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EDITORIAL NOTICE

Street railway news, and all information regarding changes of officers, new equipments, extensions, financial changes and new enterprises will be greatly appreciated for use in these columns.

All matter intended for publication must be received at our office not later than Tuesday morning of each week, in order to secure insertion in the current issue.

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The Census Report of the Street Railway Industry

The preliminary report of the street railway industry of the United States, issued by the Census Office as a result of the investigation conducted during the first part of this year, has just been made public and is presented elsewhere in this issue. It will attract immediate attention from the fact that it is the first authoritative investigation made by the government since the results of the census of 1890 were made public. Private compilations, it is true, have been carried on during the intervening period, but have necessarily been more or less incomplete, as no private publishers have power to secure returns from those companies who do not care to make such details public. Nevertheless, it is extremely interesting, as well as gratifying to ourselves, to notice that the totals as presented by the Census Bureau correspond so closely to those appearing in the STREET RAILWAY JOURNAL, compiled from figures published in our annual "American Street Railway Investments." The period adopted by the Census Bureau, the fiscal year ending June 30, 1902, differs from that followed in many of the reports given in the 1902 edition of "American Street Railway Investments," most of which are for the year ending Sept. 30 or Dec. 31, 1901. Nevertheless, the track mileage as given by the latter publication and totalized in the STREET RAILWAY JOURNAL last June, varies only 2 per cent; the capital stock only 9 per cent, and the entire capital liabilities only 7 per cent from those in the census report, differences which are explainable by the difference in the periods selected. The Census

Bureau, however, has carried the investigation much farther than we have been able to do, especially in the income account, and the statistics now available for the first time will give a correct indication of the extent of the street railway business. The net results shown in this account are certainly very gratifying, indicating as they do a percentage of operating expenses to earnings of 57.54 per cent. The net income, however, amounts to only 2½ per cent of the capital stock, while the gross income, less operating expenses, amounts to only 4.3 per cent of the cost of construction and equipment and other permanent investments. From this, of course, taxes and some other miscellaneous items would have to be deducted before the return on the investment, whether in the form of capital or debt, would be realized.

The Franchise Tax Decision in New York

The Court of Appeals in New York State handed down three important decisions last week when it ruled that the Ford Franchise Law, about which there has been so much litigation, was constitutional; when it decided that the patent rights of a company should be considered by the Comptroller in fixing the amount of its general franchise tax which must be paid annually to the State Treasurer, and when it declared unconstitutional the eight-hour provision of the labor law, which made it a misdemeanor for any person or corporation contracting with the State or with a municipal corporation to require more than eight hours work for a day's labor. An extended digest of the franchise decision is published elsewhere in this issue, and as will be seen the two principal contentions made by the companies were not upheld. The first of these was that assessments should be made, according to the State Constitution, by local officials, but the Court holds that "property created by legislation and never intrusted by it to the local officials cannot be said to have been taken away from them." The second position taken by the companies was that a franchise was a contract entered into between the company and the municipality, and that its taxation impairs the obligation of the contract and thus violates the Federal Constitution. But the Court holds that "no municipality has power to withdraw property from the taxing power of the State," and that "taxation is the rule with every presumption to support, while exemption is an exception with every presumption against it."

The attorneys for the traction companies have already announced that the question will be carried to the Supreme Court of the United States, on the ground that the law is a violation of the Federal Constitution, which declares that no State shall pass a law impairing the obligation of contracts, and also no State shall deprive any person of property without due process of law. Until these points are decided it is useless to discuss the legal aspect of the questions involved. There are several points, however, of a practical nature which bear upon this subject and which can well be considered. It is manifestly undesirable and inequitable for a State or national legislature to pass acts seriously affecting or crippling any legitimate industry whose relations have become well settled in the business world. The effect of any such sudden disruption of the status

quo is not confined to the industry thus attacked, and is particularly far reaching where the business thus assailed is so important intrinsically and in its relations so closely connected with the entire business world as is the transportation industry, urban and interurban. The habits of a large portion of the community and real estate values as well have been fixed by the transit facilities afforded by street railway lines which now ramify the districts surrounding each large city, and which connect many small towns within the State, and large investments have been made not only in the lines themselves but in numberless other ways depending upon the maintenance, in their present economic condition, of the existing means of transportation. A glance through the report of the Board of Railroad Commissioners of New York State will soon indicate that so far as the street railway lines in the State are concerned the greater part of them are by no means highly profitable. Most of them are yielding little or no return to their owners. Some are not even paying expenses, but are being kept in operation with the hope and expectation that a profitable traffic can be built up.

One of the most serious aspects of the case, so far as the street railway companies are concerned, is the impossibility which will be experienced in suddenly accommodating present circumstances to entirely new conditions. It is barely possible that if, admitting the right to tax these franchises, a graduated assessment had been laid upon the existing lines so that it could be borne from year to year without too great hardship, the industrial condition of the electric railways would have been able gradually to accommodate itself to the revised principle of taxation. Instead of this the State assessors, by a process of appraisal which they have continuously declined to disclose, have assessed the companies with maximum sums, which, in many cases, cannot but result in a practical confiscation of the properties, and by a peculiar reversion from the principle of home rule, local communities, whose prosperity may be entirely dependent on the existence or efficient operation of a local transportation system, will have no voice in determining whether such system will be allowed to remain or is to be taxed out of existence.

We have purposely refrained from discussing the legal aspect of the case, for that seems to be a question which will have to be determined by the Supreme Court of the United States alone. But should that court uphold the decision just rendered by the Court of Appeals in New York State, it will be the imperative duty of the New York Legislature to pass some alleviating act or else repeal the entire franchise bill. Whether this will be done by the powers at present in control is difficult to say. It is the avowed policy of the present State authorities to extinguish direct State taxes, so far as possible, by transferring the burden of State maintenance on to the corporations, and this policy has been heralded abroad as one for the relief of the average citizen. The point seems to be lost sight of that the corporations are the greatest industrial active agents in the community: they are the employers of labor; the promoters of business activity; the public servants, whose service every citizen requires and upon whose efficiency much of his prosperity and well being depends. In contradistinction direct taxes fall almost entirely on land owners, and for the greater part on the large landed proprietors in the cities, where the largest percentage of assessed valuation is situated. This interest adds nothing to the industrial activity of the community and employs little or no labor. The ultimate effect of thus placing the entire burden of the support of the State upon the creators

of its wealth must be to drive away those corporations who can move to another State and in the end to react disastrously on the prosperity of the community.

Metropolitan Suits Abandoned

The expected happened when Judge Barlow, before whom the inquiry in the Amory-Metropolitan case, which has frequently been referred to in these columns, has been held, delivered his decision completely exonerating the Metropolitan Street Railway Company and its president, Mr. Vreeland. This action was followed May 4 by an announcement from District Attorney Jerome that the charges lodged with him against the Metropolitan Company by Mr. Amory some time ago were entirely without foundation as far as they involved criminal wrong-doing or affected the financial standing of the company. The District Attorney's decision was based on an examination of the books of the company by an expert accountant employed by him, and who took up each of the charges filed against the company. The deficit, about which there has been so much talk, proves to have been entirely mythical, and to have been due to the inclusion by the critics among the liabilities of the Metropolitan Company of some of the liabilities of certain of the leased companies but not the corresponding assets.

It seems strange that a simple matter of this kind should have created so much confusion. To take a simple example, we will assume that "A" leases for ninety-nine years a certain house or property which has a mortgage on it of \$100,000, and allows the mortgage to remain. Suppose then that "B" comes along and claims that "A" is \$100,000 worse off than before because he has guaranteed this mortgage, but that the value of the property should not be included among his assets because it does not belong to him, but to the lessor. It is evident that either the value of the property should be included among his assets or the mortgage should be deducted from his liabilities. But this did not seem to be the theory upon which the Amory accountants discussed the proposition. As an actual matter of fact it is well known that the leases made by the Metropolitan Company have proven remarkably profitable, so that it has been possible not only to pay the generous dividends which the original owners demanded for the use of their properties, but to double and in some cases triple the earnings over the figures which they showed as separate companies.

Work of the Young Men's Christian Association

Speaking before the Young Men's Christian Association conference at Topeka the other day, General Manager Nicholl, of the Rochester Railway Company, voiced the sentiment of street railway superintendents when he said: "We all want sober, moral and religious men." Back of this lies one of the greatest difficulties of the management of the transportation companies, especially in the larger cities, where the temptations are great and the conditions surrounding the men are unfavorable for the development of their better traits. Mr. Nicholl mentioned some of the drawbacks with which every practical operating man is familiar, and pointed out the need for just such work as the Young Men's Christian Association is engaged in, namely, the uplifting of the moral tone of the men and the encouragement and co-operation necessary to secure their advancement. The results of the movement in Rochester, where 125 men have been enrolled in nine months, were cited as illustrating what might be done even in a small city. How much greater the need of such an organization in the large communities? The plan adopted in Rochester is practical; reading rooms, bowling alleys, billiards and other forms of rational amusement and

entertainment are provided, in order to keep the men together and counteract the allurements of the saloon, the gaming table and the brothel. It is realized that a little encouragement is all the men want, as they are not naturally vicious and resort to saloons and less desirable places principally because no provision has been made by their employers for their comfort and entertainment while awaiting active duty about the car houses. Already one saloon which was patronized by street railway employees in Rochester has closed its doors since the Young Men's Christian Association work was begun, and others similarly situated are showing the results of the changed conditions. The members represent all creeds and conditions, and, of course, no attempt is made to influence any man's religious belief, but all are encouraged to practice sobriety, honesty and other Christian virtues, and to improve their moral, intellectual, physical and social condition. The result is already apparent, Mr. Nicholl says, in the general behavior and habits of the men. The work in Rochester was much in the nature of an experiment, with nothing but the experience of steam roads to guide the organizers, and as the character of the men employed on the latter and the general conditions of service were very different from those on street railway lines, this was of little practical benefit. The success that has crowned the efforts of Mr. Nicholl and his associates in Rochester is encouraging, and a similar plan might be utilized to advantage elsewhere; in fact, this work might well be carried on in connection with the formation of benevolent associations under the direction and with the co-operation of the management, thus giving the members additional incentive and securing their continued interest and support in their work. Such a combination should restrain employees from engaging in ill-advised strikes and protect them from their attending evils.

