conditions which make this change to a 6-cent fare an absolute necessity.

(To be continued)

DECEMBER MEETING OF THE ELECTRIC RAILWAY SHOP FOREMEN'S ASSOCIATION

The regular monthly meeting of the Electric Railway Shop Foremen's Association of the Public Service Railway was held in the usual meeting place, at the Plank Road shops, on Friday afternoon, Dec. 18. The prominent feature of this meeting was the discussion on different portions of the report presented by the committee on maintenance and inspection of electrical equipment at the 1908 convention of the American Street & Interurban Railway Engineering Association. Various members had been assigned to read certain chapters of this report in open meeting as a preliminary to a discussion of the Engineering Association committee's recommendation.

Before this part of the proceedings was taken up, the officers for the coming year were installed by Alfred Green. Retiring President Ricker, in laying down his office, made a felicitous address, in which he compared the car house foreman to an armature kept moving by a magnetic field, the opposite polarities of which were represented by the interests of the management, the master mechanic and the public. The first year of the association already had shown the value of these meetings, and he hoped ere long the mutual interchange of experiences would so greatly improve the efficiency of the service that other large electric railways would be inspired to follow their example.

H. H. Adams, superintendent of rolling stock and shops, Metropolitan Street Railway, New York, addressed the members on the advantages of associate membership in the American Street & Interurban Railway Association. R. E. Danforth, general manager of the Public Service Railway, reinforced Mr. Adams' remarks with references to the valuable contents of the bound volume of the 1907 proceedings of the Engineering Association, of which he produced a copy. On motion, it was decided to appoint the secretary as a committee of one to obtain signatures to application blanks and have the candidates join the American Association in a body, if possible.

The following proceedings included a complimentary address by T. H. Shaughnessy, assistant to Mr. Adams on the Metropolitan Street Railway; the acceptance of membership applications from several cadet engineers, and the reading of a letter from the General Electric Company, offering to furnish desired information on equipment to any committee appointed by the association. In line with the General Electric Company's suggestion, Messrs. Ricker, Kelly and Keenan were appointed as a committee on equipment.

Alfred Green, lubrication expert for the Galena Signal Oil Company, said he had not completed the figures on oiling costs in time for the present meeting, but thought it would be of interest to tell the members something of the historical development of motor lubrication. He said that the grease lubrication of the older motors had given rise to slipshod practices and waste which were not yet eradicated on many railways, even where oil had been substituted for some time.

The discussion of the report of the committee on maintenance and inspection of electrical equipment was opened by Mr. Kane, to whom the section on motors had been assigned. He criticised as a thing of the past the recommendation regarding the use of commutator stone for smoothing commutators. Mr. Dowd read the section on motor rheostats, and added that hot rheostats should be examined indoors. Mr. Ricker recommended that the end bolts should be tightened on grids which are supposed to come into contact with one another. Mr. Kelly remarked that grid troubles would be less if the motormen did not run so much on resistance points, which they frequently do on streets with heavy wagon traffic.

Mr. Kelly read the recommendations concerning trolleys and pointed out that wheels often showed unequal wear on lines with many sharp curves if the wheels always turn in the same direction. Longer life would be secured by turning the wheels around at stated intervals. Another member thought 25 lb. tension too much for city service, as a reduction to 18 lb. on his division had proved more satisfactory. Mr. Moss concluded the reading of selected paragraphs from the convention report by taking up the subject of brakes.

Mr. Feeney, representing General Manager Danforth, who had been obliged to leave earlier, read a list of hot journal box reports on the different divisions, and pointed out the apparent connection between lower lubrication cost and higher journal cost. It was asserted by several foremen in the discussion on this subject that the reports often referred to squealing or leaky boxes as "hot journals." Such troubles were purely mechanical, and not due to the absence of proper lubrication. Reference was also made to dry axles caused by the inefficient lubrication of certain motors. The defects in design were pointed out by several members and steps were taken to remedy the trouble.

F. P. Maize, who is traveling general inspector for the company, related some of his experiences in different car houses. He had found that while some foremen were very strict in caring for one part of the equipment, they seemed equally lax in looking after something else. As to particular defects which ought to receive more attention, he mentioned loose gear cases, torn-off motor lids, dry side and center bearings, loose blocks for holding wires, badly hung resistances and burred controller fingers. No names were mentioned by Mr. Maize, but many of those hit by his remarks frankly disclosed themselves, and said he would not find them napping on his next visit to the car houses in their charge.

A talk on snow sweepers was given by Mr. Ricker, who thought that sanding the track was preferable to the use of salt, as the latter corroded the equipment and injured the underbody insulation.

Messrs. Feeney, Adams and Shepard were appointed to draft resolutions of condolence for presentation to Charles Remelius, superintendent of rolling equipment, on the death of his father.

COMMUNICATION

BUYING BRAKE SHOES ON A MILEAGE BASIS

THE SCIOTO VALLEY TRACTION COMPANY, COLUMBUS, OHIO
DEC. 21, 1908.

TO THE EDITORS: In the ELECTRIC RAILWAY JOURNAL of Dec. 12, page 1544, you have an editorial on the subject of buying brake shoes on a mileage basis.

I am pleased to inform you that this company has bought all its brake shoes on a mileage basis for the last two years, and that we have been very much pleased with the arrangement. It has made a material difference in our brake shoe cost, and the manufacturer, by close observation of our operation and its requirements, has been able to materially reduce the number of brake shoes supplied, so that this contract seems to be mutually beneficial and satisfactory.

Prior to the contract our mileage per brake shoe was less than 5000 miles. It is now more than 7500 miles, and this without any damage to tires or reduction in the coefficient of friction.

Ever since we started operation we have kept reasonably accurate records as to mileage of all our car equipment, including gears, pinions, tires, brake shoes, motor axle bearings and lubrication. These records have been kept not only for the purpose of determining the efficiency or economy of various supplies and parts, but also with a view of making an advantageous contract on a mileage basis or a guaranteed minimum of wear.

We have at various times negotiated for lubrication on a mileage basis, but have not yet closed a contract. Recently we made a contract for linings for our motor axle bearings based on a guaranteed minimum of 24,000 miles for 1/16-in. wear on GE-66-6 1/4-in. bore motor axle bearings.

FRANK A. DAVIS,
President.

COMPARISON OF HAND-FIRED AND STOKER-FIRED BOILERS

W. A. Haller, general manager of the Mobile (Ala.) Light & Railroad Company, in a paper read at the annual meeting of the Alabama Light & Traction Association, Nov. 23, 1908, presented some interesting data on the relative capacity and efficiency of boilers fired by hand and equipped with mechanical stokers. A number of tests showed that a well-designed stoker plant will give an efficiency from 8 per cent to 20 per cent higher than the best type of hand-fired furnace under the same type and size of boiler when burning coal of an equivalent heat value. Other tests made by the writer showed that stokers will develop from 5 per cent to 110 per cent more capacity than hand-fired furnaces under the same boilers and using the same grade of fuel. The following are some representative results:

Rating of boiler-hp	Horse Power Developed Stoker fired	Per cent overload	Per Cent Overload Hand fired	Per cent overload
150	304	102	294	96
150	356	137	319	113
400	812	103	630	57.5
350	650	87	384	10
512	874	75	558	11

The hand-fired tests were made under the direction of men who were advocates of hand firing and experts in that line.

AN AUTOMATIC WHEEL GUARD

Among the wheel guards submitted for trial at the Schenectady tests* held by the New York Public Service Commission of District No. 2 was one furnished by Hudson & Bowring, Ltd., of Manchester, England. This wheel guard proved so efficient under the severe conditions imposed that steps were taken immediately to place it before the electric railways of the United States through Wonham & Magor, of New York, who will manufacture and sell it in both North and South America.

Although the "H. B." guard has been practically unknown in this country, it has been widely adopted in Great

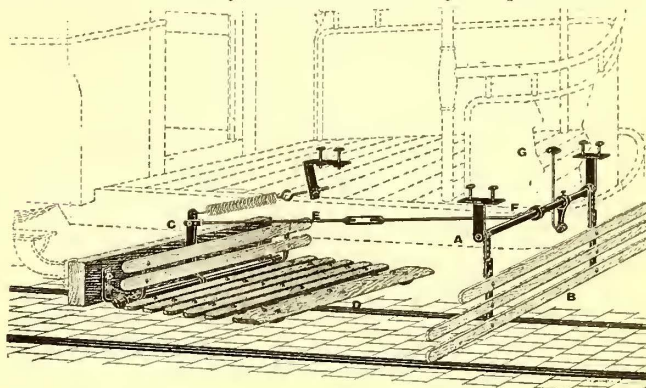


Fig. 1—Wheel Guard in Normal Position

Britain, Ireland, many British possessions and other foreign countries, and it is used exclusively on such lines as the Glasgow system and the London County Council Tramways, Dublin, Leeds, Birmingham, Belfast, Madrid, Shanghai, Singapore, Cape Town, Paris, Bombay, Brussels, Cairo, Calcutta, etc. Consequently, it is not an untried device, but one which has been used so long under a great variety of conditions that its manufacturer has attained a design which is unusually elastic. It is asserted that so far as effective operation is concerned, it is a matter of indifference whether the paving is smooth or rough, the curves

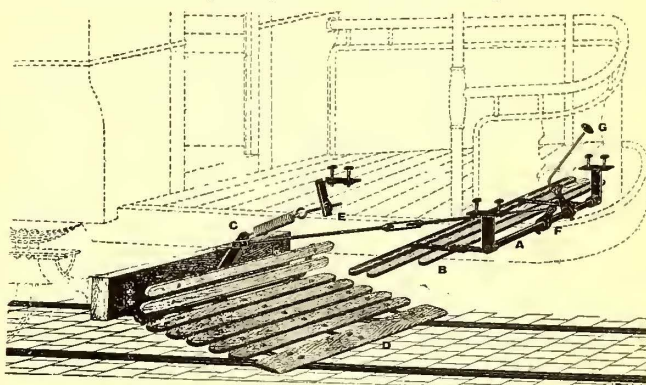


Fig. 2—Wheel Guard in Operating Position with Tray Lowered

long or short, the cars single or double-truck, or whether the guard is attached to the body or the truck. Besides this, the problem of maintenance has been given such close attention that the cost of upkeep under normal running is confined to the occasional replacement of a broken slat. A letter sent by the English manufacturer to users of this guard asking for its maintenance cost elicited an almost universal statement that the cost was so small that it had not been kept separately.

A comprehensive idea of the details of the wheel guard can be obtained from the accompanying drawings and the

*See ELECTRIC RAILWAY JOURNAL, Sept. 19, 1908.

half-tones illustrating its application to the Schenectady test car. From Fig. 1 it will be seen that the device consists principally of a tripping apron and a wheel guard. Normally the apron *B* is suspended from the shaft *A*, while the wheel guard *D* is carried from a shaft *C*, which is connected to the toggle *F* by the turnbuckle rod *E*. As soon as the apron meets an obstruction it swings inward, thereby breaking the toggle and causing the wheel guard to drop to the rails. It is important to note that the guard is held to the rails by the compression of the adjustable spring attached to *C*. The tripping arrangement in itself

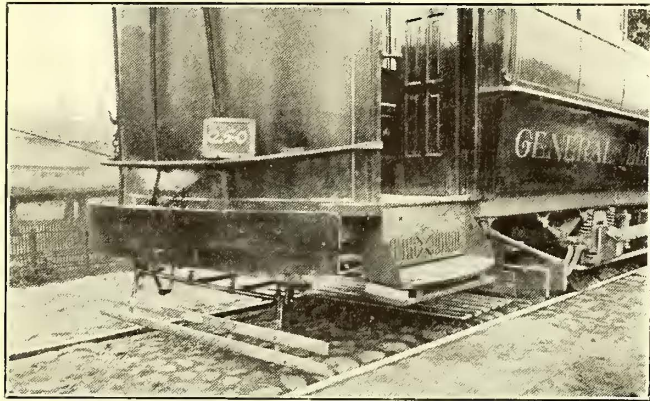


Fig. 3—Wheel Guard Applied to Test Car at Schenectady, Showing Tray Raised

is not particularly novel, but it is combined with a resetting feature which makes it entirely unnecessary for the motorman to leave his car. The only thing the motorman need do when some obstruction has thrown the guard is to press the platform pedal *G*, which restores the entire device to its original position. This feature absolutely prevents accidents caused through the carelessness of passengers on the front platform while the motorman is underneath.

A very important feature of the guard, as applied to



Fig. 4—Wheel Guard Applied to Test Car at Schenectady, Showing Tray Lowered

single-truck cars and general operation on rough roadways, is the compensator on the apron carried on the shaft *A* and shown in Fig. 1. This compensator keeps the apron at any desired height above the rails, the apron assuming a more or less diagonal position with changes in alignment.

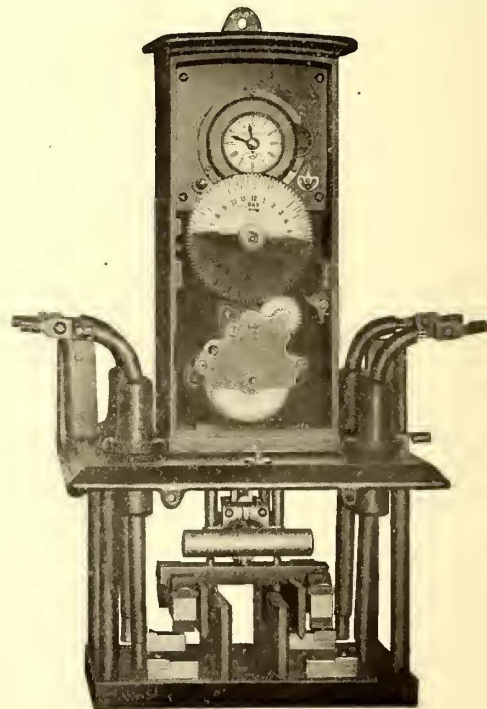
Aside from its operating points, the construction of the guard merits attention. Every link, hanger and toggle is made of a drop forging, the wheel guard framing and apron, as well as other large parts, of wrought iron, and the guard tray and apron of wooden slats. There are no brittle castings or pieces of any kind in the whole struc-

ture, as should be the case in a contrivance subjected to so many shocks and oscillations as a wheel guard. The use of slats instead of the customary bar iron grids is the outcome of experience. It was found in the earlier models with grid type guards that it was a difficult and expensive matter to keep the metal strips in shape for proper pickups. The wooden slats, on the other hand, are far more resilient, and when they do break can be replaced for less money than it would cost to bring an all-metal wheel guard into shape. One of the noticeable points brought out in the Schenectady tests was the fact that once a wheel guard begins to get out of shape its efficiency is severely impaired.

In the illustration accompanying this article Fig. 1 shows the normal position of the wheel guard and apron. Figs. 3 and 4 show their application on smooth and cobble pavements at the Schenectady trials.

ELECTRIC TIME SWITCHES

As there are many cases in electric railway operation where it is desirable to use some automatic means of opening or closing circuits at predetermined periods, special interest is attached to the accompanying types of electric automatic time switches, built by the Albert & J. M. Anderson Company, Boston, Mass. The characteristics asserted for these switches may be summarized as follows: Precision in opening and closing circuits; operating a reasonable number of times without resetting oftener than once



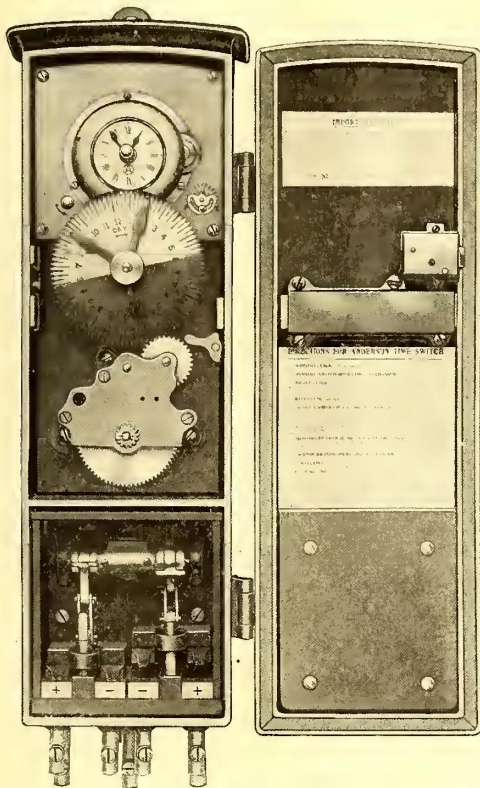
Double-pole, Oil Type Time Switch for 3000 Volts A.C.

a week; varying performance to permit no movement on certain days; substantial watertight and weatherproof construction; immunity to temperature changes. These time devices are made up of the switch, opening and closing mechanism, and the time control.

The switch mechanism consists of two pivoted arms carrying laminated contacts and arcing contacts, as in circuit-breaker construction. These arms are separated by a toggle motion, the central joint of which is thrust upward and downward by the propelling mechanism. When thrust downward, the toggle motion is dead-centered, and it is

impossible to force the laminae from their contact seats without exerting pressure sufficient to destroy the mechanism. The contact mechanism is housed in a fireproof slate or porcelain enclosure in a separate compartment. The lower or entering contacts are each separated from the jaws of the switch a distance of over 1 in. when the switch is open. The circuit is opened horizontally instead of vertically, thereby minimizing the chance of maintaining an arc. The propelling mechanism consists of a heavy spiral spring, equipped with two trains of gears. One spindle of one of these trains has a crank and connecting rod, the connecting rod being utilized to force the toggle of the switch up or down. A flyer on this train engages with an escapement that permits the crank to make a half revolution at a time. The connecting rod of this crank is slotted at the toggle joint, so that the parts can have some momentum before they are called upon to do any work, thus rendering the action more certain.