Chicago Traction Problems

Developments in Chicago traction matters lately have been sensational in character. The first surprise was the putting of the Chicago Union Traction Company into the hands of a receiver, which gave an entirely new aspect to the franchise situation. It had been intimated that the city would attempt to take possession of the street railway lines upon which the franchises are claimed to expire next July, thus ignoring any possible rights which the company may have under the ninety-nine-year act, which have not been adjudicated as yet. Of course, with the property in receivers' hands, under the direction of the Court, such a move is effectually blocked until matters in dispute have been settled. The appointment of a receiver, therefore, was undoubtedly the best move that could possibly be made, as the property was in a bad way financially, and it had been apparent that unless a decision favorable to the companies under the ninety-nine-year act rescued them from their predicament there must be a scaling down of Chicago Union Traction stock. When that company was organized, May 24, 1899, it assumed obligations to pay dividends and bond interest for all the underlying companies, and, besides this, an issue of \$12,000,000 of 5 per cent preferred stock, and \$20,000,000 of common stock was ordered. With long-time franchises ahead the company would have been able to carry this burden, but the franchise difficulties made it inadvisable to invest money in improvements needed in order to take care of the growth of traffic properly, and the result has been that the company is now confronted with the necessity of large expenditure in improvements in addition to the enormous load of securities which it is already carrying. The receivership puts the property in charge of the Court, which, of course, will see

that the company receives full justice in whatever move is made by the city authorities in regard to franchises.

The other sensational development of the week was a riot in the house of the Illinois State Legislature, assembled at Springfield. The Speaker of the House refused to allow a ballot to be taken on several points affecting bills presented for enabling municipal ownership of street railways. The majority of the House favored the Mueller bill, which was also endorsed by the Chicago City Council. The Speaker was attempting to put through under the gavel a somewhat similar bill and amendments, but the majority of the House raised such a protest that the Speaker was obliged to retire amid riotous scenes. The majority of the House remained and elected a temporary Speaker, who conducted business for several hours. Later a compromise was patched up and the bill passed.

Municipal Ownership and Accounting

There are two features in the present discussion of municipal ownership of the street railways of Chicago which found expression in the Mueller bill, an abstract of which is presented elsewhere in this issue. The first, and most important of these, is the apparent recognition of the inability of Chicago to acquire possession of its street railway properties, and, secondly, a realization of the fact that different methods must be employed in conducting the railway property when acquired from those adopted in the city lighting system.

Regarding the question of ownership the present proceedings at Springfield would be entirely farcical were it not for the fact that the object of this legislation is to place in the hands of the city administration a club to use in extorting concessions from existing corporations. It is admitted that there is no prospect of the city being in position to buy the railway systems for many years, but the bill makes it possible for the city to confer upon another company the power to acquire the property upon the same terms as the city demanded.

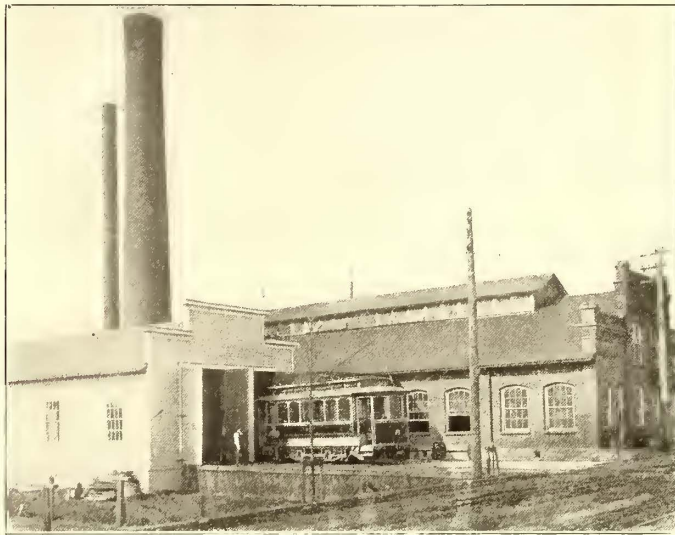
There is one excellent feature of this bill which we would like to see incorporated in similar acts when municipal ownership may be sincerely considered, and adopted by such cities as are already burdened in this manner. The Mueller bill provides for a system of accounting diametrically opposite from that which is generally adopted in such plants. Chicago has been a conspicuous offender in this matter. When its first lighting station was erected the accounts were so confused that it was never determined accurately what the plant cost. The same criticism may justly be applied to the city lighting department under the present administration, for although there has been marked improvement the method is still very unsatisfactory, inaccurate, incomplete and misleading. It is proposed, however, in the Mueller bill to keep the accounts of the street railways entirely separate from all other city accounts, have the books examined regularly and reports published of the details of operation and cost of the entire service. This act specifically directs that certain items be included, which are generally eliminated from the accounts of the city lighting plants, and without which the statements of the cost of operation of such plants are absolutely worthless. We have frequently expressed the desire that whenever a city shall attempt to conduct a street railway service an accurate and complete system of accounting may be adopted so as to determine the exact cost to the people. The operating companies have nothing to fear from a fair comparison, taking into consideration the character of the service and cost, and we believe that such an investigation and test would effectually dispose of the claims of the "municipal" advocates.

IMPROVEMENTS IN THE DU BOIS ELECTRIC & TRACTION SYSTEM

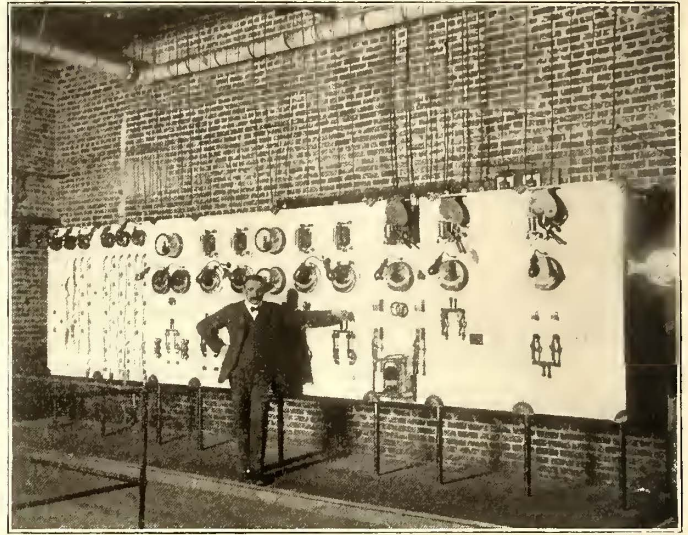
Situated at the junction of the Pennsylvania and Buffalo, Rochester & Pittsburg Railroads and soon to be reached by a continuation of the Buffalo & Susquehanna, now under con-

American Sewer Pipe Company, and Henry F. Crosby, obtained control of both properties, and after consolidating them under the name of the Du Bois Electric & Traction Company, commenced a complete reorganization of the system, the results of which are described below.

The design of a small plant often gives the engineers as



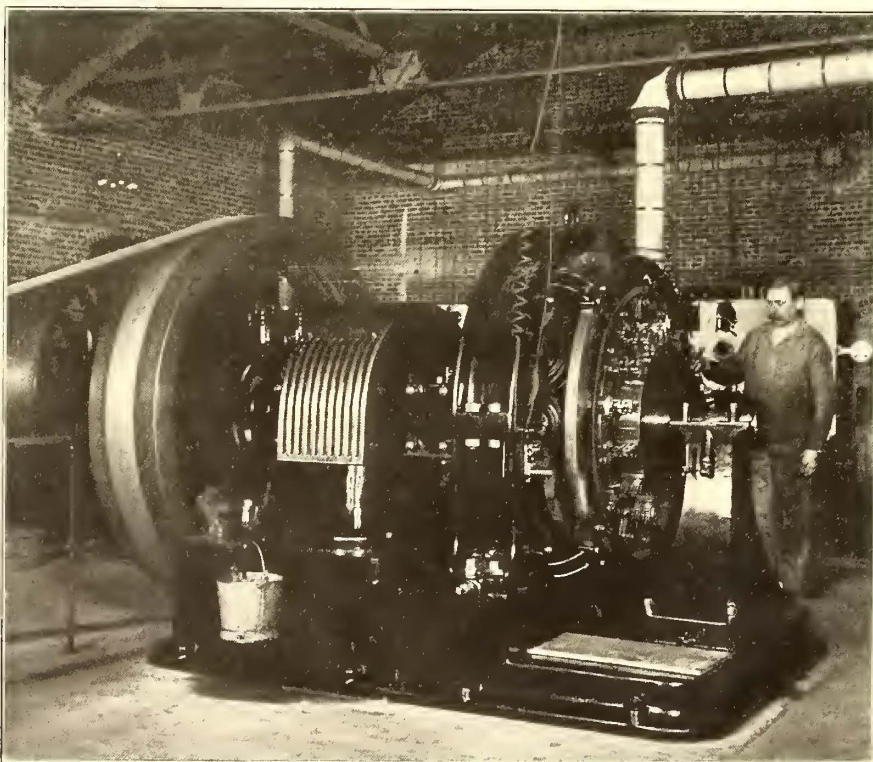
POWER STATION AND CAR HOUSE



RAILWAY AND LIGHTING SWITCHBOARD

struction, the town of Du Bois promises to be one of the most important industrial centers of Western Pennsylvania. It is at present the metropolis of the Clearfield coal district, which is almost entirely controlled by the railroad companies. In 1888 the entire town was destroyed by a fire, which practically left it stranded until about 1895, at which time the present era of

much chance for exhibiting their ability as does that of more pretentious undertakings, and the economical operation of its power station is of as great importance to the board of directors. When, however, the problem is the reconstruction of a previously inefficient plant the management is called upon to exercise a large amount of ingenuity if the completed work results in a homogeneous system, the building and operating costs of which are reduced to a minimum.



NEW DIRECT-CONNECTED GENERATING UNIT

prosperity commenced, resulting to-day in a well laid-out business center of 12,500 population. The development of the electric interests did not, however, keep pace with the town's growth, and until last May the railway and lighting requirements of the district were inadequately fulfilled by the Du Bois Traction Company and the Du Bois Electric Company. Last year a syndicate headed by Ulysses D. Eddy, president of the

That, physically, the plant at Du Bois is an example of up-to-date engineering is shown by the accompanying illustrations, and the operating reports show that financially the improvements have been a success.

POWER STATION

The equipment of the power station before the new work was commenced consisted of two tandem-compound McEwen engines, placed at opposite sides of the engine room, and connected by friction clutches to the ends of a shaft having a friction clutch in the center. Each engine was formerly directly-belted to a 60-kw General Electric railway generator, and the shaft drove, through friction pulleys, two 150-kw Fort Wayne, 60-cycle, 2200-volt alternators, and one 125 light (1200 cp) Fort Wayne constant-current arc dynamo, and a battery of two Geary boilers, 250 hp each, made by the Du Bois Iron Works.

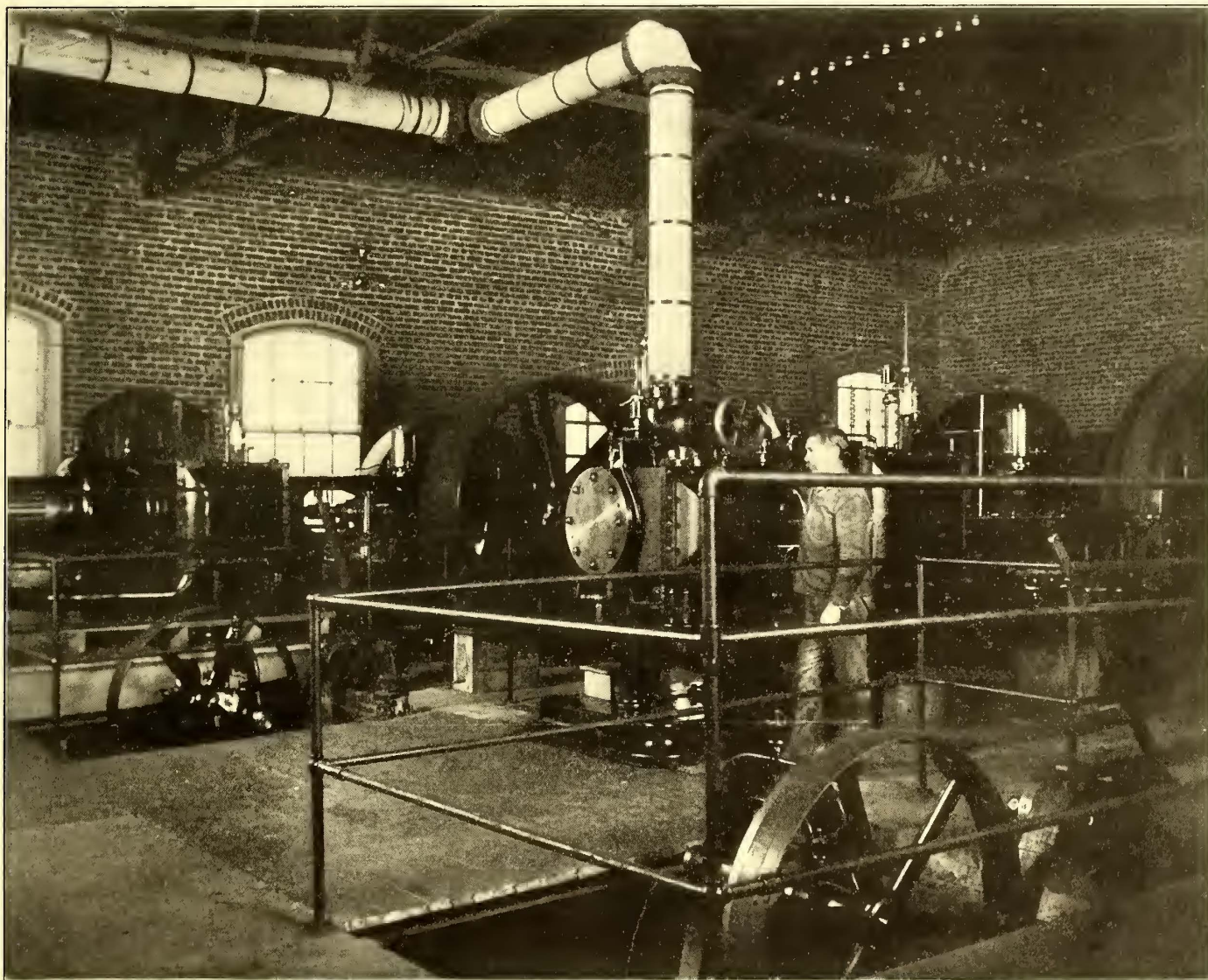
The street lamps and the outside commercial arc lamps were all operated from one constant-current dynamo, consequently, in case of accident to same these lights were out until repairs were made. All incandescent lamps and a number of fan motors and a few small power motors and the inside commercial arc lamps were operated from the alternating-current dynamos. The railway and several elevator motors were operated from the railway circuit, the elevator motors being placed in special brick fireproof vaults, the wires running to same outside the building.

An examination of the conditions of operation showed that

there was no reserve capacity in the arc dynamo, and that the alternating-current dynamos were not fully loaded. Also that the day load was very light, and, nevertheless, one 150-kw was used to furnish current for it. In addition to the above it was decided to extend the electric railway approximately $2\frac{1}{2}$ miles to the town of Falls Creek, and run ears of interurban type to that town, which would necessitate additional power.

After the study of the existing conditions and the energy required for the proposed extensions it was decided that the best results, technically and financially, would be obtained by having only two types of generators, namely, railway and

direct-connected engine and generator will be started. Day lighting, fans, etc., will be operated by the $37\frac{1}{2}$ -kw alternator. Late in the afternoon one of the old engines will be started, and afterward, and until morning, the commercial lighting will be furnished from the alternator belted to such engine. When it is time for turning on the street lights, of which there are four circuits (three "city" and one "commercial"), two of such circuits will be operated from the same dynamo as furnishes current for the commercial lights, and the other two from the $37\frac{1}{2}$ kw. At times, however, of heavy load, such as during a portion of the winter season, especially the Christmas holidays,



GENERAL VIEW OF ENGINE ROOM FROM NEAR SWITCHBOARD

lighting, and that an additional and larger railway generator was needed, and a smaller alternating-current dynamo for day lighting, also additional boiler power, and, of course, the changes and additions would have to be of such character as not to interrupt the service. The new plant retains the old engines, boilers and alternating current and railway generators, but the shaft connecting the engines has been taken out, and each of the old engines is now belted directly to one of the alternators and one of the old railway generators, and in an approximately central position between the old engines is placed one new 350-hp tandem-compound MeEwen engine, direct-connected to one 200-kw Thompson-Ryan railway generator, and belted to one $37\frac{1}{2}$ -kw Fort Wayne 60-cycle alternator; also one 300-hp Stirling boiler has been placed in an extension to the boiler house, built for such purpose.

The operation in the future will ordinarily be as follows: Begin railway operation at about 5 a. m., at which time the

it will be necessary to operate both the 150-kw alternators, and at such time the $37\frac{1}{2}$ kw will be in reserve.

Normally the two 60-kw railway generators will not be used, but on special occasions, such as fair week, one or both may be required. Of course, the operation at such time will not be economical, but it is for such a short time that it would not pay to install apparatus in order to obtain economy for such a brief period. It should be noted that the heaviest railway load will be during the summer and the heaviest lighting load during the winter; this refers to both average and maximum loads; and it will be noted that each engine drives one railway generator and one alternator, the old engines being a trifle small for full load of both alternator and railway generator connected thereto, but capable of driving same at such load when necessary. As it will be in the case of an emergency alone that they will have to do so, the result will be more economical than would be the case if these engines were larger. The belts to the rail-

way generators are nominally not in place. In addition to the above stated changes the wooden floor of the engine room was taken out and concrete floor substituted, and the wires taken from below the floor and placed above. A repair shop was also added, an extension made to the car house, new cars obtained

have cylinders 18-in. and 23-in. x 18-in. stroke, and are rated at about 225 hp, at a speed of 200 r. p. m. They are each equipped with two pulleys, from one of which is belted a 60-kw, bipolar 500-volt to 550-volt railway generator, made by the General Electric Company, and a 150-kw, 16-pole, 60-cycle alternator, from the Fort Wayne Electric Works. These alternators are excited by bipolar machines belted to their shafts, and are overcompounded from 2000 volts at no load to 2200 volts at full load of 70 amps.