The second train of gears passes to the clock and is geared into its mechanism. Should this train of gears be



Double-pole Time Switch for 250 Volts D.C.

released, the mechanism would at once run down. This feature is considered of great value, as the duty of the clock, instead of driving anything, is rather to restrain something from being driven, and instead of contributing energy to the propelling mechanism, it receives energy therefrom. Connected with the mechanism in this way, the clock is more certain to run than if propelled by its own unaided mainspring. The shaft on the last gear of the train running to the clock is hollow, and both the hollow shaft and the solid shaft within are equipped with trip dogs which can be set by pointers to any desired position in relation to the gear. To facilitate this setting, the gear is marked with the twenty-four hours of the day, divided into quarters, and the gear is enameled black on half of its face, that the daylight and darkness hours may be distinguished.

The two cams on the back of the propelling mechanism

are set by the two pointers on the front, and either cam when in action will cause the mechanism to make a half revolution. The first action of these cams as they revolve is to tilt the escapement and permit a small portion of this half revolution to be made. The clock itself a moment later tilts the escapement back, completing the half revolution. If, however, the flyer is interfered with, the crank will fail to act until the obstruction is removed. Advantage is taken of this fact by gearing to the mechanism a second wheel carrying a suitable pointer and cam. This second wheel revolves once in seven days, and on any one of these days can be set to interfere with the motion of the flyer, thereby preventing the switch from operating during that day. For convenience this wheel is graduated to the days of the week. The escapement also can be moved by a hand trigger, so the switch can be operated independently of the clock.

The clock was designed especially for this work. It has a non-magnetic, jeweled movement of the lever type, with a split balance to compensate for change in temperature. It is provided with hour and minute hands, so that the running may be observed and regulated like any ordinary timepiece.

The entire switch is mounted in a three-compartment, oblong, cast-iron box. The bottom compartment, lined with slate or porcelain, contains the switch. The middle compartment opens from either the back or the front, and contains the propelling mechanism. The upper compartment contains the clock. The whole has a door closed with a Yale lock and rubber gasketed with a pressure lever to make the case absolutely tight.

OPERATION

The action of the switch is as follows: The clock and mechanism are wound and the pointers are set to cause action at the desired hours. The switch is then set by the hand trigger, so that the next operation shall be that desired. For instance, if the next operation is to be closure, the switch is set in an open position. As the clock permits the dial wheel to drive slowly under the impetus of the mechanism spring, it carries with it its hands and cams. The first cam engages the escapement, permitting a partial revolution of the mechanism, and a few seconds later the clock trips the escapement back again, permitting the mechanism to make a full half revolution, closing the switch. The dial wheel then proceeds as before, until the second cam is brought into play, when the cycle of operations is repeated, but with this difference—the switch opens. This is repeated every 24 hours, unless interfered with by the seven-day wheel, which may suspend the operations of the switch on any day of the week desired.

This description applies to the more commonly used types of the Anderson automatic time switch, but the company builds time switches with various combinations to meet all requirements of service.

A recent consular report from Frankfort says that while the steam railroads of Germany have had a considerable reduction in their earnings since the middle of last year, dependent as they are upon freight traffic, the electric railways show increased gains. Thus 53 of the latter companies, whose income is derived almost totally from passenger traffic in the cities, during the fiscal year 1907-8 earned 9 per cent clear on their combined share capital of \$77,911,000, whereas their net earnings in the preceding year figured at 8 per cent. Seven of the tramway companies paid no dividends.

ELECTRIC RAILWAY LEGAL DECISIONS

LIABILITY FOR NEGLIGENCE

Illinois.—Trial—Instructions—Questions of Fact—Carriers—Street Railways—Injury to Alighting Passenger—Negligence.

Though generally negligence is a question of fact, if the conclusion of negligence necessarily results from a given state of facts, the court may instruct that such facts establish negligence as a matter of law.

That a street car stopped in obedience to the signal of a passenger who desired to alight, and that while she was attempting to alight, while the car was standing still, without notice to her and before she had reasonable opportunity to alight and at the conductor's signal, the car started with a jerk, causing her injury, shows that the company was negligent as a matter of law.—(Crauf v. Chicago City Ry. Co., 85 N. E. Rep., 235.)

Iowa.—Street Railroads—Injuries to Persons on Tracks—Mutual Rights of Driver and Railway Company—Contributory Negligence—Driver of Vehicle—Same—Actions for Injuries—Questions for Jury—Contributory Negligence.

On observing a street car, the driver of a vehicle can neither recklessly drive on the crossing in a race with the car, nor is he arbitrarily required to stop and await its passage.

Where the driver of a vehicle observes a street car at such distance that in the exercise of ordinary prudence he believes he can safely cross, and in undertaking to do so a collision occurs, such collision cannot be attributed to negligence on his part.

Where the driver of a vehicle on approaching a street railway track observed a car coming, but did not know of its excessive speed, and then looked in the opposite direction, and on turning his head back the car had moved so rapidly that it was but 20 or 30 feet away, and the front wheels of his vehicle were then on the track, it cannot be said as a matter of law that a prudent man would have backed up or gone ahead, and it was for the jury whether in what he did there was any want of ordinary care.

Where with his horse walking at an ordinary gait and a street car moving at a speed such as the jury might have found reasonable, though up to the limit short of excessive, the driver might have passed in safety, the issue whether in undertaking to cross the driver was guilty of contributory negligence was rightfully left to the jury.—(Adam v. Union Electric Co., 116 N. W. Rep. 332.)

Michigan.—Street Railroads—Collision with Vehicles—Negligence—Questions for Jury—Trial—Instructions—Province of Jury—Interference.

Whether a motorman was negligent in failing to discover that a team was without a driver, and in not stopping his car in time to prevent a collision, examined, and held a question for the jury under the evidence.

The question of the negligence of defendant's motorman having been submitted to the jury, they desired further instructions "whether the evidence was clear enough to decide whether this motorman was in fault or not," to which the judge replied: " * * * I think * * * there is testimony in the case from which you might find defendant guilty of negligence; but that depends on whose evidence you believe." Held, that the court's charge was not improper as being to find for plaintiff, if they believed plaintiff's witnesses, and for defendant, if they did not.—(Harker v. Detroit United Ry., 114 N. W. Rep., 657.)

Minnesota.—Master and Servant—Injury to Servant—Negligence of Master—Contributory Negligence.

The evidence was sufficient to justify the jury in finding that appellant was guilty of negligence in permitting its street-car tracks, running into its car barn, to become so greasy and oily that a car, manipulated by the motorman in the usual manner, slipped and collided with another car; and that such condition was the proximate cause of the injuries to respondent.

The evidence was sufficient to justify the jury in finding that, at the time of the accident, the tracks were in a more oily and slippery condition than usual, and that respondent did not assume the risks attending the movement of cars upon the occasion in question.

It does not conclusively appear from the evidence that while respondent was in the pit, engaged in oiling a car, he was guilty of contributory negligence in reaching up over the rail in front of the wheel to feel of a certain journal. (Jelinek v. St. Paul City Ry. Co., 116 N. W. Rep., 480.)

Missouri.—Trial—Question for Jury—Credibility of Witnesses—Damages—Personal Injuries—Excessive Damages.

The credibility of plaintiff's testimony given at the trial,

in view of his former testimony contained in a deposition, is for the jury.

In an action for personal injuries, it appeared that plaintiff was a barber and 68 years old. A physician testified that in about a year after the accident an operation was performed for hernia, and that he had recovered from it, and that he was suffering from neurasthenic or nervous exhaustion, and that he did not know whether plaintiff's injuries were permanent. Plaintiff testified that he had hernia before the injury, which was aggravated by the accident, which necessitated the operation; that he was able before the injury to earn \$15 a week, but since was unable to do much work; that when he stooped he became dizzy and blind; that he was nervous, and that his back ached all the time; that his kidneys were affected, and that he had mostly lost his strength. Held, that a verdict for \$4,000 would not be interfered with on appeal.—(Roe v. Metropolitan St. Ry. Co., 110 S. W. Rep., 611.)

Nebraska.—Carriers—Injury to Passengers—Duty of Conductor.

Where a passenger, a girl under 14 years of age, unaccustomed to riding upon street cars, becomes frightened and frenzied by the negligence of the defendant's servants in carrying such passenger past her known destination, and the conductor knows, or by the exercise of due care and diligence under the circumstances should know, of such passenger's frightened and frenzied condition, and that she is about to leave the moving car, it is his duty to exercise the highest degree of care possible under the circumstances to prevent such passenger from alighting from the moving car.

In such a case, if the conductor fails to exercise the degree of care required of him, and the passenger in consequence of such failure receives injuries while alighting from the moving car, the street railway company is liable in damages for the resulting injuries.—(Kruger v. Omaha & C. B. St. Ry. Co., 114 N. W. Rep., 571.)

New Jersey.—Master and Servant—Injuries to Servant—Precautions—Duty to Take—Inspection.

Where the servants of a street car railway company detached a truck from a street car in the barn and placed it on the floor opposite the track, the duty of properly blocking the truck so as to prevent it from rolling down onto the track and coming in contact with another car rested on the servant who placed the truck in such position, and not on the master.

Where the place where plaintiff was injured was ordinarily safe, but was rendered unsafe by the act of plaintiff's fellow-servants in failing to properly block the trucks of a street car so that the same rolled against a car on an adjoining track, and swept the space in which plaintiff was standing on the car being moved out of the barns, the street railway company was under no obligation to inspect the space to discover that the truck had not been properly blocked, under the rule that the master is not chargeable with the consequences of a place for work made dangerous only by the neglect of fellow-servants, or for the negligent manner in which they use the tools or materials furnished for their work.—(Connolly v. North Jersey St. Ry. Co., 69 Atl. Rep., 487.)

New York.—Street Railroads—Injury to Person Near Track—Contributory Negligence.

Whether one at work repairing the tracks of a steam railroad where crossed by those of an electric street railway, and who to do the work had to be on and by the track of the street railway, and who before bending down, right by the street-car track, to put a plank in position by the rails, saw a street car coming 150 ft. away, by which he was struck while in such position, was guilty of contributory negligence, is a question for the jury, as he may have supposed that with the car so far away he could safely stay awhile yet, especially as the street car was required by law to stop before crossing the tracks of the steam railroad.—(Malizia v. Brooklyn Heights R. R. Co., 110 N. Y. Sup., 1003.)

Rhode Island.—Street Railroads—Collision—Evidence—Sufficiency—Damages—Excessive—Personal Injury.

Where, in an action for injuries sustained in a collision between the coal team plaintiff was driving and a car, plaintiff's witnesses were corroborated as to the circumstances of the collision in some respects by several of defendant's witnesses, and the evidence against plaintiff was uncertain, the evidence supported a verdict for plaintiff.

Where plaintiff, a man about 35 years old, sustained pecuniary loss up to the time of trial, without reckoning pain or future loss of earning power, amounting to about \$472, but did not clearly show that the condition of his ear, which was claimed to have been permanently impaired, and the inflammation therein of that character that often produces a dizziness lasting for life, was traceable to the accident, and

it was shown that he had many opportunities to work and earn more pay since the accident than before, a verdict for \$2,250 was excessive, and should be reduced to \$1,500.—(Haskins v. Rhode Island Co., 69 Atl. Rep., 335.)

Texas.—Street Railroads—Injury to Traveler—Contributory Negligence—Street Railroads—Injuries to Persons on Track—Presumption that Person on Track Will Get Off—Discovered Peril—Evidence—Street Railroads—Persons on Track—Injury—Instructions—Discovered Peril—Trial Instructions—Province of Jury—Assumption of Facts—Instructions—Right of Street Car Company in Street.

After plaintiff had drunk all day at home and part of the night in a saloon he started home, walking in the center of the street car track so deeply engrossed in thought that he did not listen for approaching cars, nor look back to see if any were coming. He was run down and injured by a street car. Held, that he was guilty of such contributory negligence as to preclude a recovery on any ground except discovered peril.

The inference that one in charge of a street car saw a person walking along the track ahead of the car does not necessarily carry with it the further inference that he realized that the person would not leave the track in time to avoid being injured, but on the contrary he would ordinarily have the right to assume that the person would get off the track and avoid the injury.

In an action against a street railroad company for injuries received by being run down by a car, evidence adduced by plaintiff in chief examined and held insufficient to go to the jury on the issue of discovered peril.

A charge that if plaintiff as the car approached him was in a position of peril, and the motorman in charge of the car, by exercising ordinary care, could have discovered plaintiff's peril in time to have avoided injuring him by the use of the means at hand, and failed to discover his peril in time, and such failure was negligence, etc., is erroneous; since under the doctrine of discovered peril it is the discovery of plaintiff's peril in time to have stopped the car, and defendant's failure to use ordinary care in applying the means at hand, whereby the injury occurred, which constitute the cause of action, and the motorman could not be guilty of negligence in such case until after he had discovered the peril.

If the instruction would admit of the construction of submitting the issue as to whether the motorman exercised ordinary care to discover plaintiff's presence on the track, it would be upon the weight of the evidence, since it would involve the assumption that the discharge of the duty would result in his discovery of the peril.

A charge that a street car company has no right to the exclusive use of that part of a street upon which the tracks are laid, but that a pedestrian has an equal right to its use in traveling over and across it, is erroneous; since, while in a certain sense a pedestrian has a common right with a street car company to use the part of a street occupied by its tracks, he has no right by walking thereon to hinder the progress of a car, and it is his duty, if he is where he can safely do so, to step aside and let it pass at its usual speed.—(San Antonio Traction Co. v. Kelleher, 107 S. W. Rep., 64.)

Washington.—Damages—Personal Injuries—Excessive Damages.

Two of defendant's street cars collided, injuring plaintiff, a passenger on one of them, so that he was confined to his bed for more than a week. Up to the time of the trial, eight months afterwards, he had not been able to work at his trade of carpenter, but during a part of the time had been engaged in the real estate business. When injured he was 32 years of age, and earning \$3.60 a day. Subsequently wages were increased to \$4 a day. Although prior to the injury he was a strong, able-bodied man, since then he had continuously suffered pain, and could walk with difficulty. Doctors were unable to find any objective evidences of injuries upon his person, and the great weight of the testimony indicated no permanent injury. The jury returned a verdict for \$7,500. The trial court required plaintiff to remit \$2,500, or submit to a new trial. Plaintiff made the remission and judgment was entered for \$5,000. Held, that the judgment is still excessive, and that a new trial will be granted, unless plaintiff agrees to accept \$2,500.—(Hemenway v. Washington Water Power Co., 95 Pac. Rep., 269.)

Wisconsin.—Appeal—Reversal—Decision or Retrial—Trial—Verdict—Special Interrogatories—Evidence—Result of Experiments—Appeal—Harmless Error—Exclusion of Evidence.

Where, in an action for death, the Supreme Court, on a prior appeal, determined that the evidence might justify a verdict for plaintiff, and that the court should have submitted the case to the jury, such decision did not affect the right of the court on a retrial to set aside a verdict for plaintiff as against the clear preponderance of the evidence.

Where, in an action for death of a traveler while crossing an electric railroad, plaintiff pleaded gross negligence, in that the operatives of the car before reaching the crossing discovered decedent's peril in time to have prevented the injury by ordinary care, but that they willfully failed to stop the car and intentionally injured decedent, such question, in the event of a special verdict being requested, could be adequately submitted by questions asking whether, before reaching the crossing, it appeared to the motorman that decedent's approaching team was beyond control, and that, in the absence of an effort on the part of the motorman, a collision was inevitable, and whether, while nearing and before reaching the crossing, the motorman intentionally refrained from making any effort in good faith to slacken the speed of or stop the car.

Evidence of experiments is inadmissible in the absence of evidence showing that the conditions existing on the occasion when the experiments were made were essentially the same as those on the day of the accident to which the experiments related.

Where an action for death of a traveler at an electric railway crossing was based on a charge of gross negligence, in that there was a failure to prevent the accident after intestate's peril was discovered, defendant was not prejudiced by the exclusion of evidence of experiments offered to prove the distance within which the car could have been stopped, such evidence having little, if any, bearing on the question of gross negligence.—(Wilson v. Chippewa Valley Electric R. Co., 114 N. W. Rep., 462.)

MISCELLANEOUS

Kentucky.—Carriers—Street Railroads—Passengers—Failure to Give Transfer—Actions—Protection of Children—Obligation of Carriers—Refusal to Give Transfers—Personal Injuries—Excessive Damages—Failure to Carry Passengers.

In an action against a street railway company for failure to give a transfer to a passenger, the evidence held to make a prima facie showing that plaintiff was on one of the company's cars and that one of its conductors refused to give a transfer.

Carriers are under a peculiar obligation to children traveling alone in their vehicles.

In an action against a street railway company for failure to give a transfer, it appeared that plaintiff, a girl 11 years old, lived at L. and went to school at N.; that she took a car at N. for C., and paid the fare; that the conductor refused to give her a transfer entitling her to take a car at C. for L.; and that she was obliged to walk home from C. It was a dark evening, and she suffered from fright and from sickness caused by her running home. Held, that a verdict for \$425 was not excessive, a recovery for fright and for the sickness being authorized.