MACHINE TOOLS AND MOTOR IN SHOP

and a number of other improvements made both in the railway and lighting plant.

The power house is about 2000 ft. from the business center of the city, and centrally between the two sections into which the city is divided. It consists of a building which, with the boiler room extensions, now measures approximately 136 ft. x 52 ft., and is 30 ft. high in the engine room portion from the floor to the top of the ridge pole. The front part is used for the general offices of the company and for equipment, supply and repair and test rooms for the lighting branch of the business. This section is two stories high and about 17 ft. deep. The station is built of brick, with a slate roof laid over wood supported by iron trusses and purlines. The engine room floor is concrete and the boiler room floor of brick.

ENGINE ROOM

The new unit, which has just been placed in operation, consists of a 350-hp McEwen engine, built by the Ridgway Dynamo & Engine Company, Ridgway, Pa., direct coupled to a 200-kw Thompson-Ryan railway generator, built by the same firm. It runs at 180 r. p. m. The dynamo has the Thompson-Ryan compensating coils on the pole pieces to overcome the armature reaction, and is guaranteed to stand a momentary overload of 100 per cent. It has fourteen poles and has a voltage of 500 at no load, with an overcompounding of 10 per cent for full load. The engine is of the tandem-compound type, with cylinders 15-in. and 25-in. x 20-in. stroke. The governor wheel is belted to the 37½-kw, 60-cycle, 2200-volt Fort Wayne alternator.

The two older engines, also of the tandem-compound type,

have cylinders 18-in. and 23-in. x 18-in. stroke, and are rated at about 225 hp, at a speed of 200 r. p. m. They are each equipped with two pulleys, from one of which is belted a 60-kw, bipolar 500-volt to 550-volt railway generator, made by the General Electric Company, and a 150-kw, 16-pole, 60-cycle alternator, from the Fort Wayne Electric Works. These alternators are excited by bipolar machines belted to their shafts, and are overcompounded from 2000 volts at no load to 2200 volts at full load of 70 amps.

All the engines are run condensing, water being obtained from the creek near by. Water can also be obtained from a well, though not in sufficient amount for operating all engines condensing. The two smaller engines have Conover jet condensers, placed in a brick-lined well, each condenser being placed near the back of the engine which it serves and belt-driven therefrom. A Smith-Vaile jet condenser, independently operated by steam from the boilers, has been installed for the new engine. The two smaller engines have a common free exhaust pipe leading from the condenser well and up the side of the building; the new engine has a separate free exhaust pipe. The steam pressure used in the plant is 130 lbs.



CORNER OF MACHINE SHOP, SHOWING FORGE AND SMALL TOOLS

paratus in this plant, and will prove useful for repairs.

The lighting is all done by alternating current, series circuits being used for arc lighting and 2200-volt circuits with transformers on the poles for incandescent. Adams-Bagnall regulators are used on the arc circuits. Two of the circuits are on the 25-kw Westinghouse constant-potential transformer, having several taps enabling various voltages to be obtained up to 3300

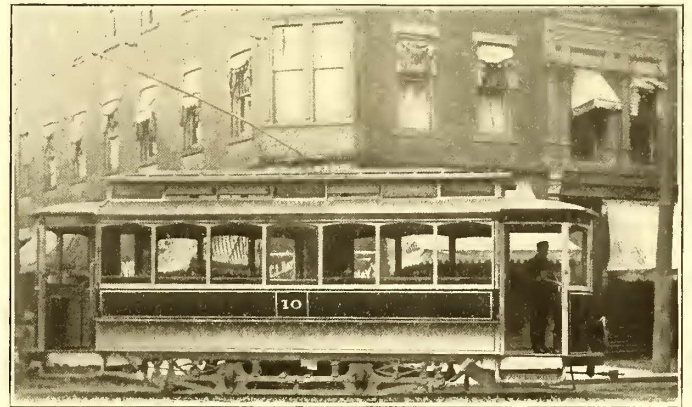
volts when the primary is 2200, and for the other two circuits Kuhlman booster transformers are used. Ordinarily any two of the arc circuits are placed on the constant-potential transformer, and the other two on the boosters, but in case of any circuit becoming grounded such circuit is transferred to the constant-potential transformer. Normally the constant-current

rated capacity of 800 hp. A branch line from the railroad runs directly alongside the power house, and coal is unloaded directly from the cars into the boiler house.

Water runs by gravity into the cold well from the creek, and is taken therefrom by the condenser pumps. Near the hot well, which receives the water after passing through the condensers, is a feed-water heater, made by the Stilwell-Bierce & Smith-Vaile Company, of Dayton, Ohio. Steam for the feed-water heater is obtained from the exhausts of the new independent condenser, feed pumps, etc. A Knowles pump was formerly



HANDLING ARMATURES IN CAR HOUSE



NEW STANDARD CLOSED CAR

used in connection with the condensers and a Marsh steam pump on the boilers. A new Stilwell-Bierce & Smith-Vaile pump has been installed for boiler feeding, the Marsh pump put on the cold-water service and the Knowles pump held as reserve and connected up as a fire pump. All the water that goes into the boilers is measured by a Worthington hot-water meter.

When designing the changes in the machinery, consideration had also been given to the necessary piping so as to obtain the final results desired, and at the same time not interrupt service during construction. The contractor for the new piping and

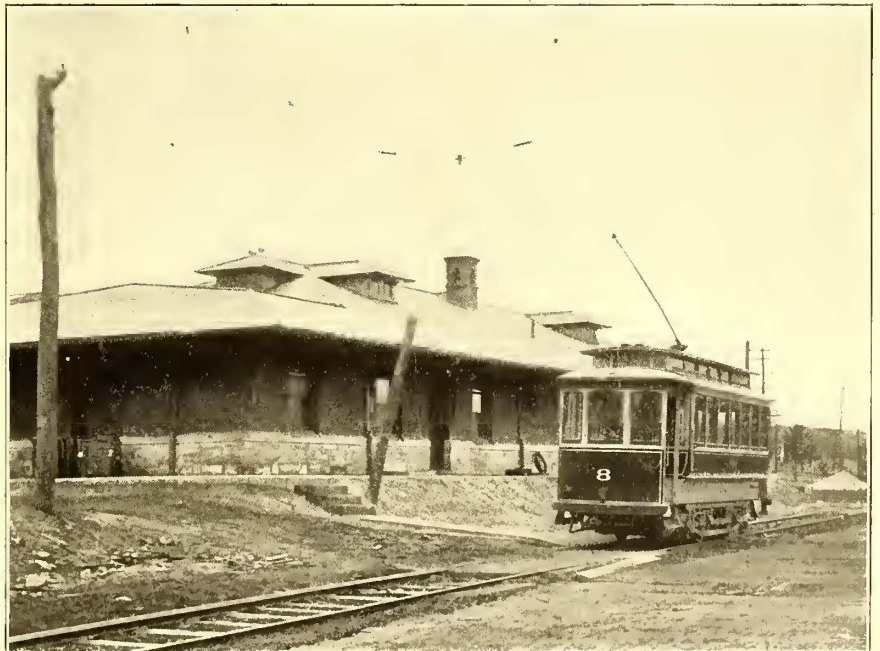
transformer is placed on the alternator-operating commercial lights, so that the ground on one of the arc circuits will not be directly connected to the commercial circuits.

The switchboard is made of white marble, supported on oxidized copper legs and having oxidized copper trimmings. It was furnished by the Fort Wayne Electrical Works. Three panels at the right of board are used for railway work and the remainder is occupied by the arc and incandescent circuits. The field rheostats for the direct-current machines are placed on the floor behind the switchboard, those of the alternating-current machines are attached directly to the back of the board. Recording wattmeters are placed in both the alternating current and direct-current circuits.

The arc switchboard was built in accordance with the design of the engineers and connections are provided which will enable any one of the three alternators to be connected to furnish current to any one or more of the arc circuits, either through the constant-potential transformer or the booster transformers, and any change of connection is made by plugging in vertical rows so that no mistake can be made.

BOILER ROOM

The old end wall of the boiler house separates the present room into two portions, which are connected by a large door. The boilers are all of the water-tube type and have a total



PENNSYLVANIA RAILROAD STATION

the steam auxiliaries was the Du Bois Iron Works, Du Bois, Pa.