Where a person entered a street car to go to a designated place and paid the fare, and the company was obliged to carry her to the designated place and give her a transfer to enable her so to do, the refusal to give a transfer was a refusal to carry her to her destination.—(South Covington & C. St. Ry. Co. v. Quinn, 110 S. W. Rep., 404.)

Massachusetts.—Carriers—Carriage of Passengers—Who Are "Passengers"—Street Railways—Effect of Forcing Way Onto Car—Ejection of Passengers—Actions—Questions for Jury—Existence of Relation.

One becomes a passenger on a railroad when he puts himself into the care of the company to be transported under a contract, and is received and accepted as such by the company; and, while the relation is commonly to be implied from circumstances, these must be such as to warrant an implication that the one has offered himself to be carried, and the other has accepted his offer and received him; and, where the existence of the relation is in controversy, the question is whether the person has presented himself in readiness to be carried under such circumstances in reference to time, place, manner and condition that the company must be deemed to have accepted him as a passenger.

In the case of a street railway, the relation of carrier and passenger is seldom created by express contract, and whether it has begun is generally to be shown by the circumstances; but it must at least appear that the passenger has offered himself and that the offer has been accepted, and, while the carrier ought to consent where there is no reasonable objection, it does not necessarily follow that it has consented or will consent in any particular case, for it may decline to accept an offered passenger without a good reason, and in such case one cannot become a passenger by forcing his way upon the car against the carrier's will, but his remedy is for damages for unwarrantable exclusion.

In an action against a street railway company for forcible ejection, whether plaintiff was a passenger held, under the evidence, for the jury.—(Hogner v. Boston Elevated Ry. Co., 84 N. E. Rep., 464.)

News of Electric Railways

Cleveland Traction Situation

An answer to the suit of the Central Trust Company of New York, accompanied by a cross petition, was filed in the United States Circuit Court, Cleveland, on Dec. 17, by John G. White and Squire, Sanders & Dempsey, attorneys representing the Cleveland Railway Company, asking that all the properties leased to the Municipal Traction Company and all the moneys, rights, franchises and privileges in the possession of that company or the receivers be returned to the Cleveland Railway at once.

The company admits that under its corporate name of the Cleveland Electric Railway Company, it acquired by purchase lawfully and legally, on April 27, 1908, and became the owner of the properties, rights and franchises of the Forest City Railway Company. The Forest City Railway Company had previously purchased all the interests of the Low Fare Railway Company and in that way the Cleveland Electric Railway Company became legally possessed of the properties and franchise rights of both, through the action of the stockholders of the respective companies. These properties thus became subject to the lien of the Central Trust Company.

The fact that the Municipal company operated the system from April 27, 1908, until the properties went into the hands of receivers is mentioned as well as the passage of the new franchise grant. The company agrees that the grant is now of no force and effect; that it does not possess a franchise with so long a term as 15 years to run and that by the terms of the lease to the Municipal Traction Company, the lease has terminated and the latter is no longer entitled to possession.

By reason of the termination of the lease, the company admits that the rights and title in the Municipal company absolutely ceased and determined and the Cleveland Railway Company became entitled to possession of all of the property mentioned, as provided in the lease. The demand of the Municipal company for the return of the properties purchased from the Forest City Railway Company is mentioned in connection with the attempt of the railway company to secure possession of its properties.

The allegation of complainant that the Municipal Traction Company was insolvent at the time the lease was executed, that it incurred debts, that creditors are endeavoring to perfect liens on the property of this defendant, that the rental due on Oct. 1, \$220,134, was defaulted and that the Municipal company is now insolvent are all concurred in, as is the fact that the floating debt is past due and that failure to secure the rentals has left the Cleveland Railway without means to pay this. In regard to the franchises, the railway company states that it surrendered all the original grants when it accepted the new one and that it delivered a paper to the city evidencing this action, but it is understood that this agreement became inoperative on the defeat of the new grant.

That the securities are endangered by the continued operation of the properties by the Municipal or others at the rate of fare adopted is the belief of the company and it is stated that an installment of interest, amounting to \$50,650, will fall due on Jan. 1, 1909, and another on March 1 for \$156,275. On July 1 bonds amounting to \$2,026,000 will be due.

The nominal capital stock of the Municipal company did not carry any security with it and the security grant from the city was to stand for this instead. Because of the termination of the lease, the cross-bill asserts that this defendant is now entitled to have all the properties leased to the Municipal Traction Company turned over to it. The refusal of the Municipal company to pay the \$220,134 rental due on Oct. 1 is mentioned, as well as failure to pay rental from that date to Nov. 12, when the receivers took charge.

It is alleged that the Municipal company agreed to keep a maintenance and renewal account and credit to it 5 cents per car-mile each month during the first year; 5½ cents per car-mile during the second year and 5½ cents thereafter until readjustment and to charge against this expenditures for maintenance, repairs, renewals and all betterments, extensions and permanent improvements not made from capital stock, any credit to be placed with a trustee or invested in Cleveland Railway or other stock approved by the Cleveland Railway, the securities to be deposited with the trustee. An accounting of this fund is asked.

The Cleveland Electric Railway deposited with the Municipal Traction Company \$293,050 for the payment of debts and obligations incurred prior to Jan. 1, 1908, and 6 per cent interest was to be paid on the average balance in the

fund. An accounting and return of the unexpended balance is asked in this case.

Among the claims against the Municipal company made in the cross-bill are the following: Interest on the average balance of the fund of \$293,050 deposited; rental due on Oct. 1, \$220,134; interest on this sum at 8 per cent; rental from Oct. 1 to Oct. 22, \$53,810.50; interest on the bonds of the Cleveland City Railway Company from July 1 to Oct. 22; interest on the \$1,000,000 bonds of the East Cleveland Railway Company from Sept. 1 to Oct. 22; interest on \$5,000,000 bonds of the Cleveland Electric Railway Company, amounting to \$74,848.87; interest on floating debt from various dates to Oct. 22, \$9,869.95; unpaid balance on other amounts, \$611.11; maintenance and renewal fund, 10,446,762 car-miles at 5 cents per car-mile, \$522,338.10, less amounts expended for purposes named; a sufficient amount to settle all damage claims, estimated at \$68,317.76 from Jan. 1 to Oct. 22, and expenses of Cleveland Railway in maintaining its corporate existence, \$625.25. This, it is stated, is only a partial list and the right to revise and make additions is asked.

It is stated that the agreement with the Amalgamated Association of Street & Electric Railway Employees was violated and a strike that damaged the properties and reduced the income resulted. The terms of the lease were also violated by the failure of the Municipal company to observe the conditions of contracts with a number of municipalities.

The cross-bill refers to claims, said to amount to \$500,000, which have been filed against the Municipal company, and states that claimants are endeavoring to enforce their claims against funds in hand at the time the receivers were appointed. All moneys on hand at that time are claimed by the Cleveland Railway Company, under the terms of the lease. It is stated that these very terms acted as a notice to those who allowed the Municipal company to become indebted to them that their claims could not be enforced against these funds in case of failure of the company.

The bill states that the company, by all the complications following the leasing of the properties, is left without means to meet its obligations and an order is asked requiring the receivers to turn over all properties, moneys, bills receivable, rights, privileges, grants and credits to this defendant. An accounting of the transactions of the Municipal company is requested and it is asked that the claims of this company be taken into consideration in the distribution of the assets of the Municipal company.

After receiving the report of the receivers' accountants, Ernst & Ernst, on the condition of the Municipal Traction Company, Judge Tayler stated on Dec. 18 that the impossibility of operating the system at the present rate of fare is plain. He said that it would be the duty of the receivers to fix upon a rate of fare that would provide sufficient income to pay the operating expenses. Just how this is to be done he did not indicate. It is surmised that the receivers will not attempt this task until they have the complete reports for November and December as a basis for consideration. The November report will be ready in a short time. It is the belief of some that no increase in the fare can be made on the original 3-cent fare lines, but their franchises will permit a charge for transfers to the old lines. On the Cleveland Railway lines the fare may be placed as high as 5 cents or 11 tickets for 50 cents.

The discussion of the attorneys on preferred claims against the Municipal company or claims that are alleged to be preferred was heard by the court on Dec. 18. It was agreed by attorneys for the Central Trust Company and the Municipal company that the amount required for the payment of interest on the bonds of the Cleveland Cable Railway Company should be paid out of the funds on hand and the court stated that an order would be issued to that effect. W. B. Sanders asked the return of \$100,000 in notes and \$193,000 cash remaining of the guarantee fund deposited by the Cleveland Railway Company with the Municipal company. Attorney S. H. Tolles stated that the showing of cash was merely a matter of bookkeeping and that no money had been exchanged, but this was denied by Attorney Westenhaver for the Municipal company.

Attorney Tolles claimed that the Cleveland Railway Company could not expect to take over the properties with all the betterments made upon them without credit due for operating expenses as well. He also stated that the mortgagee could not lay claim to any of the income until there had been a default. Mr. Tolles objected to the classification of bills into operating expenses and betterment items. Of the two, the operating expenses would most likely be placed in the preferred list of claims. Attorney Sanders asked that provision be made for the payment of the in-

terest on the bonds and floating debt as it becomes due and that sufficient funds be set apart for the maintenance of the Cleveland Railway organization.

The statement of the Municipal Traction Company on Nov. 13, when the receivers took charge, as presented by Ernst & Ernst, is as follows:

ASSETS.	
Cash	\$341,787.00
Accounts receivable.....	50,000.00
Inventory of stores.....	100,000.00
Cleveland Railway shares, par \$156,000, estimated value.....	120,000.00
Neutral Traction Company stock.....	4,500.00
Bonds East Cleveland Railway Company.....	2,000.00
Neutral Traction Company, advanced.....	151,000.00
Neutral Traction Company notes.....	15,000.00
Superior Avenue real estate.....	2,000.00
Highland Avenue realty.....	3,519.00
Claim against City of Cleveland, said to be worth \$56,000, but estimated of no value.....
Claim against East Cleveland, \$25,000, estimated as of no value.....
Uniforms, \$18,000, estimated as of no value.....
Dividend Cleveland Railway stockholders, guaranteed.....	29,905.50
Total.....	\$789,806.00

LIABILITIES.	
Preferred Claims.	
Accounts for supplies, material, labor, etc., April 27 to November 13.....	\$275,000.00
Ticket float.....	40,000.00
Labor claims since paid by receivers.....	65,000.00
Taxes due and paid.....	225,000.00
Wages not called for.....	1,600.00
Water rents due.....	6,600.00
Viaduct and other rentals.....	1,800.00
Less prepaid insurance.....	12,000.00
Total.....	\$603,000.00

Unsecured Claims.	
Unsecured bills.....	\$180,000.00
Guaranty fund.....	152,000.00
Stores taken under lease.....	100,000.00
Rental to Oct. 1.....	220,134.00
Rental since Oct. 1.....	103,000.00
Interest on floating debt.....	22,000.00
Interest on funded debt.....	91,000.00
Total.....	\$868,134.00

SUMMARY.	
Assets	\$789,806.00
Preferred claims.....	\$603,000.00
Unsecured claims.....	868,134.00
	<u>1,471,134.00</u>
Shortage.....	\$681,228.00

Judge Tayler said he had been trying to eliminate any question as to the corpus of the property being turned into money, on the theory that the large number of creditors represented have furnished a great amount of material and performed work, partly by way of operating and maintaining the property and partly by way of improvements, and in consideration of the property itself, which is owned primarily by the lessor. He asked why it should be necessary to contemplate the possibility of any creditor losing his money. The court said that this case can not be compared with a commercial concern which may have been unhappily managed or a railroad badly located or with its business so badly hampered by competition that it has no business status, or even a street railroad mismanaged with respect to the expenditure of money, barring certain incidental features upon which a disagreement might result. The only trouble was that the operating company charged so much less than the service was worth that a deficiency resulted.

Under the conclusion that the ordinance under which the system was operated no longer exists, the ordinances existing prior to that passed last April must be depended upon. Were it not for the fact that some of those ordinances are claimed to have expired or are about to expire, the court said, there would be no doubt about the ability of the property to take care of all honest indebtedness against it, whether operated by trustees, the owners or lessees. The case is not one of money squandered, but of the property being operated in such a manner as to give service at less than cost, without sufficient earnings to meet these matured obligations.

Taking into consideration these circumstances, the court drew the conclusion that some way ought to be found to take care of all the claims which are entitled to be paid by anybody, contemplating if possible that any plan formulated does not jeopardize the corpus of the property or the rights of any one whose interests are in the corpus of the property. From the operation of the property should come a sufficient sum to pay the actual expenses which have been laid on the property, he said. The court expressed the belief that the receivership will not have added anything to the expense of operating. Regarding the rate of fare to be charged Judge Tayler said:

"Of course, it absolutely follows that some change in the rate of fare must occur. How that is to come is, of course, a question of policy which the receivers will have to de-

termine as business and practical men intimately associated with the actual administration of the property under the present conditions. But I think we ought not to get ourselves too deeply mired in the depths of these questions that arise on mere foreclosure situations. It is in that respect wholly different from the administration of insolvent properties, or of properties that do not have in themselves, at the moment when the question arises, the potentialities of solvency, of capacity to pay every debt that exists in this case, although the question is, of course, not to be considered regardless of the established principles of the law, but only regardless of the mere experience derived from the administration of such insolvent properties as I have mentioned."

The operation of the system under the management of the Municipal Traction Company resulted in a deficit for the six months of \$70,915. The record is as follows: May, deficit, \$54,916; June, deficit, \$23,829; July, surplus, \$19,696; August, surplus, \$7,075; September, surplus, \$10,606; October, deficit, \$29,547. The officers of the Municipal Traction Company state that with all cars changed to the pay-as-you-enter type and equipped with fare boxes, a surplus of about \$175,000 for that period would have been shown. The report for October is as follows:

	Amount.	Cents per car-mile.
Gross earnings from operation.....	\$407,601.80	22.62
Operating expenses:		
Maintenance.....	\$90,322.15	5.01
Transportation.....	163,390.72	9.07
General.....	47,563.74	2.64
Total.....	\$301,276.61	16.72
Net earnings.....	\$106,325.19	5.90
Taxes.....	\$22,315.21	1.23
Interest rental.....	40,179.10	2.23
Dividend rental.....	73,378.00	4.07
Total.....	\$135,872.31	7.53
Deficit.....	\$29,547.12	1.63

DETAILED STATEMENT OF THE OCTOBER DEFICIT OF

	\$29,547.12.
Normal deficit.....	\$7,191.00
Voucher No. 681. Deferred charges Cleveland Traction Company registrar.....	\$2,000.00
Voucher No. 682. Deferred charges Savings & Traction Company registrar.....	4,000.00
Voucher No. 683. Clark & Winthrop, attorney fees....	3,898.13
Voucher No. 684. Westenhaver, Boyd, Rudolph & Brooks, attorney fees.....	4,969.29
Voucher No. 685. Garfield, Howe & Westenhaver, attorney fees.....	1,682.17
Voucher No. 688. Transfer stock adjustment.....	3,522.93
Voucher No. 689. W. E. Camp, cashier, transportation.....	1,257.10
Miscellaneous vouchers.....	1,\$26.50
	<u>22,356.12</u>
	\$29,547.12

The following explanatory statements were presented: The bills of the Cleveland Trust Company and the Citizens' Savings & Trust Company are for services for the entire period since Jan. 1.

The bills of Clark & Winthrop and a considerable portion of the bills of Westenhaver, Boyd, Rudolph & Brooks, are for services rendered in October and November.

The transfer stock adjustment item is for the readjustment of the ledger balance to agree with the actual available transfers on Nov. 1. The transfer stock was moved from Lake View Station to an office in the Electric Building during October and all old and obsolete transfers destroyed.

The transportation item and miscellaneous vouchers are those items which for all going concerns would normally follow in November business.

The receivers stated in their report to the court that they were prevented from trying the fare boxes during the first two months of their administration by failure of the Pay-Enter Fare Box Company to deliver 46 boxes within the specified time for the equipment of the Woodland-Lorain line.

Of the 62 boxes delivered, but 12 were of the late type and the others are considered poor boxes. The average cost of the 62 boxes is \$601.50, but counting only the 12 that are considered good ones, the cost is \$3,107.70 each. The cost either way would be reduced if the value of the machinery and other property of the plant were taken into consideration.

City Commission Proposed for Pittsburg.—The committee on municipal affairs and the board of directors of the Chamber of Commerce of Pittsburg have approved the formation of a city rapid transit commission for Pittsburg.

Chester Lawbreakers on Trial.—The trial of the 13 men charged with complicity in dynamiting cars of the Chester (Pa.) Traction Company and in conspiring to damage the

company's property and interfere with the operation of its lines during the recent strike, has been set for Dec. 29. At the first trial the jury disagreed.

Electrical Engineering at Massachusetts Institute.—The undergraduate electrical engineering course at the Institute of Technology has a senior class which is 20 per cent larger this year than last year. In the post-graduate courses there are at present 215 students, many of whom are taking the regular course in electrical engineering, others special courses on the same subject.

New York Central & Hudson River Railroad to Electrify Harlem Division.—The New York Central & Hudson River Railroad has announced that the work of electrifying two tracks of its Harlem division will be begun on Jan. 1. This division takes in the stations at Mount Vernon, Bronxville, Tuckahoe, Scarsdale, Hartsdale and White Plains. At Mount Vernon and White Plains new stations costing \$100,000 each will be built.

Meeting of New England Street Railway Club.—The December meeting of the New England Street Railway Club was held at the American House, Boston, on the evening of Dec. 17. About 210 members and guests were present. At a brief business meeting Senator James F. Shaw, president of the American Street & Interurban Railway Association, and Charles C. Paine, urged closer relations with the American Street & Interurban Railway Association through individual membership in that association.

Cambridge Subway Stations Opposed.—Mayor Wardwell, of Cambridge, Mass., has written to Gen. W. A. Bancroft, president of the Boston (Mass.) Elevated Railway, disapproving the plans submitted by the company's engineers for the stations in the Main Street subway. Accompanying the Mayor's letter is a report from William Barclay Parsons, New York, consulting engineer for the city of Cambridge. It is probable that a conference will shortly be held on this question between the city officials of Cambridge and the officers of the company. In the event of a failure to agree the company may decide to present its case to the Railroad Commission.

Demands of Philadelphia Employees Refused.—The directors of the Philadelphia (Pa.) Rapid Transit Company have refused to grant any of the demands made by the Amalgamated Association of Street & Electric Railway Employees for an increase in wages and a new operating agreement. In their statement, which was made public at the suggestion of Mayor Reyburn, the directors declare that they will have no further dealings with the representatives of the union and justify their course by setting forth in detail the unfairness of the union's demands. They further point out that it is impossible at this time to grant higher wages, and remind the men that they have been employed steadily while thousands of other workmen have suffered enforced idleness.

Rochester Company Distributes Booklet on Resuscitation.—The Rochester Railway & Light Company, Rochester, N. Y., has furnished the commissioners of public safety of Rochester with copies of the booklet "First Aid in Cases of Electric Shock," for distribution to firemen, policemen and other employees of the city. The publication is essentially the same as that prepared by the United Gas Improvement Company for the use of its employees, and permission was obtained from that company to use the text and illustrations. The Rochester Railway & Light Company, however, has prefaced the work with an article adapted from one in the *Electrical World*. The article is illustrated with photographs taken of employees of the Rochester Railway & Light Company in the act of carrying out the instructions as given in the *Electrical World*.

P. S. C. Asked to Reconsider Brooklyn Elevated Extension.—The Allied Boards of Trade and Taxpayers' Association of Brooklyn has requested the Public Service Commission of the First District of New York to reconsider its decision denying the Brooklyn Rapid Transit Company's application for permission to build an elevated extension from Flatbush Avenue and Fulton Street over the approach to the new Manhattan Bridge and for the exclusive use of two tracks on the Manhattan Bridge. The association says that every effort should be made to avoid a repetition of the conditions at the Williamsburg Bridge which resulted in an elapse of many months between the completion of the bridge and the building of a suitable terminal in New York for the elevated lines and an extension of the elevated structure over the plaza to the bridge.

Yonkers Company Discontinues Operation of Lines to New York.—Under the order of Justice Morchauser, of the Supreme Court of New York, the Yonkers (N. Y.) Railroad stopped operating its cars on the Elm and Walnut Street lines and parts of the South Broadway division on Dec. 21. When the Yonkers Railroad went into the hands of Leslie W. Sutherland as receiver, the fare from Yonkers

to the Battery, New York, was raised from 8 cents to 15 cents. The Common Council of Yonkers declared this a violation of the terms of the company's franchise and directed the corporation counsel to take steps to have the operation of the cars stopped, the franchise forfeited and the company's guarantee of \$50,000 for faithful performance of its contract with the city collected. Mr. Sutherland as receiver offered to reduce the fare from 15 cents to 10 cents on condition that the requirement of an 8-cent fare be eliminated. Justice Morchauser ruled that if the Common Council would not permit a reduction in fare by the company he would have to order that cars be withdrawn from the lines which charged 15 cents from Yonkers to the Battery.

Accident Record of Chicago City Railway.—Figures are available showing the reduction which the Chicago City Railway is making in the number of accidents on its lines. The *ELECTRIC RAILWAY JOURNAL* of Sept. 5, 1908, page 569, presented definite statements with regard to the reduction in accidents on this company's lines since the pay-as-you-enter cars have been put in service. The present figures cover the 11 months ended Nov. 31, and show that there has been a reduction of more than 5 per cent in the personal accidents occurring in connection with car operation, and similarly that there has been a decrease of approximately 26 per cent in fatal accidents. Credit is given the pay-as-you-enter cars for almost a perfect record with regard to front platform boarding and alighting accidents. The Chicago City Railway is now operating 450 pay-as-you-enter cars built according to designs of the Pay-as-You-Enter Car Corporation. The above records include accidents occurring on all cars of the system. There are operated under regular schedule 785 large double-truck cars of which 450 are pay-as-you-enter cars.

Suit to Compel Filing of Reports in New York.—The Public Service Commission of the First District of New York has decided to bring suit against several street railway companies under its jurisdiction which have failed to comply with the order of the commission regarding the filing of their annual reports for the year ended June 30, before Nov. 30. The companies against which suit will be brought are the Bronx Traction Company, Dry Dock, East Broadway & Battery Railroad and Frederick W. Whitridge, receiver; Forty-second Street, Manhattanville & St. Nicholas Avenue Railway and Frederick W. Whitridge, receiver; Fulton Street Railroad and Gilbert H. Montague, receiver; Kingsbridge Railway, Metropolitan Street Railway and Adrian H. Joline and Douglas Robinson, receivers; New York City Railway and William W. Ladd, receiver; Rockaway Electric Railway, Southern Boulevard Railroad, Southfield Beach Railroad, Staten Island Railway, Staten Island Rapid Transit Railway, Third Avenue Railway and Frederick W. Whitridge, receiver; Union Railway of New York City and Frederick W. Whitridge, receiver; Westchester Electric Railroad and J. Addison Young, receiver. The commission also sent a letter to W. G. McAdoo, president of the Hudson & Manhattan Railroad, operating the tunnel between New York and New Jersey under the Hudson River, complaining that he had not filed a complete report. The commission gives Mr. McAdoo 30 days to file an amended report.

Mississippi Electric Association.—At a meeting held in Meridian, Miss., on Dec. 12, the Mississippi Electric Association was organized by representatives of the electric railway and light companies throughout the State for mutual benefit. Representatives were in attendance as follows: G. B. Chapman, manager of the Pascagoula Street Railway; J. Abbott, manager of the Jackson Railway & Light Company; C. Z. Stevens, manager of the Hattiesburg Traction Company; S. W. Greenland, manager of the Columbus Railway & Light Company; A. H. Jones, manager of the McComb City Lighting Company; I. H. McArthur, superintendent of the railway and lighting department of the Meridian Light & Railway Company; J. A. Anderson, assistant superintendent of the lighting department of the Meridian Light & Railway Company, and A. B. Paterson, general manager of the Meridian Light & Railway Company. Many other companies signified their intention to become members of the association, but were unable to have representatives in attendance at the meeting. The following officers were elected: A. B. Paterson, president; S. W. Greenland, vice-president; J. Abbott, secretary and treasurer. The members of the executive committee are: M. W. Moorman, Vicksburg; G. B. Chapman, Pascagoula; S. W. Greenleaf, Columbus; C. Z. Stevens, Hattiesburg; A. H. Jones, McComb City; J. Abbott, Jackson, and A. B. Paterson, Meridian. The members of the committee on subjects are: J. Abbott, A. H. Jones and G. B. Chapman. The meeting at Meridian was purely for the purpose of organizing and no papers were read. The first regular meeting of the Association will be held at Jackson on June 15.

Financial and Corporate

New York Stock and Money Markets

DECEMBER 22, 1908.

After a week of more or less depression and uncertainty, the stock market toward the close to-day recovered so sharply that all that had been lost in the previous days was regained by the majority of the stocks that lead in trading. American Smelting, which has been particularly weak, did not regain its previous losses. This is said to be due to the organization of a large rival concern which may interfere seriously with the business of the company that is controlled by the Guggenheims. While there was undeniable strength at the close to-day and the majority of traders were talking of further advances, it has been evident to some extent during the last fortnight that some of those who are behind the bull movement in the market were becoming weary. Having accumulated long lines of stocks at low prices in the spring and summer, and seeing very large profits, it is but natural that these traders should want something more tangible than paper wealth. The trouble is that the outside public has not been induced to buy at the present high prices with the unanimity which the traders desire. Until outsiders in large numbers can be prevailed upon to come into the market, the large gains expected by those who engineered the bull campaign cannot be realized.

One of the factors which helped in the advance to-day was a rumor that Brooklyn Rapid Transit was due for a dividend. The stock advanced more than 4 points in the day's trading.

Dealings in bonds to-day were the heaviest in volume of transactions in any one day since Nov. 15, 1904. The Stock Exchange records show that \$10,870,000 par value of bonds changed hands. This follows the improving bond market which has been in evidence for many months, and, with prosperity maintained, will continue to be a feature of the situation.

Money is not so plentiful as formerly, but still seems to be in volume sufficient for legitimate purposes. Quotations to-day were: Call loans, 2¼ to 3½ per cent; 90-day paper, 3½ to 3¾ per cent.

Other Markets

In a market that was rather active for miscellaneous securities in Philadelphia, tractions were dull and neglected. Some Rapid Transit stock found its way into the market and sold at from 21⅞ to 21⅝, while Philadelphia Traction changed hands at about 90. Little was done in Union Traction and quotations were about the same as in the previous week.

In the Chicago market, the various series of Chicago Railways issues were most prominent in the traction field. Series No. 2, which was the most active of the lot, sold in the neighborhood of 44½. A few shares of Union Traction changed hands at 5¼. Metropolitan Elevated stocks were dull.

In the Boston market, practically nothing of importance was done in traction securities. A few shares of Boston Elevated sold at about 128 to 128½, and some trading took place in Massachusetts Electric preferred at 57. Traction bonds were not in the market.

Continued activity in the bonds of the United Railways was the principal traction feature in the Baltimore market. The "incomes" sold at 52 and the 4s at 85 to 85¾.

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

	Dec. 15.	Dec. 22.
American Railways Company, Philadelphia.....	46	45¾
Boston Elevated Railways.....	128¾	128½
Brooklyn Rapid Transit Company.....	56¾	63½
Chicago City Railway.....	180	180
Cleveland Railway.....	—	—
Consolidated Traction Company of New Jersey.....	475½	476
Consolidated Traction Company of New Jersey, 5 per cent bonds.....	1104½	1104½
Detroit United Railway.....	55	53¾
Interborough-Metropolitan Company.....	16½	19½
Interborough-Metropolitan Company (preferred).....	39½	46¾
Manhattan Railway.....	148½	151¾
Massachusetts Electric Companies (common).....	12	12
Massachusetts Electric Companies (preferred).....	57¼	57
Metropolitan West Side Elevated Railway, Chicago (common).....	a20	a18
Metropolitan West Side Elevated Railway, Chicago (preferred).....	a55	a54
Metropolitan Street Railway.....	30	35
North American Company.....	72½	73½
Philadelphia Company, Pittsburg (common).....	43¾	44
Philadelphia Company, Pittsburg (preferred).....	43¾	*44
Philadelphia Rapid Transit Company.....	21¼	21½
Philadelphia Traction Company.....	90½	90½
Public Service Corporation, 5 per cent collateral notes.....	a99½	a99½
Public Service Corporation certificates.....	a75¼	a76
Twin City Rapid Transit Company, Minneapolis (common).....	94	93
Union Traction Company, Philadelphia.....	49	*49

a Asked.
*Last sale.

Aurora, Elgin & Chicago Railroad

Gross earnings from operation of the Aurora, Elgin & Chicago Railroad Company during the year ended June 30, 1908, amounted to \$1,361,186.29, an increase of \$49,078 over the preceding year. The percentage of operating expenses expended on earnings was 57.91 as compared with 55.45 in the previous fiscal year. The following statement of earnings is presented in the report to stockholders:

	Year ended June 30.	1908.	1907.	Increase.
Gross earnings.....	\$1,361,186.29	\$1,312,108.49	\$49,077.80	
Operating expenses.....	788,268.59	727,576.48	60,692.11	
Net earnings.....	\$572,917.70	\$584,532.01	*\$11,614.31	
Other income.....	47,705.96	28,136.09	19,569.87	
Gross income.....	\$620,623.66	\$612,668.10	\$7,955.56	
Deductions from income.....	333,700.13	319,807.46	13,892.67	
Net income.....	\$286,923.53	\$292,860.64	*\$5,937.11	
Profit and loss—surplus at beginning of year.....	167,797.62	70,429.40	97,368.22	
Other profit and loss credits....	9,854.37	259.86	9,594.51	
Profit and loss—gross surplus.	\$464,575.52	\$363,549.90	\$101,025.62	
Profit and loss charges:				
Dividends.....	\$248,000.00	\$193,750.00	\$54,250.00	
Other.....	5,180.41	2,002.28	3,178.13	
Total.....	\$253,180.41	\$195,752.28	\$57,428.13	
Profit and loss—surplus at end of year.....	\$211,395.11	\$167,797.62	\$43,597.49	
Operating expenses—percentage of gross earnings.....	57.91	55.45	2.46	

*Decrease.

The following figures, showing the details of operating expenses, are presented:

	Year ended June 30.	1908.	1907.
Gross earnings and other income:			
Railroad department:			
Gross earnings from operations.....	\$1,283,599.02	\$1,236,349.96	
Sale of power.....	37,433.56	19,341.83	
Light department:			
Gross earnings from operations.....	77,587.27	75,758.53	
Rentals, land and buildings.....	2,178.01	495.00	
Interest and discount.....	1,636.12	2,937.21	
Earnings, sinking fund investment.....	6,458.27	5,362.05	
Total gross earnings and other income....	\$1,408,892.25	\$1,340,244.58	
Operating expenses:			
Railroad department:			
Maintenance of way and structures.....	\$61,216.56	\$56,883.50	
Maintenance of equipment and power house	73,584.07	67,959.28	
Transportation—operation of power plant	122,181.61	117,910.21	
Transportation—car service.....	259,950.43	230,114.26	
General expenses.....	212,648.67	196,965.03	
Total railroad department.....	\$729,581.34	\$669,832.28	
Light department:			
Operation of power house.....	\$34,695.11	\$34,265.06	
Maintenance of power house.....	1,687.24	1,663.02	
Operation of distributing system.....	10,437.74	10,175.57	
Maintenance of distributing system.....	4,525.82	4,011.33	
General expenses.....	7,341.34	7,629.22	
Total light department.....	\$58,687.25	\$57,744.20	
Total operating expenses.....	\$788,268.59	\$727,576.48	

In his report, L. J. Wolf, the president, states: "The general business depression which prevailed last year was felt especially in manufacturing districts such as ours, and I am therefore greatly pleased with our passenger earnings.

"The freight and express business also shows a gratifying increase over last year.

"We have erected a number of new station buildings along the lines for the convenience of passengers. Many real estate subdivisions are being located between Wheaton and Chicago, and, judging from the results obtained by the same real estate interests in other localities, I am confident of the development of new settlements along our line in the near future.

"A number of attractions have been added to Riverview Park, Aurora, some of which we own outright, while others pay a percentage of receipts. The park business has proved to be an important and profitable feature of the summer business.

"Other interests are undertaking the construction of a line westerly from a point on the Elgin branch, near Wheaton, to connect the city of West Chicago and other adjacent well-populated territory with our system. When built, this should prove a valuable feeder.

"In November, 1907, we closed a very satisfactory contract for all advertising space in our cars, which produces an increase of revenue of 100 per cent for the same car space."

Railroad Cannot Issue Bonds on Purchases of Electric Railways in New York

The Public Service Commission of the Second District of New York has denied the application of the Delaware & Hudson Company to issue its own bonds to cover the purchase of the stock of the United Traction Company, Albany, N. Y., and coal properties in Pennsylvania. Specifically the company applied for authority to issue \$7,165,296 of its first and refunding mortgage bonds, to defray the expenses of the purchase of the securities of the United Traction Company, Albany, and the Hudson Valley Railway, amounting to \$4,665,295; to cover advances of \$2,500,000 to the Hudson Coal Company, a subsidiary of the Delaware & Hudson Company, for the purchase of coal properties, and to retire notes for \$230,868 used in the acquisition of securities of the Troy & New England Railway. The commissioners agreed to permit the company to issue bonds only for the purchase of the securities of the Troy & New England Railway, but two of the five members of the commission did not agree with the majority opinion that the purchase of the property of the United Traction Company and the Hudson Valley Railway could not be lawfully financed by the railroad's own bonds. One commissioner also dissents from the conclusion that the railroad has no right to obligate itself directly for the coal properties purchase. The commission summarizes its findings in regard to the purchase of the electric railway properties in part as follows:

"The Delaware & Hudson Company, a steam railroad, issued notes for \$4,665,295.85 and with the proceeds purchased, through its subsidiary development company, nearly all the stock and bonds of the Hudson Valley Railway, an electric railroad. The price so paid was considerably in excess of the investment value. The Hudson Valley Railway is not a feeder to the steam line of the Delaware & Hudson Company, except to an insignificant extent. The Delaware & Hudson Company did not actually take over the securities of the Hudson Valley Railway, but it caused its development company to transfer them to the United Traction Company, another electric railway, and took an assignment of the United Traction Company's certificates of indebtedness issued to the development company.