CAR HOUSE AND REPAIR SHOP

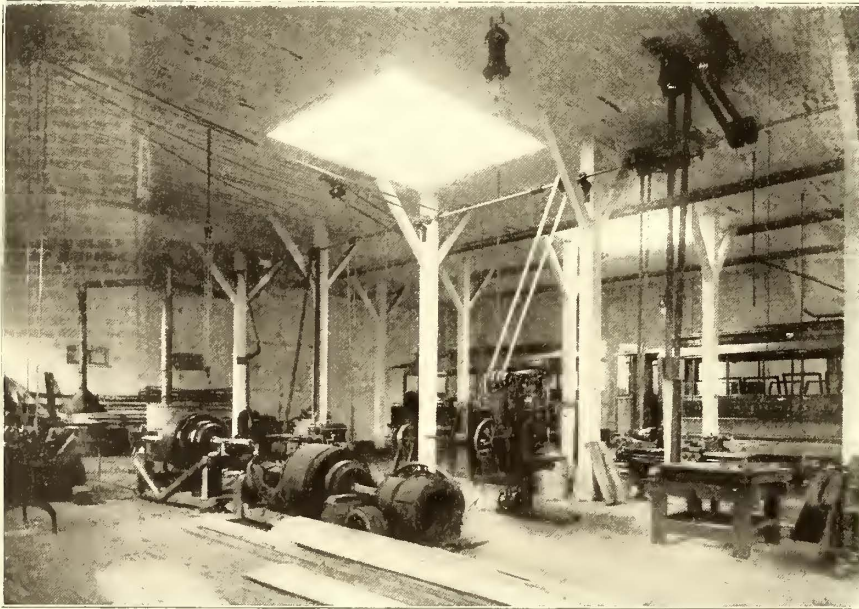
Between the car house and the power station there is a space of about 25 ft. in which has been built a machine shop capable of taking care of all ordinary repairs to trolley stock or power station equipment. This shop contains lathe, drill press, forge,

grinder, benches, vises and a complete assortment of machinist's tools, power for its operation being obtained from a 500-volt Crocker-Wheeler motor. The rear of the shop is fitted up as toilet and locker rooms.

A view of the car house interior is shown. A wooden jib crane at the side facilitates the removal of motors and other heavy parts from the pits. Armatures are handled by means of a small lifting jack, supported on a square base and rollers. On top of the jack an oblong head has been fitted with two long rolls for supporting the armature, but which allow it to be turned over for inspection. The rear of the car house has been fitted up as a paint shop.

ROLLING STOCK

The company has five closed and four open cars, all single truck. Two new closed car bodies, built by the G. C. Kuhlman Car Company, have been in use during the past season. They are mounted on Peckham trucks, and are equipped with two Westinghouse No. 3 motors. The length over bumpers is 30 ft., over car body 20 ft., and the height from underside of sill to top of monitor roof 8 ft. 9 ins. The width is 8 ft. 1 in.



REPAIR SHOP AT HELENA

The cars are double ended and have round-front vestibules with three drop-sash but no side doors. The platforms are dropped below the car floor level, and are reached by single Stanwood steps. The doors are of the twin automatic type; the window sash drop down between the side panels, and the opening is kept closed at all times by a hinged casing. The car is lighted by three incandescent lamps supported by curved brackets on each side of the transoms, and one on the ceiling at each end, and is heated by six electric heaters, made by the Consolidated Car Heating Company. Crouse-Hinds headlights are used.

The inside trim is of cherry with bird's-eye maple triple veneer ceiling. Ash strips are used on the floors for the aisle tread. Longitudinal rattan seats are used. At the windows are Crown curtains on Hartshorn rollers, with fixtures made by the Curtain Supply Company.

OVERHEAD AND TRACK WORK

The Ohio Brass Company's material is used on all the overhead work. The road is soon to be extended to Falls Creek, about 2½ miles from Du Bois, and on the extension side pole and bracket construction will be used, but in the town a large part of the overhead system is suspended from span wires. No. 0 trolley wire is used. The 45-lb. girder rails which were formerly laid have been replaced by 80-lb. girders in the town,

and the Falls Creek extension will be made with 60-lb. A. S. C. E. section T-rail in 60-ft. lengths. In the paved streets the girder rails are laid on 6-in. x 8-in. x 7-ft. ties, spaced 2 ft., center to center, and in the country 6-in. x 8-in. x 8-ft. ties will be used and No. 00 trolley wire.

OPERATION

Since the installation of the improvements described above the business of the company has steadily increased, notably in the lighting end. The company holds a seven-year contract for lighting the city's streets, and at present is supplying seventy-two arc lamps for this purpose. Beside the municipal arcs there are twenty-six arcs on commercial circuits. All these lamps are of the enclosed type, furnished by the Adams-Bagnall Company. There are fifty-two transformers for incandescent circuits and some 6500 lamp outlets. Last summer over eighty electric fans were used on the lighting circuits. Five 500-volt motors, for elevator and industrial purposes, are being supplied from the trolley circuits.

As soon as the railway pole line is built to Falls Creek this town also will be lighted by the company. Near Du Bois and reached by the railway is a trotting park, with ½-mile track, covering 26 acres, and containing a grandstand seating 3000 persons. An amusement park is also reached by the company's lines, on which considerable investment has been made in the way of attractions. It has a theater seating 1000, where entertainments are given regularly during the season. Entrance to the park is free, and a charge of 10 cents is made for the theater with reserved seats 10 cents in addition. There is also a dancing pavilion in the park with a floor 80 ft. x 40 ft.

The officers of the Du Bois Electric & Traction Company are as follows: President, Ulysses D. Eddy; vice-president, T. S. Coolidge; treasurer, H. F. Crosby; secretary and general manager, C. B. Wisner.

Superintendent J. E. Adams has been successful in increasing the business during the time of reconstruction and an important factor in the successful carrying out of same. Formerly Mr. Adams was superintendent of Everett-Moore interests at Sandusky, Ohio,

and at the suggestion of the engineers was appointed superintendent of the Du Bois property.

The entire work of reconstructing the plant has been in charge of E. P. Roberts & Company, consulting engineers, Cleveland, Ohio, who are now in charge of its operation.

NEW REPAIR SHOP AT HELENA

The Helena Light & Traction Company recently moved into a new repair shop, which is excellently equipped for so small a road. The company owns 17 miles of track and seventeen cars. The building is a two-story structure, and the second floor, reached through hatchways seen in the accompanying illustration, is used for storage purposes. The equipment comprises woodworking machinery, including planer and saws, and a machine shop having in its equipment a drill press, lathe, wheel press, small lathe, grindstone and forge.

Last October the sub-station from which this company gets its power was completely destroyed by fire, but light and power service was given within 50 hours of the time of the fire and street railway service soon after.

Under the direction of Superintendent R. A. Wilson such apparatus as was not entirely destroyed was rescued from the ruins, repaired and pressed into immediate service.

EQUIPMENT OF YERKES' LONDON UNDERGROUND RAILWAYS

The first shipment of cars built by the Brush Electrical Engineering Company, of Loughborough, for the electrification of the Electric Underground Railways Company, of London, the new Yerkes railway, recently arrived on the confines of the district system at South Harrow, where they are being fitted with their electrical equipments prior to being experi-

These side doors slide and are provided with handles, so that they can be worked either from within the car or from the station platforms. Experience will decide whether they shall be used at every station or be treated as a kind of emergency exit and for emptying the trains quickly at the termini. The exits at the ends of the cars are protected by gates, which are operated by a conductor standing on the car platform, after the style made familiar to Londoners on the "Twopenny Tube."



TRAIN FOR THE YERKES LONDON UNDERGROUND SYSTEM

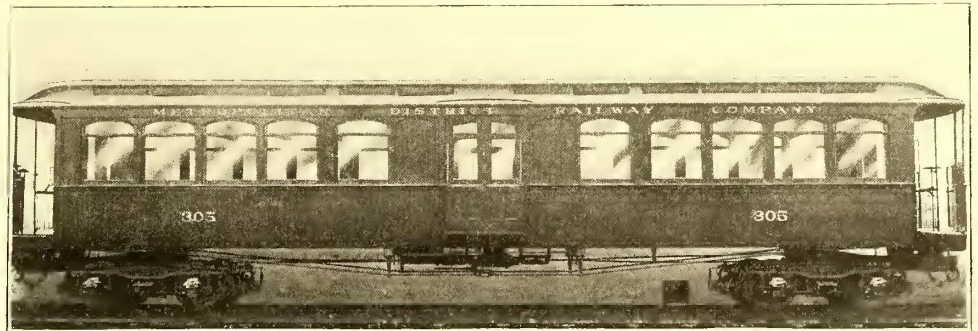
mentally run over the new line between Harrow and Ealing. These trains are being equipped with multiple-unit train-control apparatus, that of the British Thomson-Houston Company being "all electric," while the Westinghouse is electropneumatic. When fitted two trains will be run in a series of trial trips on the Harrow and Ealing line, to decide which system of train control is the better adapted for the service. Westinghouse air brakes will be used on all trains.

It is proposed to install a complete metallic circuit on this road, much after the style of the Mersey, current being conveyed to the motors by a contact-rail, 16 ins. outside of the wheel-rail, and normally on the left-hand side of the track, while the return conductor is placed midway between the wheel-rails. The outside conductor is a T-rail carried on stoneware insulators. It is elevated 3 ins. above the level of the wheel-rails, and is protected by wooden guards on each side, which stand about $1\frac{1}{2}$ ins. higher than the rail. The return rail in the center is $1\frac{1}{2}$ ins. above the wheel-rails. It will carry no higher pressure than the return drop, and therefore it does not require to be guarded. None the less, it has insulators which differ from those of the outer rail only in that they are not so tall.

Each train is made up of seven cars, three of which are motor cars and the other four trailers. The motor cars are placed at each end of the train and in the middle. Nearly all the electrical apparatus is carried under the floor of the car, so that, with the exception of a small cabin for the motorman, the entire length is available for the conveyance of passengers. On the front and back motor cars a space for the storage of luggage is provided adjacent to the motorman's cabin.

The design of the cars is frankly American, and nothing like them is at present to be seen on British railways, except on the tubes. They are painted externally a bright yellow. They differ from the Central London cars, and resemble those of the Great Northern & City, in having side doors in the center as well as end platform doors of the ordinary American type.