"The Delaware & Hudson Company, controlling through stock ownership the United Traction Company, caused this certificate of indebtedness to be issued for \$7,500,000, and later exchanged the certificate for a like amount of additional stock of the United Traction Company, specially issued for the purpose. The difference between the purchase price of the Hudson Valley Railway and the amount of the certificate of indebtedness issued by the United Traction Company, substantially \$2,500,000, covers a premium of \$50 per share on 50,000 shares of stock of the United Traction Company, previously purchased by the Delaware & Hudson Company.

"Such an investment in securities of an electric railway company, operating a wholly disconnected property, is not, under the Public Service Commission's law, the proper subject of a bond issue secured by a mortgage solely upon the Delaware & Hudson Company's steam railroad properties. The commission cannot certify in such a case that the capital sought to be issued is reasonably required for any of the purposes defined in the statute, all of which purposes have reference to property and facilities necessary to performance of public service by the company as a common carrier corporation.

"An issue of bonds by the applicant to the amount of \$230,000 for the purpose of refunding or discharging notes for a similar amount the proceeds of which were used to purchase securities of the Troy & New England Railway, at present operating an electric railway, is reasonably required, and therefore approved, such purchase having been made at fair value prior to the taking effect of the Public Service Commission's law for the purpose of extending its steam railroad operations eastward to connect with the New York, New Haven & Hartford Railroad."

Aurora, De Kalb & Rockford Electric Traction Company, Aurora, Ill.—At the foreclosure sale in Geneva, Ill., on Nov. 30, the property of the Aurora, De Kalb & Rockford Electric Traction Company, which operates an electric railway from Aurora through Kaneville and Maple Park to De Kalb, about 30 miles, was bid in by Joy Morton, Chicago, for \$195,000.

Birmingham Railway, Light & Power Company, Birmingham, Ala.—Isidore Newman & Sons, New York and New Orleans, the Alheimer & Rawlings Investment Company, St. Louis, Mo., and the United States Trust Company, Louisville, are offering at 103½ and interest the unsold portion of a block of \$1,000,000 "refunding and extension

mortgage 6 per cent gold bonds," dated May 1, 1907, and due May 1, 1957, without option of prior payment.

Boston & Worcester Electric Companies, Boston, Mass.—The trustees of the Boston & Worcester Electric Companies on Dec. 18 declared a dividend of \$1 a share on the preferred shares, payable Jan. 1 to holders of record of Dec. 26. This reduces the annual rate from \$4 to \$2 per share. It is proposed to limit the July, 1909, dividend also to \$1.

Brockton & Plymouth Street Railway, Plymouth, Mass.—The Massachusetts Railroad Commission has approved the petition of the Brockton & Plymouth Street Railway for authority to issue 1100 shares of 6 per cent cumulative preferred stock, par value, \$110,000. The stock is to be sold to stockholders at \$100 per share.

Massachusetts Electric Companies, Boston, Mass.—At the annual meeting of the stockholders of the Massachusetts Electric Companies held on Dec. 16, Richard Olney, Charles E. Cotting, Eugene U. Foss, Percy Barker and Charles Francis Adams, Jr., were re-elected trustees for five years, and it was voted to authorize the trustees to sell 7236 shares of the preferred stock of the Old Colony Street Railway at \$110 a share as authorized by the Railroad Commission. President Abbott is quoted as having said: "It seems unwise to adopt any scheme for dealing with back dividends until the company is again fully restored to a 4 per cent preferred dividend basis. If earnings warranted, it was hoped to pay 2 per cent in July. However, the trustees were confident that dividends at some rate could be steadily maintained and it was only after reaching this decision that they decided to authorize the 1 per cent.

New Jersey & Pennsylvania Traction Company, Trenton, N. J.—J. R. Nutt, secretary of the Citizens' Savings & Trust Company, Cleveland; Myron H. Wilson, vice-president of the Cleveland Trust Company, Cleveland, and James G. Cannon, president of the Fourth National Bank, New York, have been selected as a committee to represent the bondholders of the New Jersey & Pennsylvania Traction Company and the Trenton, New Hope & Lambertville Traction Company.

Philadelphia (Pa.) Rapid Transit Company.—The directors of the Philadelphia Rapid Transit Company have formally approved the deed of trust for \$5,000,000 which conveys its equity in the Market Street Elevated Railway to the Union Traction Company, in return for the use by the Philadelphia Rapid Transit Company, lessee, of the securities transferred to it by the Union Traction Company, including those of the Philadelphia Traction Company, which securities the Rapid Transit Company will now pledge for its loan. The deed of trust is dated Dec. 15. Drexel & Company have bought the bonds, which will be issued in the denomination of \$1,000.

Sao Paulo Tramway, Light & Power Company, Ltd., Sao Paulo, Brazil.—The directors of the Sao Paulo Tramway, Light & Power Company, Ltd., have declared a quarterly dividend of 2½ per cent on the \$9,700,000 capital stock, payable on Jan. 1, 1909, thus increasing the annual dividend rate to 10 per cent contrasting as follows: 1902, 2½ per cent; 1903, 5¼ per cent; 1904, 7 per cent; 1905, 8 per cent; 1906, 8 per cent; 1907, 8 per cent; 1908, 9 per cent.

St. Louis Transit Company, St. Louis, Mo.—J. Brooks Johnson has applied to the Circuit Court at St. Louis for a receiver for the St. Louis Transit Company. Mr. Johnson alleges that certain stockholders of the company owe it \$10,000,000 as the result of the sale of the company's common stock in 1899.

Toledo, Ann Arbor & Detroit Railroad, Toledo, Ohio.—The sale of the property of the Toledo, Ann Arbor & Detroit Railroad, under foreclosure to Andrew E. Lee, South Dakota, and William Niles, Chicago, has been confirmed by the court.

Virginia Passenger & Power Company, Richmond, Va.—The committee representing the bondholders of the Virginia Passenger & Power Company, Richmond Passenger & Power Company, Richmond Traction Company and controlled lines, has notified the holders of the securities of these companies that as appeals have been taken from the decree of foreclosure and sale made by the Circuit Court of the United States for the Eastern District of Virginia, it will not be possible to issue the proposed new securities before Jan. 1, 1909, and accordingly there can be no interest payment on that date. The Appellate Court has set down the appeal for argument on Jan. 13, 1909, and it is anticipated that it will be disposed of early in February, which would enable the scheme of reorganization to be carried out and the new bonds to be issued within a reasonable time thereafter. At that time all past due coupons on the new bonds will be paid. More than 90 per cent of all the securities provided for in the plan of reorganization have already been deposited thereunder.

Traffic and Transportation

Decision Directing Interchange of Freight Between Steam and Electric Railways in Indiana

Brief mention was made in the *ELECTRIC RAILWAY JOURNAL* of Dec. 5, 1908, page 1535, of the decision by the Railroad Commission of Indiana directing the interchange of freight in carload lots between the Pittsburg, Ft. Wayne & Chicago Railway and the Cleveland, Cincinnati, Chicago & St. Louis Railway and the Winona Interurban Railway. The order of the commission is dated Nov. 28 and becomes effective Jan. 1, 1909. The Winona Interurban Railway alleged that the Cleveland, Cincinnati, Chicago & St. Louis Railway entered into an agreement with the Pennsylvania Company operating the Pittsburg, Ft. Wayne & Chicago Railway not to deliver cars to the Winona Interurban Railway for distribution to consignees along its line; that the Cleveland, Cincinnati, Chicago & St. Louis Railway had a connection with the Winona Interurban Railway at Warsaw by which the interchange from one line to the other could be easily effected, and that despite the fact that the company had been exchanging freight shipments with the Winona Interurban Railway, it refused suddenly to continue the interurban change. The decision of the commission, written by Union B. Hunt, chairman, says:

"The Cleveland, Cincinnati, Chicago & St. Louis Railway and the Pennsylvania Company deny that they have entered into any agreement not to interchange freight with the Winona Interurban Railway, and the evidence does not disclose such agreement; but it does show that the action of the two companies was taken simultaneously, and that both companies have refused and do now refuse to deliver freight to the Winona Interurban Railway to be delivered to Spencer, Hogan & Company, or for any other parties. The evidence further shows that there is a physical connection between the petitioner's track and the respondent's track at Warsaw, Ind.; that some traffic, amounting to about four carloads, has been delivered by the respondent to the petitioner for Spencer, Hogan & Company, and that a great many carloads of coal and other material have been delivered by the Cleveland, Cincinnati, Chicago & St. Louis Railway to the Winona Interurban Railway for the use of the petitioner. The agent of the Cleveland, Cincinnati, Chicago & St. Louis Railway at Warsaw testified that he had been instructed by his division freight agent to cease delivering freight in carload lots to the petitioner for Spencer, Hogan & Company, and that in refusing to make further deliveries he was acting upon the instructions of his superior officers. The commission is of the opinion that from a physical standpoint an interchange of carload traffic between the steam and interurban railroads at Warsaw, Ind., is entirely feasible. Such interchange has been made without damage to the track or equipments of either the petitioner or the respondent, and loaded cars, weighing as much as 100,000 lb., have passed safely over the tracks of the Winona Interurban Railway loaded with material for the use of that company. It is true that Mr. McKim, superintendent of the Western Division of the Pennsylvania Lines, testifies that there are certain sharp curves along the petitioners' line in Warsaw over which the freight cars of the Pennsylvania Company cannot pass in safety. These are stated to be from 12 to 20 deg. in curvature. Mr. McKim, however, further testifies that curves 30 deg. are safe for freight cars to be operated over in switching service, and from other information gleaned from reliable sources the commission believes this statement to be correct. It seems, therefore, both from the fact that the interurban and steam railroads have standard gage track, and from the further fact that nearly all the evidence shows that interchange of traffic can be made at this point without danger either to the track or equipment of the steam and interurban roads that the objection from a physical standpoint is not entitled to much consideration. This interchange amounts virtually to switching service and can be performed without danger.

"The commission is not impressed with the contention of the respondent that this interchange should not be made because it might reduce the chances of the steam roads for getting business by causing factories to locate along the line of the petitioner's road. This would afford larger opportunity for the shipping public and would bring steam and interurban railways into rightful competition. It is contended by the respondent that the petitioner has no interchangeable equipment, and that the statute does not apply, since it contemplates interchange only in cases where there can be a mutual exchange of cars. There is nothing in the statute that gives to the word 'interchange' the meaning that is sought to be given it by the respondent. Reciprocity in the delivery of cars is not an essential in the

enforcement of this statute. In the section now under discussion (3j of the Railroad Commission Act, 1907) steam railroads are required to interchange business. It would probably not be contended by any carrier that it could not be required to deliver cars to a connecting carrier unless such connecting carrier were able to give it car for car. It may be undesirable from the standpoint of a well-equipped carrier to interchange business with its less fortunate competitor, which may have only a small per cent of its equipment, but unless it were required to do so the weaker road could not live, competition would be stifled and the interests of the public would suffer. The respondent and the steam railroads generally object to interchange of traffic with interurban railways on the ground that their equipment would pass into the control of the interurban railways and be used in the transaction of general interurban business. We think such abuse of equipment can be prevented by the commission. That in its order requiring interchange it may safeguard equipment, and that upon a showing that the privilege granted had been abused the commission would be justified in rescinding its order, thus leaving the parties in their original situation. This action is brought under subdivision j, Sec. 3 of the Act of 1907 amending the Railroad Commission act, which reads as follows:

"Provided that in special cases where it is practicable and the same may be accomplished without endangering the equipment, tracks or appliances of any such carrier, the Commission, upon application, may require any such steam or interurban or suburban railroad to interchange cars, carload shipments, less than carload shipments and passenger traffic, and for that purpose may require the construction of physical connections at junction points and the construction of switch and private track connections, as provided in this act."

"The only case brought under this provision of the statute upon which the commission has passed prior to this time is the case of the Farmland Stone Company vs. the Cleveland, Cincinnati, Chicago & St. Louis Railway and the Indiana Union Traction Company. In deciding that case the commission said:

"We are of the opinion that the legislature meant to say just what it did say; that in special cases where it is practicable this interchange should be required between steam and interurban companies, and that it intended to place the whole matter within the discretion of the commission, and that the commission should judge as to the practicability of such interchange, and that it must determine what the statute contemplated. It might be practicable to take the cars of the steam railroad 6 miles and not practicable to take them 100 miles, and that this matter must also be determined by the commission. Both the steam and interurban railroads are common carriers under the laws of this State. They receive their charter from the State and they owe a duty to the public which must be discharged."

"We are still of the opinion that the legislature meant to confer and did confer upon the commission the power to determine in each individual case whether or not an interchange should be made. We do not believe that antagonism between steam and interurban roads should be permitted to retard the transaction of the business of the shipping public, and in the present case we think it is clearly demonstrated by Mr. McKim's evidence that this antagonism is the main reason for refusing such interchange. We are of the opinion that the interchange asked for in this case will if granted, facilitate the business of the public and the petitioner without hardship to the respondent. We believe that an interchange of traffic in carload lots between the Cleveland, Cincinnati, Chicago & St. Louis Railway and the Winona Interurban Railway at Warsaw is entirely safe and practicable; that freight in carload lots may be safely delivered by the Cleveland, Cincinnati, Chicago & St. Louis Railway to the Winona Interurban Railway over its connecting switch at Warsaw, Ind., and that it can be safely transported by the last named carrier to the side track of Spencer, Hogan & Company, and an order will be entered requiring that such interchange and delivery be made."

Reduction of Stops by Boston Elevated Railway Approved by Railroad Commission

The Massachusetts Railroad Commission issued an order dated Dec. 18 approving the omission of surface car stops by the Boston Elevated Railway at certain points in question in Washington and Tremont Streets, and Shawmut, Columbus and Blue Hill Avenues, Boston. Regarding the Blue Hill Avenue stop in question at Evelyn Street, the commission states that the company has made changes in the next stopping places in either direction, and that "an examination of the situation discloses that the arrangement made by the company appears to be in the public interest, and the commission is therefore of the opinion

that it ought not to recommend the restoration of the stopping place." With reference to the other stops in question and covered by a separate petition, the commission says: "The cars passing over the streets and avenues named in the petition accommodate not only patrons desiring to ride from points east of Massachusetts Avenue to the business section of Boston, but a larger number of patrons residing west of Massachusetts Avenue, both within and without the city limits. While the restoration of these stopping posts might be a convenience to residents along and in the immediate vicinity of these streets and avenues, the delays obviated by the elimination of these stopping posts and the consequent rapidity of car movements, in our opinion, provide a greater number of patrons speedy transportation upon the elevated system as a whole. The commission appreciates that it is difficult to determine questions of this character with a view to the interest of the whole traveling public, and will therefore cause a continuance of its investigation and a careful supervision of conditions, in order that no individual hardship unduly proportionate to the interests of all having occasion to use the lines of the respondents may result."

The history of the movement by the company to improve its service by reducing stops on its surface lines goes back about a year. In response to complaints received from patrons regarding the slow movement of cars on certain lines, the company purchased 1000 higher speed motors and placed them in service on lines where they were applicable. A study of the time consumed in making stops on the surface lines showed that an average of about 30 seconds per stop was lost in slowing down, standing still and accelerating from rest. Many of the stops were in accordance with the policy of the West End Street Railway, dating from the days of the horse car. The superintendents of the different surface divisions were therefore called into conference with the superintendent of transportation, told about the company's desire to improve the service, and asked to recommend the elimination of any stops which might feasibly be omitted and to show a sketch of each stop affected, with the present and proposed plan, and the distances involved. The superintendent of transportation then personally examined conditions at the places where changes were recommended, and decided whether it was expedient to omit the stops as shown in the reports of the division superintendents. In a few cases the stops had to be rearranged to meet local conditions of a special nature. The company has not exceeded a maximum walking distance of from 400 ft. to 500 ft. between stops, except in certain boulevard reservations where there are no houses for long stretches, and the maximum distance that a passenger has to walk to a car does not exceed 12 car lengths from any inter-stop point. The changes and omissions have been favorably received by the public, and even local opponents of reductions have testified that the plan as a whole is a good one as it tends to promote faster service. In some cases new cross-walks have been built by the municipal authorities in recognition of the advantages of the changes made. Taking average routes requiring a running time of about an hour for the round trip, a saving of from 6 to 8 minutes has been made as a result of stop reduction. In the few complaints to the commission regarding the elimination of stops the company's action has been approved.

Reduction of Accidents in Nashville

The work of the Y. M. C. A. on the Nashville (Ky.) Railway & Light Company was described in the convention issue of the ELECTRIC RAILWAY JOURNAL last October, and its connection with the reduction of accidents on that line is indicated in a report of General Manager H. A. Davis, of the railway company to the directors. Mr. Davis quotes the percentage decrease in accidents since the inauguration of the Y. M. C. A. department over the corresponding months of the previous year as follows: 1907, December, 23 per cent; 1908, January, 31 per cent; February, 41 per cent; March, 37 per cent; April, 43 per cent. In referring to these figures, Mr. Davis says: "Since the organization of our Y. M. C. A. Department the number of accidents has wonderfully decreased, and while the entire credit for this may not be due to the Y. M. C. A. there is no doubt that a large proportion of the decrease is directly attributable to the influence of this organization over the men," and "It is difficult for me to express in words by feeling and to show in an adequate way our appreciation of the good work which has been accomplished by our Y. M. C. A. Department. In behalf of the company I would say that we regard this department as a paying investment as it has, without doubt, been elevating and helpful to our men mentally, physically and morally." The records since April in reduction of accidents has been: May, 42 per cent; June, 34 per

cent; July, 40 per cent; August, 28 per cent; September, 36 per cent; October, 38 per cent.