The advocates of this type of passenger car claims that it saves much time in the station stops, as compared with the ordinary British type of compartmental cars with separate side doors. It is also very useful to have a conductor on each car, to make the passengers move quickly and to call out the names of the stations. It is considered that what the Americans know as "rapid transit" is not possible without end-door cars. This system logically involves the abolition of all distinctions of class except "smoking" and "non-smoking," and, judging by the trains at Harrow, there will be only one class on the electri-



SIDE VIEW STANDARD CAR

fied district. However, no final decision has been reached on this point.

The cars are each 50 ft. long, have seats for forty-eight passengers in the trailer cars, and for a few less in the motor cars. All the seats in the cars at Harrow are along the sides, and a broad aisle runs right through the center. There is plenty of room for standing without inconveniencing those sitting down, which can hardly be said of an ordinary compartment on a suburban train. No doubt if the Londoner be given real "rapid transit" he will not mind standing sometimes. To a certain extent this view is borne out by the experience of the Central London.

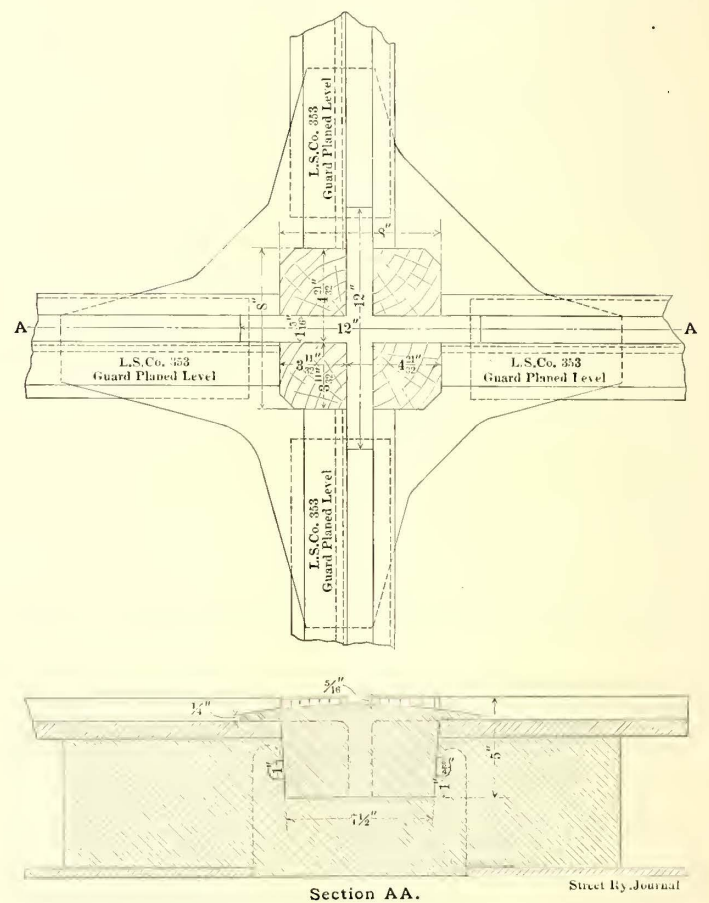
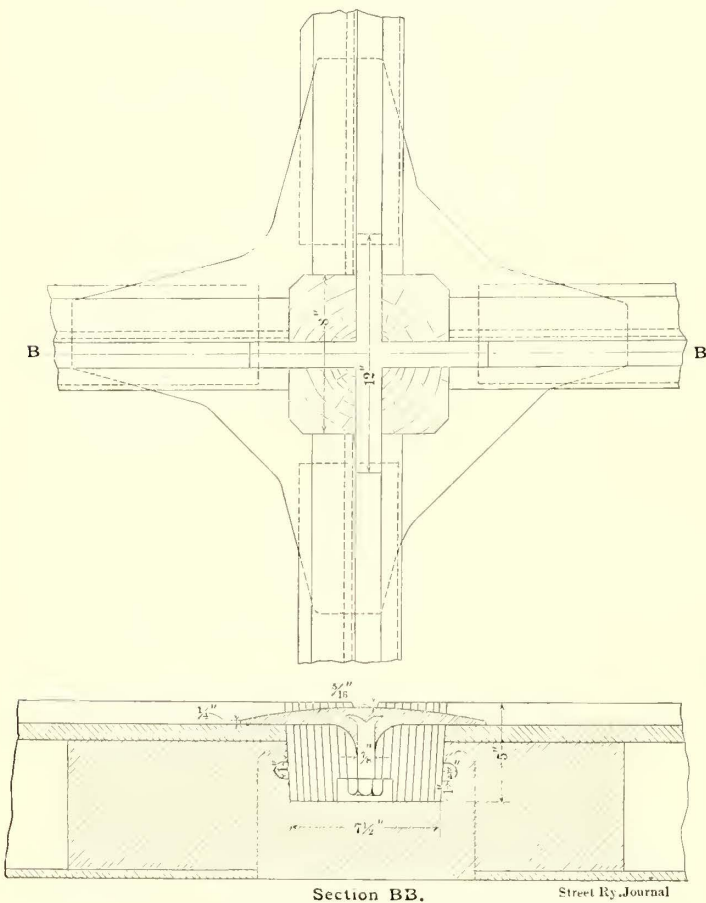
There is practically no cloth or stuffing in the upholstery in the new cars, all the seats being covered with rattan. In selecting the materials employed two objects have been kept paramount—cleanliness and protection from fire.

All the wood used for the cars has been treated by a

patent non-inflammable process, and the ceilings are lined with asbestos. The seats are probably not so comfortable to sit upon as in many English railway carriages, but it should certainly be much more easy to keep them clean. A novel feature is the provision for electric heaters, of which there are sixteen in each car, fixed under the seats, with a regulator at one end of the car. It remains to be seen whether this innovation will commend itself to the British public. Altogether the cars constitute a radical departure from the ordinary British practice and the experiments will be watched with great interest.

◆◆◆
NOISELESS RAILWAY CROSSINGS
 ◆◆◆

The accompanying illustrations show the details of the new type of crossing for street railways which has been developed by C. A. Moreno, chief engineer of the St. Louis Transit Com-



FIGS. 1 AND 2.—CONSTRUCTION OF NOISELESS CROSSINGS

pany, and which was mentioned briefly in these columns April 18. The plans reproduced are those of a crossing now being installed at Fourteenth Street and Olive Street, St. Louis, which is an important intersection, as cars are constantly passing that point on a half-minute interval.

The object of this invention is to supply a substantially noiseless crossing, which, when worn, can be easily removed and economically renewed without any of the inconvenience incident to the removal and renewal of the crossing sections or plates in general use. Plates are generally of hardened metal, fitted in the crossing portions of intersecting rails or crossing castings, and held in position by softer metal poured into the interstices. It is proposed in the crossing here described to substitute a block of wood or fibrous material, either of natural wood or a manufactured block adapted for ready insertion and removal, the cost of which would be but a fractional part of that of the members now employed. Moreover, this construction would make the crossings where used substantially noiseless. The fibrous block is formed so that when it is in position the

grain will run vertically and present the uncompressible ends at the upper and lower faces.

The blocks are made in three patterns. The first consists of a plain wooden block of seasoned oak or maple; the second, in addition to the plain wooden block, has a metallic member in the shape of a cross, which is laid in the flange channel of the wooden block overlapping the contiguous rail sections, thereby forming a substantial spring-wearing plate co-operating with the block and rail sections to sustain the load. This metallic member has a shank or spindle at its bottom surface, which enters the center of the wooden block, the bottom of the spindle being threaded, thus permitting a nut to be attached which holds the metallic member in position. A top view and crossing of this pattern of wooden block and metallic member, which it is believed will be the pattern most generally used, is shown in Fig. 1.

In the third pattern the metallic wearing plate is similar to

that shown in section BB (Fig. 1), except that it extends to the bottom of the casting, resting on same, as shown in section AA (Fig. 2), thus necessitating the use of four independent wooden filler blocks in each casting instead of one.

These blocks taper slightly from top to bottom, and when it is desired to renew them they can be removed by two men with pinch bars at opposite corners of the block.

Mr. Moreno thinks that the arrangement here described will commend itself to railway companies on account of its cheapness and noiseless feature, and also because of a great possible saving to trucks and motors operating over the lines on which it has been installed.

◆◆◆
 The last link in the through line of the Utica & Mohawk Electric Railway, between Rome and Little Falls, N. Y., a distance of 37 miles, has been opened. This gives a double-track route from Rome to Little Falls, paralleling the New York Central between these points. The company will this summer extend the line to Oneida.

TICKETS AND TRANSFERS ON THE BOSTON & WORCESTER

Practically a new ticketing device has been adopted by the Boston & Worcester Street Railway Company for keeping account of through passengers on its line. This is a duplicate slip bearing the names of towns through which the road runs and the prices for different rides, so perforated that the conductor may tear out such portion of it as will indicate the ride for which a passenger has paid and give it to the passenger, this torn-out section serving him thenceforth as a receipt for his fare and ticket entitling him to ride. The duplicate is retained by the conductor and turned into the company's office with his daily report. This form was devised by George A. Butman, treasurer of the company, and is a new thing on Massachusetts trolley lines.

To appreciate the uses of this slip it should be remembered that the Boston & Worcester road proper is merely the trunk line connecting extremities of two city lines, one of them the Boston Elevated Railway at the Newton boundary line, and the other the Worcester Consolidated on the outskirts of Worcester. Each of these companies collects its nickel on the through cars

ham, Southboro, Marlboro, Westboro, Shrewsbury and Northboro. By tearing on the perforated lines just above the 15-cent mark, and just below the Framingham mark, he can leave just enough of the slip in the passenger's hands to show where is his destination and what amount he has paid. No matter how many times the conductor may be obliged to pass through the car to collect fares thereafter he can have no doubt as to whether this particular passenger has paid without being easily able to settle it. If there is a dispute and the passenger claims to have paid his fare, either he must be able to show one of these

Boston & Worcester St. Ry Co.
MEMORANDUM OF CASH FARE PAID.