Accidents in New York City in November

The Public Service Commission of the First District of New York reports the following accidents on the lines under its jurisdiction for November, 1908, as compared with November, 1907:

	1908.	1907.
Car collisions	81	160
Persons and vehicles struck by cars.....	929	977
Boarding	477	438
Alighting	519	465
Contact electricity	27	27
Other accidents	1,959	1,970
Total.....	3,992	4,037
Killed	36	45
Fractured skulls	11	12
Amputated limbs	8	4
Broken limbs	31	47
Other serious	119	135
Total.....	205	243

New York Transfer Order to Be Reviewed

The Appellate Division of the Supreme Court of New York on Dec. 18 denied the motion of the Public Service Commission of the First District of New York to vacate the writ of certiorari obtained to review the action of the commission in ordering the Central Park, North & East River Railroad and the Metropolitan Street Railway, New York, to restore transfers previously issued between the companies.

The writ which was issued was for a court review of the proceedings held by the commission prior to the issuance by it of the order for joint rates and through routes between the north and south lines of the Metropolitan system and the Fifty-ninth Street crosstown lines.

In denying the motion to quash the writ the Appellate Division contends that the commission is, in this case, at least, a judicial, or quasi judicial body, and not a legislative one and that its acts therefore are reviewable in court on certiorari proceedings.

It is probable that the commission will appeal from the decision to the Court of Appeals.

Connecticut Valley Street Railway Increases Unit of Fare to Six Cents

The Connecticut Valley Street Railway, Greenfield, Mass., has announced that it will increase the unit of fare on all lines of the company from 5 to 6 cents on Jan. 1, 1909. The announcement of the company to its patrons respecting this change states that the fare zones on all lines, except the Deerfield line, will remain as they are at present. The following tickets will be sold under the new arrangement:

Workmen's tickets, 50 rides for \$1.80, good to purchaser, Greenfield to Miller's Falls line. School tickets, 3-cent fare, all lines. Coupon books, 120 rides for \$6, transferable, all lines. Coupon books, 40 rides for \$2, not transferable, all lines. Maple Street tickets, 40 fares for \$1.20, Amherst line only; Whately-Hatfield postoffice tickets, 40 fares for \$1.20. Deerfield line, round-trip tickets Greenfield-Northampton, 60 cents, good to bearer. All outstanding tickets will be honored for transportation when presented in accordance with printed contract.

The announcement of the company states that, while it is hoped that the changes suggested will bring satisfactory results, should they not, a withdrawal of tickets may be necessary.

Steamboat Line Party to Central Electric Mileage Ticket.—The Cannelton, Rockport & Owensboro Rapid Transit line has become a party to the mileage ticket of the Central Electric Traffic Association. This is a river steamboat line operating on the Ohio River, with headquarters at Evansville, Ind.

Brooklyn Line Need Not Resume.—The Public Service Commission of the First District of New York has decided not to compel the Brooklyn Rapid Transit Company to restore its service between the Thirty-ninth Street (Brooklyn) Ferry and Bay Ridge, which was discontinued recently

for want of patronage. Commissioner Bassett, who heard the complaints against the company, has submitted a report to the board saying that the proof brought forward at the public hearing showed that if the service should be restored there would not be an average of more than five passengers on each car.

Fare Readjustment Asked in Methuen, Mass.—A number of residents of the town of Methuen, Mass., living along the route of the Town Farm Division of the Lawrence & Methuen Street Railway, have asked the Massachusetts Railroad Commission to grant a hearing relative to fare readjustment on the division named.

More Local Cars Suggested for Indiana Interurban Railway.—Residents along the line of the Indianapolis & Cincinnati Traction Company have suggested to the Railroad Commissioners of Indiana that they take up with the company the subject of modifying its schedule so as to provide more local and fewer limited cars between Indianapolis and Shelbyville between 4 p. m. and 6 p. m.

Transfer Fraud in New York.—The Metropolitan Street Railway, New York, has caused the arrest of two conductors and two boys for complicity in trying to defraud the company by using transfers illegally. The conductors under arrest made a practice of selling transfers to boys for a cash consideration, and the boys in turn sold them to pedestrians at the intersection of connecting lines.

Increase in Elevated Service in Brooklyn.—The Public Service Commission of the First District of New York has ordered the Brooklyn Rapid Transit Company to increase the number of trains operated on its Broadway, Myrtle and Lexington Avenue elevated lines, and will hold a public hearing soon to determine the advisability of making the order to the company regarding these lines permanent.

Freight Route Between Lowell and Boston.—The Railroad Commission has authorized the Lexington & Boston Street Railway, Boston, Mass., to carry freight and baggage in Billerica, Mass. The company has similar rights in Concord and Waltham, and desires to secure permission to carry freight and baggage on its lines in Lexington, Bedford and Arlington, to complete a through route from Lowell and Concord to Boston.

Operating Statistics Desired by Washington Commission.—The District Electric Railway Commission of Washington has asked the Capital Traction Company and the Washington Railway & Electric Company to furnish the commission, at the earliest possible date, with specifications of all cars owned or operated by the companies on Jan. 1, 1909. The companies have also been requested to notify the commission on and after Jan. 1, 1909, of the placing of new cars in service.

Schedule of Cars in Cincinnati.—A schedule furnished the Board of Public Service of Cincinnati by the Cincinnati Traction Company on Dec. 5 shows the following cars to be in use: Regular, 294; morning extras, 218; evening extras, 268; total, 562. The schedule submitted in April, 1907, shows: Regular, 323; morning extras, 233; evening extras, 312; total, 635. The figures given are the minimum. The difference in the number of cars now being operated is attributed to the reduction in the working forces of many of the large factories, to the operation of an increased number of double truck cars and to the reduced headway.

Reply by Pennsylvania Commission to Complaint About Tickets and Transfers in Philadelphia.—The Railroad Commission of Pennsylvania has informed Albert S. Cook, Philadelphia, that his complaint that the Philadelphia Rapid Transit Company had confined the six-for-a-quarter tickets to individual holders has been negated by the change in policy of the company regarding the use of the tickets, but that he will be heard on the question of whether or not transfers should be limited to one hour, if he desires. The commission, however, expresses the opinion that the time limit on transfers is not in violation of any agreement or contract entered into by the company.

Conference on Fenders and Signals in Massachusetts.—The Massachusetts Railroad Commission held an informal conference with the managers of the principal electric railways of the State on Dec. 17 on the subject of fenders and signals. The Boston Elevated Railway, the Boston & Northern Street Railway, the Old Colony Street Railway, the Boston & Worcester Street Railway Company, the Springfield Street Railway and the Worcester Consolidated Street Railway were among the companies represented. The commission proposes to discuss the subject of fenders and signals in its next annual report and will probably utilize some of the points brought out at the conference just held.

Personal Mention

Mr. S. M. Manifold has been appointed general manager of the Morris County Traction Company, Morristown, N. J.

Mr. David Gring, Harrisburg, Pa., has been elected president of the Morris County Traction Company, Morristown, N. J.

Dr. William H. Wahl, who for a long time has been secretary of the Franklin Institute, of Philadelphia, has resigned on account of poor health. The board of managers of the Institute have announced that until the selection of his permanent successor Mr. James Christie, the well-known mechanical engineer, has agreed to act as temporary secretary, and that he will be assisted by Mr. Alfred Rigling, librarian of the Institute.

Mr. John L. O'Toole has been appointed to direct the department of publicity to be established by the Public Service Corporation of New Jersey on Jan. 1. Mr. O'Toole has been connected with the Newark *Evening News* for 15 years, and has acted as city editor of that paper for the last eight years. The purpose of the company is to make available to the press, through its publicity department, all matters relating to the company in which the general public are interested.

Mr. B. O. Ellis has been appointed general manager of the Columbia Power, Light & Railways Company, Bloomsburg, Pa., recently formed to take over the railway, lighting and gas properties in Danville, Bloomsburg and Berwick. Mr. Ellis has been connected with J. G. White & Company, New York, for the last three years in charge of the rehabilitation of the railway and lighting properties in Schuylkill County, Pa., controlled by the Eastern Pennsylvania Railways Company and operated by J. C. White & Company.

Mr. J. B. N. Cardoza has resigned as assistant general manager of the Norfolk & Portsmouth Traction Company, Norfolk, Va. Mr. Cardoza was formerly with the Berkley (Va.) Street Railway, but several years ago he became superintendent of maintenance of way of the Norfolk & Portsmouth Traction Company and served in this capacity until the opening of the Jamestown Exposition in June, 1907, when he was appointed assistant general manager of the company. Mr. Cardoza has opened an office in Norfolk as a consulting engineer, and will pay particular attention to the management of electric railways and make recommendations concerning their operation.

Mr. Chester P. Wilson has resigned as superintendent and purchasing agent of the Lackawanna & Wyoming Valley Railroad, Scranton, Pa., effective on Feb. 1, 1909, to become general manager of the Des Moines City Railway and the Inter-Urban Railway, Des Moines, Ia. Mr. Wilson has been connected with the Lackawanna & Wyoming Valley Railroad since 1903, and before that time was general manager of the Camps Bay, Capetown & Seapoint Tramway Company, Cape Town, South Africa, which is owned by an important London financial house having very large South African interests. Mr. Wilson at one time was general manager of the Sioux City (Ia.) Railway, and later for several years was connected with The Milwaukee Electric Railway & Light Company as chief engineer.

Mr. James A. Dow has resigned as roadmaster of the New Haven lines of the Connecticut Company and will be succeeded by Mr. P. Ney Wilson. Mr. Dow was connected with the Connecticut Company for seven years, during which period he superintended the double tracking of the Woodmont and Congress Avenue lines and the Derby extension. He also supervised the construction of the Wallingford line, which was the connecting link in the through trolley between Boston and New York, and built the Stony Creek line between Stony Creek and Branford. Before becoming connected with the Connecticut Company, Mr. Dow was general foreman of the track department of the Brooklyn Rapid Transit Company, with which he was connected for 16 years. Mr. Dow's first experience in railroading was with the first cable road in Philadelphia under his father, Mr. Nelson Dow, who at the time was general superintendent of track construction for William Wharton, Jr., & Company, Philadelphia. Mr. Dow was also associated with his father in the construction of the Broadway line of the Metropolitan Street Railway, New York, from the Battery to Fourteenth Street.

OBITUARY

Eli P. Baker, vice-president of the Indianapolis, Crawfordsville & Western Traction Company, Indianapolis, Ind., died at his home in Crawfordsville, Ind., on Dec. 16.

Construction News

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

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

FRANCHISES

***Vallejo, Cal.**—Randall, Trowbridge & Company, Oakland, Cal., have applied to the City Trustees for a franchise covering the principal streets of Vallejo, with the intention of constructing and operating an electric railway system.

***Morris, Ill.**—Ernest Freeman, Chicago, Ill., president of the United Electric Company, which supplies Morris with light and power, has applied for a franchise to build an electric railway in Morris. It is the intention of Mr. Freeman not only to build a line from Seneca to Joliet, but to also construct a line north and south from Yorkville to Dwight, with branches to the coal field towns.

Seymour, Ind.—A petition has been filed at Brownstown, asking for a special election to be held in Brownstown and Jackson township on Jan. 12 to vote on a proposed subsidy for the Seymour & Brownstown Construction Company, which proposes to build an electric railway between Seymour and Brownstown. The petitions ask for a subsidy of 2 per cent in Brownstown township, or not to exceed \$35,000; and 1 per cent in Jackson township, or not to exceed \$40,000. The total length of the road will be 11 miles. [E. R. J., Aug. 29, '08.]

Valparaiso, Ind.—The Common Council has granted the Gary, Hobart & Valparaiso Traction Company a 50-year franchise to build a line on Main Street. The company likewise has a 50-year franchise over the tracks of the Gary & Interurban Railway in Gary, and a 50-year franchise through the streets of Hobart. Franchises have not yet been granted for the remainder of the route, a distance of 20 miles, extending from College Hill in Valparaiso to the Steel Works in Gary, Ind.

***Jackson, Miss.**—R. V. Powers, W. Q. Cole and R. L. Bradley have applied to the City Council for a franchise, and to the State for a charter for the construction of a belt line to connect the railroads at Jackson.

Missoula, Mont.—The City Council has called a special election for Jan. 5, 1909, when the matter of granting a 50-year street-car franchise to W. A. Clark, Butte, Mont., will be voted upon. [E. R. J., Nov. 28, '08.]

***Concord, N. C.**—A street railway franchise has been granted by the Concord Board of Aldermen to J. W. Barry, Boston, Mass. The conditions are that work must begin in two years, and that six months thereafter cars must be operated. The new company has taken over the franchise granted the Concord Street Railway nearly two years ago.

New York, N. Y.—The Board of Estimate and Apportionment has granted a franchise to the Brooklyn Rapid Transit Company to extend its line on Metropolitan Avenue to Jamaica. The proposed extension will be about 3 miles in length.

New York, N. Y.—The Board of Estimate and Apportionment has granted the Bronx Traction Company a franchise for a line along Clason Point Road from the intersection of Westchester Avenue and that thoroughfare, to the terminus of Clason Point Road. The Union Railway was granted a franchise to build a road from Sedgwick Avenue and Fordham Road along Fordham Road, Hampden Place, West 184th Street and the University Heights Bridge to Manhattan, along West 207th Street to Amsterdam or Tenth Avenue to Emerson Street and connecting with the present road in Broadway.

***Montreal, Que.**—The Montreal Terminal Electric Railroad has applied to the City Council for a franchise to build and operate an elevated railroad in Montreal.

Galveston, Tex.—The Board of City Commissioners has granted the Galveston Electric Company a franchise to build a line on Avenue O, from Twenty-seventh Street to Twenty-ninth Street, and on Avenue M, from Twenty-ninth Street to Forty-first Street.

Centralia, Wash.—W. J. Patterson and A. Welch, who are identified with the electric railway system at Vancouver, Wash., have been granted a franchise to build and operate an electric railway in Centralia. [E. R. J., Nov. 28, '08.]

Tacoma, Wash.—The Puget Sound Electric Railroad has petitioned the Commissioners for a franchise for a new line from Brookville to Puyallup. The petition states that the company will construct either single or double tracks and that steps have already been taken to acquire a right-of-way.

RECENT INCORPORATIONS

***San Louis Valley Interurban Railway, Del Norte, Col.**—Incorporated to build an electric railway from Del Norte, running in an easterly direction to Center, also running from Monte Vista to Center, then to the location of the Devil's Gate reservoir and from Center to Saguache. Headquarters: Del Norte. Capital stock, \$500,000. Incorporators: John M. Moser, E. L. Fleshman, Adam J. Weiss, W. W. Adams, Leland A. Bernard, George W. McGraw and James S. Warren.

***Indianapolis, Cloverdale & Vincennes Traction Company, Indianapolis, Ind.**—Incorporated in Indiana to build a standard-gage electric railway from Indianapolis to Mooresville, Cloverdale, Clay City, Linton and Vincennes. The road will be about 110 miles in length. Headquarters, 1110 Odd Fellows Building, Indianapolis, Ind. Incorporators: E. M. Bowman, president; W. T. De Vor, vice-president; D. H. Jackson, secretary and treasurer; H. C. Sandusky, 413 State Life Building, Indianapolis, and W. C. Hall. Capital stock, authorized, \$100,000.

***Clackamas Southern Railway, Portland, Ore.**—This company has been incorporated to build an electric railway to connect Oregon City with the Molalla Valley in Clackamas County with a southern terminus at Scott's Mills on Butte Creek. It is said that the right of way and the final surveys have been practically secured for the line. Incorporators: F. M. Swift, David Loring and A. E. Clark.

***Montpelier & Essex Junction Traction Company, Montpelier, Vt.**—A bill has been introduced in the Senate at Montpelier to incorporate this company, which proposes to build an electric road through Berlin, Middlesex, Moretown, Waterbury, Richmond, Hinesburg, Jericho, Colchester and Underhill. Capital stock is to be \$50,000. Incorporators: F. M. Corry, L. E. Taft, W. T. Dewey and E. H. Deavitt, Montpelier; A. L. Hewitt, Berlin; D. E. Moody and W. J. Boyce, Waterbury; E. W. Huntley, Duxbury; J. W. McGargan, Richmond; A. L. Bingham, B. J. Wright and J. E. Kennedy, Williston, and Guy W. Bailey and Allen Martin, Essex Junction.

Cle Elum-Roslyn Railway & Power Company, Roslyn, Wash.—This company has been incorporated for the purpose of building and operating an electric railway from Cle Elum to Roslyn. Capital stock, \$100,000. Incorporators: Frank S. Farquhar and W. E. Farquhar. [E. R. J., Dec. 19, '08.]

Columbia & Walla Walla Traction Company, Walla Walla, Wash.—This company has been incorporated to construct an electric railway from Dayton to Wallula. Capital stock, \$1,000,000. Officers: N. G. Blalock, president and general manager; M. R. Hanger, of Dayton, first vice-president; L. C. Davison, secretary; George Kellough, treasurer. [E. R. J., Dec. 5, '08.]

TRACK AND ROADWAY

Central Arkansas Electric Railway, Little Rock, Ark.—It is announced that this company expects to commence work on its line early next spring. The route lies south from Little Rock, Ark., to a point about 5 miles south of Sheridan, where it will divide, one branch running to Hot Springs and one to Pine Bluff. Headquarters will be opened in Little Rock as soon as the company is fully organized, which will be early next year. E. F. Williamson is promoting the road.

Hueneme, Malibu & Port Los Angeles Railway, Los Angeles, Cal.—It is officially announced that this company is planning to add about 5 miles of additional track to its system.

Los Angeles (Cal.) Railway.—During the coming year, it is announced, this company will add 5 miles of additional track to its line.

Tampa Sulphur Springs Traction Company, Tampa, Fla.—This company expects to add 2 miles of track to its system during 1909.

Boise Valley Railway, Boise, Idaho.—This company contemplates building 21 miles of new track next year. Two new lines will be built, one to extend from Meridian to Nampa and the other from Nampa to Caldwell.

Altonville, Jacksonville & Peoria Railway, Jerseyville, Ill.—The ELECTRIC RAILWAY JOURNAL is informed that this company expects to build 62 miles of track next year. The road will extend from Godfrey to Jacksonville, Ill., through Jerseyville, Carrollton, White Hall, Roadhouse, Manchester and Murphysville.

Peoria & Galesburg Railway, Peoria, Ill.—S. F. Atwood writes that surveys are now being made for a route for the electric railway which this company plans to build from Peoria to Canton, Galesburg and intermediate points. The system, which is to be standard gage, will comprise about 75 miles of track. The company intends to commence con-

struction early next spring. Electricity will be the motive power and the overhead trolley will be used. The power station and repair shops will be located at Peoria. Capital stock, authorized and issued, \$100,000. Officers: D. M. Mayer, president; Arthur C. Black, vice-president; S. F. Atwood, secretary and treasurer, all of Peoria. Headquarters, Mayer Office Building, Peoria. [E. R. J., Dec. 5, '08.]

Evansville (Ind.) Railways.—This company expects to build an extension next year, about 22 miles long, connecting Rockport, Grand View, Tell City, Troy and Connelton.

Vincennes & Washington Transit Company, Vincennes, Ind.—The ELECTRIC RAILWAY JOURNAL is advised that this company will begin to build, as soon as the weather permits next spring, a 19-mile electric interurban railway from Vincennes to Washington, Ind., via Monroe City and Wheatland. Headquarters, 705 Isabella Building, Chicago, Ill. Contract for the entire construction of the road awarded to Burns & Company, Chicago, Ill., who will purchase all material. Officers: J. J. Burns, Chicago, Ill., president; M. A. Peoples, Tampico, Ill., vice-president; C. S. Nossette, Monroe City, Ind., secretary; Clyde F. Burns, Chicago, Ill., treasurer and chief engineer.

Gary, Hobart & Valparaiso Traction Company, Valparaiso, Ind.—Blake A. Mapledoram writes that the company has begun making the surveys in Valparaiso for its proposed electric railway, which is to connect the cities named in the title. Mr. Mapledoram states that the only work done during the winter months will be of a preliminary nature, covering surveys, estimates, etc., preparatory to commencing construction in the early spring. Midway between Gary and Hobart the road will be built on a private right-of-way with the exception of the streets in several towns through which the line will pass. It will be an interurban, and it has been decided to lay with a 70-lb. T-rail and standard oak ties. Single and bracket pole overhead construction will be used. At Liverpool, about 4 miles out of Gary, an amusement park will be established, the company having already obtained an option on 40 acres of timber land situated along the bank of Deep River. Officers: James S. Hopkins, president; Frank Y. Keator, Chicago, Ill., vice-president; Blake A. Mapledoram, Valparaiso, general manager and chief engineer. [E. R. J., Nov. 21, '08.]

Chicago, Ottumwa & Western Railway, Hamilton, Ia.—This company has awarded the general contract covering entire construction and preliminary work, to Burns & Company, Chicago, Ill. The road will extend from Ottumwa to Des Moines, Ia., via Buxton, Hamilton, Maryville, Columbia, Dallas and Indianola, 60 miles. Of this only 23 miles, Hamilton to Dallas, is covered by contract with Burns & Company. The road will be operated by electricity or steam. Work of construction, it is said, will commence as soon as the weather permits in spring of 1909. The company is in the market for track material; single-phase or high-tension d. c. overhead and car equipment; about 8 double truck interurban passenger cars and a number of gondola freight cars. All material will be purchased by Burns & Company, 705 Isabella Building, Chicago, Ill. T. J. Avery, president. [E. R. J., Oct. 31, '08.]

Trans-Michigan Street Railroad, Allegan, Mich.—The ELECTRIC RAILWAY JOURNAL is advised that this company is in the market for red and mixed oak ties for 32 miles of roadbed, also for 30 miles of 75-lb. T-rails. Arrangements are now under way toward beginning construction of the road. The road will extend from Allegan to South Haven, Mich., a distance of 30 miles. The power station and repair shops will be located in Allegan City. About 7 small lakes and amusement resorts will be reached by the line. The company expects to operate about 20 cars. Headquarters, 2-3 P. O. Block, Allegan City. Officers: Wm. Pyatt, 262 Michigan Avenue, Chicago, Ill.; Martin Flatow, 1122 N. Halstead Street, Chicago, vice-president; Frank B. Kamarke, 122 Perry Street, Chicago, general manager and electrical engineer. Capital stock, authorized, \$100,000; issued, \$40,000.

Houghton County Traction Company, Houghton, Mich.—This company has under consideration the construction of an interurban line from Houghton to Painesdale. The extension would be about 11 miles long.

Twin City General Electric Company, Ironwood, Mich.—Announcement is made that this company will build an extension next year connecting Ironwood and Bessemer, Mich. About 6 miles of track will be built.

Compania Electrica y de Ferrocarriles de Chihuahua, Chihuahua, Mex.—It is announced that this company will build from 4 to 7 miles of new track during 1909. The new line will extend from Chihuahua to Santo Nino and Nombredios. A. C. Nash, manager.

Consolidated Railway & Power Company, Fayetteville, N. C.—It is announced that this company, which has re-

cently purchased the Fayetteville Street Railway & Power Company, contemplates next year the construction of a line from the present terminus at Fayetteville to Hope Mills, 15 miles.

Suffolk Traction Company, Patchogue, N. Y.—Announcement is made that this company expects to resume work next year on its proposed electric railway which is to connect Brookhaven, Bellport, Patchogue, Blue Point, Bayport, Sayville and Port Jefferson, a distance of about 40 miles.

Cincinnati, Wilmington & Xenia Traction Company, Wilmington, Ohio.—J. N. Carswell, general manager of this company, writes that surveys have been made to within a few miles of Cincinnati, and the field work will be completed by the end of this year. Mr. Carswell states that the company has not yet considered contracts, although it is expected that this will be done within the next month. The present corporation was organized for the purpose of preparing the proposition. It is probable that construction will be begun in March, 1909. Two power stations of approximately 6000 hp will be erected, one at Mt. Sterling and the other on the Little Miami River. It is the intention of the company to sell current to local lighting companies and industries. The road will extend from Cincinnati to Milford, Goshen, Blanchester, Wilmington, Sabina, Washington C. H., Mt. Sterling, Columbus and Xenia. It will be about 150 miles in length. The overhead trolley system will be adopted. The repair shops will be erected at Wilmington. Headquarters, Wilmington. Capital stock authorized, \$50,000. Officers: K. H. Grantham, acting president; J. C. Linton, secretary and treasurer; John M. Carswell, general manager, all of Wilmington; Henry Rohwer, chief engineer, St. Louis, Mo. [E. R. J., Nov. 14, '08.]

El Reno Interurban Railway, El Reno, Okla.—Henry Schafer, president of this company, writes that during the coming year the company expects to build about 30 miles of track. The road when completed will join El Reno, Youkon and Oklahoma City.

Brockville, Ont.—It is stated that an application will soon be made to the Provincial Government for a charter for an electric railway to run from Ottawa to Morrisburg and westward to Brockville. The proposed line, omitting the branch from Morrisburg East, will cover 143 miles—50 from Ottawa to Morrisburg, 33 from Morrisburg to Brockville, and 60 from Brockville to Darling. C. S. Cossett, Brockville, president, and F. Iveson, Metcalf, secretary. [S. R. J., April 11, '08.]

Hull Electric Company, Aylmer, Ore.—It is announced that this company expects to construct 2 miles of new track next year.

United Railways, Portland, Ore.—Announcement is made that during 1909 this company will construct 50 miles of additional track. During the past year, the company built 20 miles of track from Claremont to Glen Harbor, Linnton and Holbrook.

Columbia & Manor Street Railway, Columbia, Pa.—E. K. Hershey, secretary and treasurer of this company, writes that grading on the road has been begun, but active construction will not be started until next spring. The line will connect Columbia, Washington Boro, Millersville and several smaller towns, and will be about 17 miles in length. The company has decided to adopt the overhead trolley system. Officers: Henry Wertz, Washington Boro, president; H. M. H. Alderman, Lancaster, Pa., vice-president; E. K. Hershey, Route 2, Lancaster, Pa., secretary and treasurer; J. B. McDivitt, Safe Harbor, Pa., chief engineer. Capital stock, authorized \$225,000.

Donora & Eldora Street Railway, Donora, Pa.—This company has recently awarded contract for grading its line. Contracts have also been placed for ties, rails, etc. Up to the present time the road has been graded for a distance of about a mile. The line, as projected, will extend from Donora to Eldora, Monongahela City, Charleroi, Monnessen, Webster and West Newton, Pa. It is to be a standard gage road and it will have a trackage of about 3.3 miles. It has been decided to install the overhead trolley system. Four cars will be operated upon the completion of the road. The power station and repair shops are to be erected at Donora. Eldora Park, an amusement resort, will be reached by the line. Capital stock, authorized and issued, \$150,000. Officers: B. M. Hanna, Pittsburg, Pa., president; Wm. M. Galbraith, Frick Building, Pittsburg, vice-president; R. W. Hervey, Monongahela, Pa., secretary and treasurer; G. Gudmundson, Empire Building, Pittsburg, chief engineer.

Juniata Valley Electric Street Railway, Huntingdon, Pa.—It is announced that this company expects to build during 1909, about 30 miles of road connecting Huntingdon, Mill Creek, Mt. Union, Allensville, Belleville, White Hall, Reedsville and Lewistown. R. W. Jacobs, president.

Manufactures & Supplies

ROLLING STOCK

Grand Forks Transit Company, Grand Forks, N. D., will be in the market in 1909 for several closed trailer cars.

Ohio & Michigan Sand & Gravel Company, Toledo, Ohio, is in the market for one second-hand electric locomotive.

Bluestone Traction Company, Graham, Va., is in the market for two semi-convertible passenger cars for city service.

Oakland Traction Company, Oakland, Cal., is building 20 new vestibuled city cars in its shops at Alameda, Cal.

Rutland Railway, Light & Power Company, Rutland, Vt., will probably place an order for a sprinkler car early in 1909.

Fresno Traction Company, Fresno, Cal., will purchase during 1909 five double-truck cars similar to those now in service.

Wichita Railroad & Light Company, Wichita, Kan., has ordered 12 new cars from the American Car Company, St. Louis, Mo.

Dominion Power & Transmission Company, Ltd., Hamilton, Ont., it is reported, will be in the market in 1909 for about 60 new cars.

Newton (Mass.) Street Railway will be in the market during 1909 for a few motors to replace old motors under cars now in service.

Gary & Interurban Railway, Gary, Ind., has purchased a single-truck snow plow from the McGuire-Cummings Manufacturing Company, Chicago.

Mississippi Valley Interurban Railway, Springfield, Ill., will probably be in the market early in 1909 for 10 or 12 double-truck, interurban motor cars.

Compania Electrica y de Ferrocarriles de Chihuahua, Chihuahua, Mex., will order next year four passenger motor cars and six open 10-bench trailers.

Yakima Valley Transportation Company, North Yakima, Wash., will soon be in the market for rolling stock equipment for 25 miles of new railway.

Schuylkill & Dauphin Traction Company, Pottsville, Pa., will purchase next year three 10-bench open cars with complete equipment and two 20-ft. box cars.

Dixon, Rock Falls & Southwestern Electric Railway, Rock Falls, Ill., announces that it will be in the market in 1909 for passenger, express, freight and gondola cars.

Seattle Electric Company, Seattle, Wash., which recently ordered 140 new cars from the St. Louis Car Company, will soon order, it is said, 40 additional cars of the same type.

Auburn & Syracuse Electric Railroad, Syracuse, N. Y., will shortly ask for bids for two passenger cars and a private car, for its Rochester, Syracuse & Eastern division.

Boise Valley Railway, Boise, Idaho, will purchase early in 1909 five 41-ft. motor cars and four 41-ft. trailers, all of the semi-convertible type. It will also buy 10 box freight cars.

Seattle, Renton & Southern Railway has purchased eight trucks from the Baldwin Locomotive Works, Philadelphia, Pa. The company is also said to be in the market for six semi-interurban cars.

Emigration Canyon Railroad, Salt Lake City, Utah, expects to purchase in 1909 an electric locomotive, four work cars, two semi-convertible passenger cars, two open trailers and one derrick car.

Keokuk (Ia.) Electric Railway & Power Company has placed its order for three single trucks, referred to in the ELECTRIC RAILWAY JOURNAL of Dec. 19, with the Taylor Electric Truck Company, Troy, N. Y.

Delta Electric Light, Power & Manufacturing Company, Greenville, Miss., has purchased through Arthur S. Partidge, St. Louis, Mo., two closed motor cars, 33 ft. over all, with double Bemis trucks, and two closed motor cars 24 ft. over all, with single McGuire trucks.

Iowa Railroad, Eldora, Ia., now under construction to connect a number of cities in Iowa with 127 miles of road, will soon be in the market for equipment. The management expects to purchase 10 passenger coaches, two express cars, 50 box cars, 50 coal cars, 10 flat cars, 25 stock cars and five electric locomotives.

Chicago, Ottumwa & Western Railway, Hamilton, Ia., now under construction between Ottumwa and Des Moines, Ia., will soon be in the market for eight double-truck interurban passenger cars and a number of gondola freight cars. All equipment will be purchased through Burns & Company, 705 Isabella Building, Chicago,

Schuylkill & Dauphin Traction Company, Pottsville, Pa.—This company expects to construct a 100-ft. span bridge and 400 ft. of trestle work. W. E. Harrington, general manager.

Johnson City Traction Company, Johnson City, Tenn.—This company is planning to add 1½ miles of additional track to its line in Johnson City next year.

Emigration Canyon Railroad, Salt Lake City, Utah.—This company expects to construct during the coming year an extension 8 miles in length, connecting Salt Lake City, Sugar House, Mill Creek and Holiday.

Ogden (Utah) Rapid Transit Company.—This company expects to build, next year, an extension, 14 miles in length, through Ogden Canyon.

Rutland Railway, Light & Power Company, Rutland, Vt.—The ELECTRIC RAILWAY JOURNAL is advised that this company has under consideration the construction next year of an interurban line from Castleton Corners to Poultney, Vt., a distance of 6 miles.

Yakima Valley Traction Company, North Yakima, Wash.—The ELECTRIC RAILWAY JOURNAL is advised that this company expects to build during 1909, 25 miles of track radiating from North Yakima, Wash.

Morgantown & Dunkard Valley Railroad, Morgantown, W. Va.—Ami Martin, general manager of this company, is reported to have just closed a contract with the Carnegie Steel Company for 550 tons of 70-lb. steel rails to be used in the construction of the first 5-mile section of the line between Morgantown and Barker.

Wheeling (W. Va.) Traction Company.—This company expects to reconstruct about 2 miles of track during 1909.

Milwaukee Northern Railway, Milwaukee, Wis.—The ELECTRIC RAILWAY JOURNAL is informed that this company will build 29 miles of new track next year. The line from Milwaukee to Cedarburg will be double tracked. An additional line, to be single track, will be built from Cedarburg to West Bend, Wis.

POWER HOUSES AND SUBSTATIONS

Chicago (Ill.) Railways.—It is announced that this company will erect substations in the South Chicago, Grand Crossing and Roseland districts.

Rock Island Southern Railway, Monmouth, Ill.—This company expects to award contracts during the next 60 days for the erection of a power plant at the Edwards River. The company is at present in the market for two 1500-kw turbines with the necessary boiler capacity.

Toledo, Fostoria & Findlay Railway, Fostoria, Ohio.—The ELECTRIC RAILWAY JOURNAL is advised that this company is in the market for 325-kw to 350-kw direct-connected generator.

Cleveland, Painesville & Eastern Railroad, Willoughby, Ohio.—This company has under consideration the purchase of a low pressure steam turbine.

Schuylkill & Dauphin Traction Company, Pottsville, Pa.—This company is in the market for a new switchboard for two 100-kw, 500-volt railway generators. W. E. Harrington, purchasing agent.

SHOPS AND BUILDINGS

Wichita Railroad & Light Company, Wichita, Kan.—It is stated that this company has plans under consideration for the erection of a new car house at Waco Avenue and Second Street. The property has a 260-ft. frontage. The structure, according to plans, will accommodate 22 cars. It is estimated the building will cost \$15,000.