Issued by Conductor No.

Amount collected is shown opposite top of detached space.	Tear on perforated line above amount paid by passenger.
30 cents	30 cents
25 cents	25 cents
20 cents	20 cents
15 cents	15 cents
10 cents	10 cents

To Point opposite bottom of detached space.

63

Conductors will detach section from this check showing limit to which fare was paid and amount paid. He must retain this check and return it to the office of company with his daily report.

Destination of Passenger should be noted at bottom of this slip; to be taken up by Conductor before destination is reached.

GOOD ONLY
GOING WEST
Passenger will please see that the amount paid to conductor is shown at top of this slip; if not please notify company.

63

Geo A Butman Treas

Newton	Newton
Wellesley	Wellesley
Natick	Natick
SO. FRAMINGHAM	SOUTH FRAMINGHAM
FRAMINGHAM	Framingham
Southboro	Southboro
Marlboro	Marlboro
Westboro	Westboro
Shrewsb'y & N'boro	Shrewsbury & Northboro

Issued by Condt. No.	Newton S	Wellesley S	Natick S	Framingham S	Southboro S	Westboro S	Shrewsbury S	Car to Car	A.M. 15	A.M. 15
	N	N	N	N	N	N	N	0	5	6
									45 30	45 30
									7	8
									45 30	45 30
									9	10
									45 30	45 30
									11	12
									45 30	45 30

BOSTON & WORCESTER ST. RY CO.
TRANSFER.

This transfer is good only on the first car connecting with car on which it is issued, and is not transferable. The Company assumes no risk beyond its own lines and does not guarantee connections.

Geo A Butman Treas

PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15	PM. 15
11	10	9	8	7	6	5	4	3	2	1			
45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30	45 30

Jan. Feb. Mch. Apl. May June July Aug. Sept. Oct. Nov. Dec. --- 1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Jan. Feb. Mch. Apl. May June July Aug. Sept. Oct. Nov. Dec. --- 1 2 3 4 5 6 7 8 9

NOT GOOD FOR PASSAGE.

This half to be returned to Company's office, with Daily Report.

Issued by Condt. No.	Newton S	Wellesley S	Natick S	Framingham S	Southboro S	Westboro S	Shrewsbury S	Car to Car	A.M. 15	A.M. 15
	N	N	N	N	N	N	N	0	5	6
									45 30	45 30
									7	8
									45 30	45 30
									9	10
									45 30	45 30
									11	12
									45 30	45 30

of the Boston & Worcester road as they pass over its line, and the Boston & Worcester conductors take up fares only while the car is on their own road. They issue the new slips, therefore, only for passengers who are traveling through more than two towns, merely collecting the nickel without issuing a slip where a passenger rides from one town to the next.

But suppose a passenger boards the Boston & Worcester car at Boston, wishing to ride to Framingham? He pays 5 cents to the Boston Elevated conductor who carries the car to the edge of Brookline, then to the Boston & Worcester man, who takes charge from there onward. The passenger pays 15 cents covering the remainder of his journey. The conductor takes out a pink slip (the color denoting a westward run), notes that the prices for fares run upward from the middle of the slip, 10 cents, 15 cents, 20 cents, 25 cents and 30 cents, while the towns traversed form a column reading downward from the middle of the slip, as Newton, Wellesley, Natick, South Framingham, Framing-

ham, Southboro, Marlboro, Westboro, Shrewsbury and Northboro. By tearing on the perforated lines just above the 15-cent mark, and just below the Framingham mark, he can leave just enough of the slip in the passenger's hands to show where is his destination and what amount he has paid.

No matter how many times the conductor may be obliged to pass through the car to collect fares thereafter he can have no doubt as to whether this particular passenger has paid without being easily able to settle it. If there is a dispute and the passenger claims to have paid his fare, either he must be able to show one of these slips or else he is due to get off the car by the time it reaches the next town center.

The transfer slip adopted by the new company is also believed to be an improvement on account of the fact that only two punchings are required at the time of issuance to a passenger. This is accomplished by care in grouping the various designations of which notice has to be taken. It is assumed that the conductor will punch out the day and month at his leisure. When he comes to issue a transfer to a passenger he then must punch the quarter hour nearest the exact time by his watch, indicate the junction point at which transfer is to be made, and also the direction to be taken by the passenger at that point. Since the Boston & Worcester line is an east and west line all roads crossing it are assumed in this transfer to run north and south. Consequently, by placing each junction in a square by itself and placing letters to designate both north and south in each square along with the name of the junction, a single punch

against one of those two letters in a particular square indicates where the transfer is to be made and the direction to be taken there. In the same way, by placing each operating hour of the day in a separate square and dividing each square into four smaller squares, all black for P. M. and all white for A. M., one punch in any quarter of a square tells not only whether the time is forenoon or afternoon, but the hour and the quarter of that hour.

NEW EMERGENCY LINE CAR

A new emergency line car has been constructed under the direction of Superintendent George F. Seibel and Master Mechanic Frank S. Randlett, of the Old Colony Street Railway, that seems to embrace all of the necessities of a car of this description. The dimensions of the car are as follows: Length over all, 31 ft. 6 ins.; width, 7 ft. 10 ins.; height from the top of the rail to the top of the car, 12 ft. 3 ins. The car is equipped with side doors, 4 ft. 6 ins. in width, and has two vestibules. One door at each end admits to the vestibule, while a sheathing partition divides the vestibule from the body of the car.

Leading from the vestibule to the body of the car is a door, 22 ins. in width, and this swings either out or in, as is desired, so that a man with an armful of materials does not have to expend any time in either unlocking or closing the door. The interior of the car contains all the usual appliances used in



VIEW WITH PLATFORM LOWERED

work upon electric roads, and these are handily displayed on shelves or along the sides, and are easy of access. On either side of the car are iron straps, capable of holding a heavy pole. Being on both sides of the car the pole may be shifted from one side to the other, if necessary, so as not to interfere at all with the regular traffic of the road.

The car is mounted on Peckham trucks, with a 33-in. wheel and a 4-in. axle. It is equipped with General Electric 67 motors, with the Christensen air brakes.

The car framing is very substantial, so that in winter the car can be used as a double-truck snow-plow, by placing the nose or shear on front. The side sills are 6-in. x 8-in. hard pine, and the cross-sills are of seasoned oak, and so framed that the nose or shear can be attached with very little trouble, except the removal of the fenders.

The tower is placed at one end of the car, and it is hoisted by a windlass, with two three-shieve pulley blocks, making it

very easy to handle. It can be lifted 6 ft. from the roof of the car. The tower is equipped with folding gates, so that when not in use it rests upon the roof of the car, with very little projection. It also serves as a guard for the men when they are at their work. It is held in position by a 1½-in. iron rod, run through two stanchions placed on the interior, making it impossible to slip. The adjustment is such that the tower can be raised by one man, with two standing upon the platform.

The reel stand inside of the car is placed at the end opposite the tower, and is large enough to hold 5280 ft. of trolley wire. A small trap-door has been cut in the roof of the car, through which this wire is run. One of the special features of this car is the portable pneumatic crane, which can be adjusted at either of the side doors of the car, for the purpose of hoisting heavy appliances, and which takes but a few moments to adjust. The air for the crane is provided by the air brakes.

A second or "brother" car has been equipped by the same two men, which for practicability is a model in its way, and can be utilized for various purposes. For the present it is used as a supply car, in taking freight and supplies to the different divisions of the Old Colony Street Railway. It is open from vestibule to vestibule, to make every inch of space available. It has side doors 7 ft. in width. This car is supplied with box skids, barrel skids and air hoists, making it possible to handle



VIEW WITH PLATFORM RAISED

the heaviest material with perfect ease. This car is equipped with screw jacks, pump jacks, picks, crowbars, chairs and ropes, so that it can also be utilized as a wrecker. It is equipped with St. Louis improved trucks, 33-in. wheels, 4-in. axles, General Electric 67 motors and Christensen air brakes. This car, like the first, is constructed so that a nose or shear can be attached.

Both cars, as will be noticed, are equipped with high-speed motors, so that there is no danger of the slightest interference with passenger traffic, for either car can follow or proceed any passenger car over the entire division.

A remarkably creditable run was made by a special on the Columbus, London & Springfield Railway a few nights ago. The 42½ miles from the city limits of Columbus to the city limits of Springfield were covered in exactly 60 minutes.

FRANCHISE TAX LAW VALID

The Court of Appeals of the State of New York, on April 28, handed down a decision, accompanied by a unanimous opinion written by Judge Vann and concurred in by Chief Judge Parker and Associate Judges O'Brien, Cullen, Bartlett, Martin and Werner, declaring that the Franchise Tax law is constitutional and valid. The main question involved was whether the Franchise Tax law was unconstitutional because of violation of the principle of home rule, guaranteed to localities by the State Constitution.

The Court of Appeals reversed the decision of the Appellate Division of the Third Department, and affirmed the decision of Judge Robert Earl, the referee, as affirmed by Judge D. Cady Herrick, at special term.

Judge Earl held that the franchise act of 1899 did not invade the home rule rights of cities, towns and villages, or in any material manner deprive them of self-government. He pointed out that the franchises taxed under the act had never before been taxed; that these franchises were intangible property, having no precise circumscribed status, and that the Legislature, therefore, could permit the assessment of this new kind of property, by a State board.