Delta Electric Light, Power & Manufacturing Company, Greenville, Miss.—This company is building a car house and repair shop, 160 ft. x 32 ft., to replace the one which was destroyed by fire.

Forty-second Street, Manhattanville & St. Nicholas Railway, New York, N. Y.—Plans have been filed for the rebuilding of the car house of this company running through the block east of Twelfth Avenue from Manhattan Street to 130th Street. The improvements are made by authority of Receiver Frederick W. Whitridge at a cost of \$58,000 and will include the complete reconstruction of the interior of the building and the installation of elevator service.

AMUSEMENT PARKS

Schuylkill & Dauphin Traction Company, Pottsville, Pa.—The ELECTRIC RAILWAY JOURNAL is informed that this company wants bids for concessions of all kinds in its new park, Midway.

Knoxville Railway & Light Company, Knoxville, Tenn.—It is stated that this company is about to acquire the 49 acres of Chilhowee Park. It is said that the company will utilize the grounds for an amusement park.

Metropolitan Street Railway, New York, has put into operation the first of the new type pay-as-you-enter cars that were ordered last fall from The J. G. Brill Company. These cars are 28 ft. long, with two-motor equipment.

Tri-City Railway Company, Davenport, Ia., will soon be in the market for 10 new passenger cars. Five of these will be large, double-truck cars with pay-as-you-enter features, and will be used on the bridge line between Davenport, Ia., and Rock Island, Ill. The other five will be smaller, similar to the standard cars now in service on other lines of this company, and may be built in the company's shops.

Metropolitan Street Railway, Kansas City, Mo., is converting 244 of its cars into pay-as-you-enter cars. Of these equipments, 85 are to be rebuilt and remodeled throughout and made into single-end pay-as-you-enter cars; 25 cars will be rebuilt for double-end pay-as-you-enter operation; 94 of the double-end cars will be equipped for single-end pay-as-you-enter operation and 40 are being equipped with double doors between the platform and the main compartment.

Toledo, Ann Arbor & Detroit Railroad, Toledo, Ohio.—Andrew E. Lee, Governor of South Dakota, and William Niles, Chicago, who recently purchased the Toledo, Ann Arbor & Detroit Railroad at foreclosure sale, have placed an order with the McKeen Motor Car Company, Omaha, Neb., for a gasoline motor car similar to the ones built for the Union Pacific Railroad under the direction of W. R. McKeen, Jr., formerly superintendent of motive power and machinery of the Union Pacific Railroad.

TRADE NOTES

American Brake Shoe & Foundry Company has elected J. S. Coffin vice-president. Mr. Coffin was formerly vice-president of the Galena Signal Oil Company.

G. Drouve Company, Bridgeport, Conn., has purchased at a receiver's sale all machinery, material and fixtures of the bankrupt American Machinery Company, 651 West Forty-third Street, New York.

R. W. Marshall & Company, 50 Church Street, New York, announces that C. E. Stearns has been made superintendent of the company's repair and impregnating plant in South Brooklyn. Mr. Stearns for a number of years was superintendent of repairs for the Cincinnati Traction Company.

Electric Service Supplies Company, Philadelphia, Pa., advises that in the description of the Keystone air sander valve, published in the *ELECTRIC RAILWAY JOURNAL*, Dec. 19, p. 1623, it was erroneously stated that these valves had been supplied for the cars of the Chicago City Railway Company. They were not furnished to this road but to the Chicago Railways Company.

John F. Ohmer, president of the Ohmer Fare Register Company, returned from a European trip on the *Baltic*, arriving Monday, Dec. 21. He was met upon his arrival with the encouraging information that Ohmer Sons' Company had secured a contract from the Pennsylvania Railroad Company which would necessitate the employment immediately of 200 extra men.

Wonham & Magor, New York City, announce that they have acquired the manufacturing and selling rights of the "H. B." wheel guard for the continents of North and South America. This wheel guard will be manufactured at the Wonham & Magor works at Passaic, N. J. The "H. B." wheel guard was tested at the recent New York Public Service Commission tests at Schenectady, N. Y.

George A. Powell, Winnipeg, Man., who has been associated with the Packard Electric Company, Ltd., of St. Catharines, Ont., for the last 15 years, has severed his connections with that company. Mr. Powell has started in business for himself as commission broker, with offices in the Union Bank Building, Winnipeg, Man., suite No. 603. He will continue to represent, among other agencies, the Eugene F. Phillips Electrical Works, Ltd., of Montreal, makers of bare and insulated copper wires and cables.

G. Drouve Company, Bridgeport, Conn., has recently received an order for "Anti-Pluvius" skylights and sidelights for the D. L. & W. R. R. Bush type train shed at Scranton, Pa. This is the second order for "Anti-Pluvius" skylights and sidelights from the Lackawanna Railroad for new passenger train sheds, the other being at the Hoboken terminal. The 1908 edition of the "Anti-Pluvius" skylight catalog recently received from the German manufacturers of this device describes the new railroad station at Hamburg, on which "Anti-Pluvius" skylights were used. This station is one of the largest in the world. A few of the other important installations of "Anti-Pluvius" skylights, recently made in Germany and Belgium, are mentioned, among them the municipal electric power station, Charlottenburg, Ber-

lin; railroad station, Lübeck, Belgium; locomotive works, Darmstadt, Germany; industrial plant of G. Schiele Company, Frankfort-on-Main. In this country recent installations include the American & British Manufacturing Company, New York Central, Chicago City Railway, New York City Railway, Purdue University, the Jersey Central ferry terminal, etc.

ADVERTISING LITERATURE

Wagner Electric Manufacturing Company, St. Louis, Mo.—Bulletin No. 82 of this company describes Wagner two-phase and three-phase motors.

Wickes Brothers, Saginaw, Mich.—The monthly stock list of this firm for December contains many offerings of all kinds of machinery, including even an electrical automobile.

Device Improvement Company, Hanover, Pa.—A new booklet of this company describes a number of improved armature tools, including armature banding machines and coil-winding attachments, tension machines, commutator slotting machines, magnet wire reel stands and brakes, armature winding stands and armature trucks.

Buffalo Forge Company, Buffalo, N. Y.—Catalog No. 197 of this company is divided into four parts: (1) heating and ventilating of public buildings; (2) heating and ventilating of industrial buildings; (3) heating and ventilating apparatus; (4) data on heating and ventilation. Each part contains descriptions and illustrations of installations that have been made.

Coleman Fare Box Company, Buffalo, N. Y.—A little leaflet just issued by this company gives some reasons why this type of fare box is a good thing for pay-as-you-enter service on any type of car. It is claimed that because of its being so conspicuous and because it can be so easily watched by the conductor, it is especially useful for securing prompt and correct collection of fares.

Vulcan Steam Shovel Company, Toledo, Ohio.—The December number of the "Steam Shovel News," which is the house organ of this company, treats of the development of the steam shovel for handling blasted rock, and points out the vast saving in labor and time effected by the use of this class of machinery. Illustrated descriptions are given of various shovels at work under various conditions.

Ridgway Dynamo & Engine Company, Ridgway, Pa.—Bulletin No. 20, which is the December publication of this company, is devoted largely to a description of the Ridgway side-crank engine, which is the latest type of high-speed engine that the company is putting upon the market. It is built in several types, simple, tandem and cross-compound. In these various types the engines can be furnished from 50 to 1500 hp.

U. S. Metal & Manufacturing Company, New York City.—This company has published a leaflet descriptive of the Diamond tapered steel poles which are recommended for transmission and signal line service. The poles are square in section, formed from two flat, tapered plates, which are sheared into rectangular forms. It is claimed that this design of pole gives the greatest strength with the least weight and least amount of deflection under side strains.

The Stone & Webster Engineering Corporation, Boston, Mass.—This company has just issued a neat card describing the ability of the staff to undertake the electrification of steam railroads, including design and complete installation, and a study of the financial and traffic results which will follow the equipment. The card bears a series of four photo-engravings representing the transition from the steam to the electric locomotive.

General Electric Company, Schenectady, N. Y.—Among the recent literature sent out by this company is the following: Pamphlet No. 3701, in which are illustrated the company's snap switches, both indicating and non-indicating; pamphlet No. 3715, which describes mercury arc rectifiers for telephone battery charging; bulletin No. 4633, which describes motor-generator sets, both direct and alternating current, tables of weights and capacity being also given; bulletin No. 4631, which describes the company's series alternating and closed arc light system, containing also descriptions of constant-current transformers; bulletin No. 4620, which describes the company's series luminous arc rectifier system; bulletin No. 4632, devoted to the subject of fan motors, including prices of the entire line which the company will offer to the trade during the coming season.

ELECTRIC RAILWAY PATENTS

[This department is conducted by Rosenbaum & Stockbridge, patent attorneys, 140 Nassau Street, New York.]

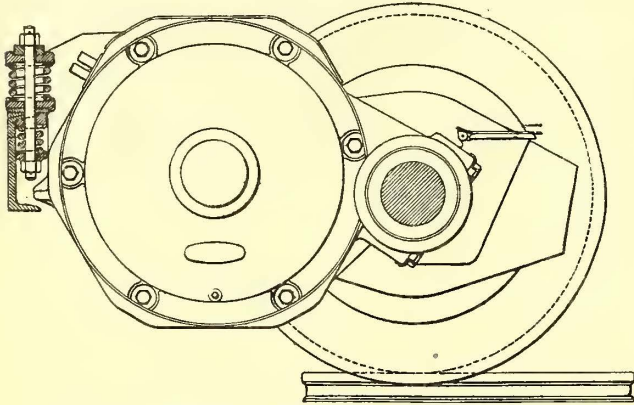
UNITED STATES PATENTS ISSUED DECEMBER 8, 1908.

Device for Preventing the Creeping of Rails, 905,835; Leander P. Bonnell, North East, Pa. App. filed March 2,

1908. A clamp secured to the rail base has bars extending longitudinally of the rail over the top of the tie to which they are spiked.

Auxiliary Car Step, 905,843; Elbert L. Carroll, Creston, Ia. App. filed April 28, 1908. The auxiliary step, when not in operative position, occupies a position to form guards or barriers at the sides of the platforms to prevent persons descending from, or boarding the car while in motion.

Electric Motor Control System, 905,848; William Cooper, Wilksburg, and Olof A. Sandborgh, Swissvale, Pa. App. filed Jan. 3, 1906. For operating cars equipped with the Westinghouse system in the same train with cars controlled by the Sprague system. Makes use of a relay switch group controlled from a master switch supplied from the motor supply circuit and a control system energized from a storage battery which is governed by the relay switch group.



Electric Motor Suspension—Patent No. 905,964

Car Testing Device, 905,875; Albert B. Herrick, Ridge-wood, N. J. App. filed May 31, 1905. For testing the insulation, etc., in cars. Employs an electric measuring device, a variable resistance mounted upon a frame, connections including a series of plug terminals accessible from the front of the frame and a movable protecting plate provided with a series of apertures which register with certain plug terminals and obstruct others.

Compound Motive System, 905,959; Fred S. Vaughn, Quincy, Ill. App. filed Dec. 28, 1905. Has a rotary compressor, a plurality of storage tanks adapted to receive air under pressure, a rotary motor on each axle, means for supplying compressed air to said motor from any individual tank or all tanks conjointly, an exhaust tank communicating with the compressor and a four-way valve adapted to supply the compressed air to either side of the motor and to return the exhaust from the motors to the exhaust tank.

Electric Motor Suspension, 905,964; John E. Webster, Pittsburg, Pa. App. filed April 12, 1907. The combination with a vehicle truck, an electric motor pivotally mounted on an axle of the truck, and having projections at one side of its frame, of a yoke to the ends of which said projections are clamped, and two pairs of coil springs between which a truck frame member is clamped and to one of which said yoke is clamped.

Trolley Wire Hanger, 905,976; W. S. Arnold, Lorain, Ohio. App. filed June 18, 1908. Permits the wire to have a free movement relative to the supporting wire, so that the passage of the trolley along the wire will not break the wire at the ends of the clamping portion of the hanger. The hanger consists of a piece of sheet metal with arms having hooks which receive a supporting wire.

Railway Rail Stay, 905,988; Walter H. Cotton and Thos. D. Henderson, Chicago, Ill. App. filed Aug. 20, 1906. Details of a device adapted to clamp upon the base of a rail adjacent a tie to prevent creeping.

Railway Switch and Signal Apparatus, 906,012; Lawrence Griffith, Yonkers, N. Y. App. filed Sept. 20, 1905. Electro-pneumatic system, including a plurality of motion plates and a controlling device therefor with means whereby upon a movement of the controlling device in either direction, the motion plates will be moved one after the other, in the same order.

Car for Bonding Rails, 906,021; Albert B. Herrick, Cleveland, Ohio. App. filed March 25, 1905. A car for use in bonding track rails having a platform suspended therefrom in the vicinity of the track and provided with openings above the rails.

Railway Tie Plate, 906,033; John R. Keller, Pittsburg, Pa. App. filed Aug. 21, 1907. A tie plate having on its lower surface flanges adapted to engage the tie, said flanges having their lower edges inclined toward both ends of the

plate and having their extreme depth at the ends of the plate.

Trolley Contact, 906,038; Andrew R. K. Lauder, Schenectady, N. Y. App. filed March 27, 1908. Relates to improvements on a prior application. The trolley contact comprises a round flat strip conductor separated from the trolley wire and engaged by the rims of the wheel in passing. In addition, there is provided a resilient strip pressed down upon the conducting strip so as to exert a distributed pressure to hold the conducting strip in engagement with the wheel.

Self-Acting Fender, 906,047; Lowell M. Maxham, Boston, Mass. App. filed Nov. 21, 1907. Details of construction.

Axle Lighting System, 906,055; A. McGary, La Grange, Ill. App. filed Aug. 11, 1905. Relates to a system using a storage battery and generator, the latter driven by the car axle. Keeps the voltage constant instead of the current. The generator has a duplex armature, one part devoted to the working circuit and one to the storage battery.

Axle Lighting System, 906,056; A. McGary, La Grange, Ill. App. filed Oct. 22, 1906. Improvements along the lines of above patent.

Rail Joint, 906,072; Alvin H. Shoemaker, Seattle, Wash. App. filed Oct. 17, 1907. The rail is supported out of contact with the base plate of the rail joint by angle plates which engage the under side of the rail head and transmit all strains directly to the base plate.

Electric Apparatus for Railway Switches, Signals, and the Like, 906,129; Lawrence Griffith, Yonkers, N. Y. App. filed April 8, 1903. Along the lines of patent 906,012. Makes use of a single indicating magnet, a controller moved by the magnet, means for preventing the final movement of the controller until it is actuated by the energizing of the indicating magnet.

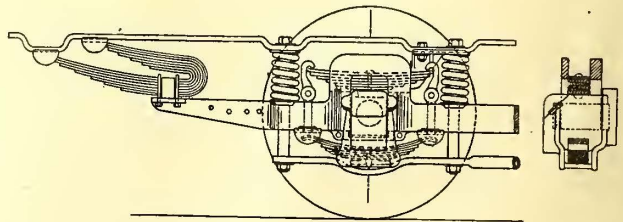
Trolley Device, 906,161; Frank A. Robbins, Worcester, Mass. App. filed Nov. 11, 1907. Prevents the wire from getting between the wheel and the harp. The harp has inwardly extending lips and the flanges of the wheel are wider than the distance between the lips.

Brake Head, 906,162; Henry B. Robischung, Cloverdale, Mich. App. filed April 23, 1908. The brake head has a reinforcing member embedded in its throat portion.

Car Signal, 906,166; William H. Schweizer, Baltimore, Md. App. filed Oct. 8, 1907. Warns the motorman when the passenger is preparing to alight from the rear platform by closing a circuit closed by the weight of the passenger as he alights.

Brake Beam, 906,213; William E. Fowler, Jr., Hammond, Ind. App. filed June 16, 1908. A split brake-head adapted to fit and turn on the brake-beam, a bayonet-joint connection between the brake-head and brake-beam, and means to clamp the brake-head on the beam to maintain the same in adjusted angular position.

Track Sander, 906,224; John H. Hanlon, Somerville, Mass. App. filed April 4, 1907. The air discharge nozzle is provided with a trap for collecting scale, dirt or oil which might clog the air nozzle.



Tram Car or Other Like Vehicle—Patent No. 906,362

Railway Signal, 906,238; M. M. Kane, Montgomery, Ala. App. filed Nov. 2, 1907. A semaphore which operates to display different colors controlled by an electromagnet. The blade carries a plurality of reversible wings adapted to show different colors in different positions.

Trolley Cut-Out, 906,279; C. C. Phillips, Owensboro, Ky. App. filed May 9, 1907. Throws the broken portion of a trolley wire out of circuit to prevent injury to pedestrians, etc., by special construction of trolley and hanger.

Tram-Car or Other Like Vehicle, 906,362; John E. Anger, Preston, England. App. filed Aug. 5, 1907. The axle box is open at the bottom to form a seat for a laminated supplementary spring; also a channel for the distance piece above the laminated spring and oil wells at either side.

Safety Device for Railway Switch and Signal Apparatus, 906,492; Lawrence Griffith, Yonkers, N. Y. App. filed Nov. 5, 1904. See patents above referred to to same inventor. A motor drives the motion plate and electric means separate from an indicator prevent action of the indicator while energy is supplied to the motor.