In determining the question on appeal as to whether the constitution had been violated Judge Vann decided that it would be necessary to inquire (1) what does the constitution prohibit, (2) what does the statute command, and (3) what have the courts held as to the validity of other statutes relating to similar subjects?

The opinion first takes up the principle of home rule, shows how it was recognized from the first in the State constitutions, and defines its limitations and applications. Coming down to the question under discussion Judge Vann summarizes the practice that had heretofore prevailed in fixing values and levying taxes, and then points out the most important features of the new method and wherein they depart from the old custom, together with the reason for this modification.

The statute in question authorizes the assessment of valuation, for the purpose of general taxation, of all special franchises by a State Board of Tax Commissioners appointed by the Governor. (L. 1899, ch. 712.)

The general franchise of a corporation is its right to live and do business by the exercise of the corporate powers granted by the State. The general franchise of a street railroad company, for instance, is the special privilege conferred by the State upon a certain number of persons known as the corporators to become a street railroad corporation and to construct and operate a street railroad upon certain conditions. Such a franchise, however, gives the corporation no right to do anything in the public highways without special authority from the State or some municipal officer or body acting under its authority.

When a right of way over a public street is granted to such a corporation, with leave to construct and operate a street railroad thereon, the privilege is known as a special franchise, or the right to do something in the public highway, which, except for the grant, would be a trespass.

The statute, which is an amendment of the General Tax law, declares, in substance, that the right, authority or permission to construct, maintain or operate some structure, intended for public use, "in, under, above, on or through streets, highways or public places," such as railroads, gas pipes, water mains, poles and wires for electric, telephone and telegraph lines and the like, is a special franchise.

For the purpose of taxation such a franchise is made real estate and is "deemed to include the value of the tangible property of a person, co-partnership or corporation situated in, upon, under or above any street, highway, public place or public waters in connection with the special franchise and taxed as a part thereof." (Sec. 2, clause 3.) This includes nothing but what is in the street, directly or indirectly, and excludes power houses, depots and all structures without the lines of the street. The taxes thus imposed are for general purposes, are collected in the same way, and used for the same objects as other taxes upon the general assessment roll.

Prior to the passage of this act general franchises had been taxed for the benefit of the State under a valuation made by a

State officer, with the sanction of the courts (L. 1896, ch. 908, secs. 182, 190; *People vs. Roberts*, 154 N. Y., 101). Special franchises, however, had never been lawfully assessed either by local or State authority, but were made taxable property by the act before us for the first time in the history of the State. (*People ex rel., Manhattan R. R. Co., vs. Barker*, 146 N. Y., 304; *People ex rel. Brooklyn City R. R. Co., vs. Neff*, 19 App. Div. 590, affirmed on opinion of Cullen, J., below in 154 N. Y. 763.)

The right to assess special franchises by central authority is challenged as a violation of the principle of home rule embedded in the Constitution and especially the right to assess the tangible property annexed thereto and included therein by the act, because the latter is withdrawn from the jurisdiction of the local assessors by whom it had been heretofore assessed.

It is explained that the enactment of this law followed the official announcement of the Governor that an examination of the tax lists showed that "the farmers, the market gardeners and the mechanics and tradesmen having small holdings, are paying an improper and excessive portion of the general taxes."

The Legislature found property scattered all over the State worth nearly two hundred millions of dollars which was not taxed at all and had never been taxed. This property consisted wholly of special franchises or privileges given by the State, mainly to corporations furnishing to the public transportation, water, light and other necessities or conveniences of daily life. It had grown rapidly in extent and value during recent years. Its value rested upon the right to use in some manner the public highways of the State, but it was intangible and doubtless for this reason had never been brought under the taxing power.

The Legislature also found certain tangible property which was subject to taxation, situated in the public streets and used only in connection with and as a part of the intangible property not taxed, and of no substantial value except when so used.

It found that the valuation of this new kind of property, intangible, invisible and elusive, but of great value, would be attended with peculiar difficulties, which would require a degree of knowledge and skill not possessed by local assessors, but belonging only to experts who had long and carefully studied the subject of taxation in all its varied aspects. The problem was to place a just and adequate value upon a right capable of valuation but which was unseen, without form or substance and, as it were, the mere breath of the Legislature. It was a new problem that had never arisen before during the history of the State.

Judge Vann here points out that the plan proposed for meeting these new conditions did not in reality deprive local assessors of authority, and did not invade the home rule rights of cities, villages or towns or violate any recognized principle of government.

Local self-government is untouched and there is no invasion of local functions. While special franchises were known when the later constitutions were adopted, they were not then known as taxable property. The office of assessor of special franchises was then unknown. It is not local in nature, but is a new office, with new functions adapted to property of a new kind and differing in principle from any ever dealt with by local assessors.

Property created by the Legislature and never intrusted by it to the local assessors, cannot with propriety be said to have been taken away from them.

The statute should be considered in the light of the circumstances existing when it was passed, which were extraordinary and unprecedented. The system thus created had never been known before, and as its main object, the act dealt with special franchises, which had never been taxed before. Property unknown as the subject of taxation to the framers of any of our constitutions, was brought into the system, which required new methods of valuation and the exercise of functions which had never belonged to local assessors.

The new property is real estate in name only, it is pointed out, for it is a mere privilege to do something in public streets and places not permitted to citizens generally. While local in a narrow sense, it is unconfined in its real nature, for it depends largely on the earning capacity of a going concern, frequently with several special franchises, but with no means of determining the amount earned by each.

The Legislature also brought in as an essential part of the system, some tangible property which had been previously assessed by local authority. No tangible property, however, was affected, except such as was situated in the public highways and was so incidental to and dependent upon the special franchises as to have no substantial value unless used in connection with them.

The relation between the intangible right to run cars in the

streets and the tangible property in the rails to run the cars on is so intimate as to be inseparable in any practicable system of estimating values. Of what value are poles, strung with wires, standing in the street, without a special franchise to use them to carry electricity or send the mysterious message?

What is property worth when made for a special purpose if it cannot be used for that purpose? What are rails and ties worth when so fastened to the land in a public highway as to be legally a part of it without a special franchise to place and use them there as part of a railroad?

All the mains and pipes, poles and wires, rails and ties of the relators, when separated from their special franchises, have no value except as firewood or old iron. Their only substantial value is the right to use them in connection with franchise, and, hence, they are incidental to the franchise. As part of the franchise they are worth something, but severed from it, nothing to speak of.

Suppose a street railway company should forfeit its special franchise by a violation of the grant; what would its rails and ties be worth? They would cease to exist as rails and ties, and would become simply so much old material and even the title would vest in the owner of the fee. The expense of grading, placing them in position and paving around them, which is a large part of the original cost, would cease to be an investment and would be property no longer.

They are worth virtually nothing except for railway purposes, and a railway cannot occupy a street without a special franchise. Separate them from the franchise by taking away the street privilege and they are destroyed. Their only value as rails and ties, as distinguished from so much old wood and iron, is gone.

Taking the broad and practical view of the subject, which the Legislature had the right to take in creating the new system, they have no assessable value worthy of notice, except through the actual and constant use made of them as incidental to the special franchises. The value of either resides in the union of both and can be practically ascertained only by treating them as a unit.

Unless assessed together both cannot be adequately assessed. A man of judgment, in valuing a wagon, and especially in estimating its earning capacity, does not pass upon the body, wheels, top and tongue separately. We regard the tangible property as an inseparable part of the special franchises mentioned in the statute, constituting with them a new entity, which as a going concern can neither be assessed nor sold to advantage, except as one thing, single and entire.

Moreover, a special franchise now confined to one tax district may by expansion, through merger, consolidation, leasing and the like, extend into other tax districts. Such an enlargement is open to all, has been the experience of many and may be the experience of all. The same corporation may have many special franchises, continuous or separate, yet they are all practically one, because they all belong to one system, the earning capacity of which may be ascertained, but not that of each special franchise independent of the others.

By removing a central franchise, the line is broken and the value of all seriously impaired. The combination of all into a single enterprise gives the highest, if not the only, value to each. What would a franchise in a town be worth with no right to enter a city or village? While the strength of the chain is in the links, the value of the links is in the chain. Hence, a franchise is not essentially local in character and may require action, observation and estimate beyond the lines of a single tax district, or the accustomed jurisdiction of local assessors.

An examination of the books of a corporation may be necessary in making the valuation, yet they may not be kept in the municipality of the assessor's residence. A highway may be local, but the title thereto is not, for whether a fee or an easement it is held in trust for the people at large, represented by the State, which has control of the streets and of the erections therein. The franchise is the right to put something in the highway and use it there, and if the right fails, the title to what was thus placed goes with the general title.

The special franchises of a railway in operation from a city into suburban towns may be properly treated as an aggregation, without a precise *situs*, as one piece of property producing a gross income, as a single subject of valuation, like all the personal property of an individual, from one end of the line to the other, although the amount, when ascertained, must be apportioned and distributed among the several tax districts affected.

The subject is one that local officers cannot handle, because they cannot consider it as a whole by going without their precincts, but must stop at the boundaries of their several districts. They cannot make the distribution among localities interested in the special franchises. Local assessors still remain local assessors, with every accustomed function intact and unimpaired.

The remaining questions raised by the relators do not require elaborate consideration. We cannot sustain their position that the taxation of a special franchise impairs the obligation of a contract and thus violates the Federal Constitution. The franchises are grants which usually contain contracts executed by the municipality, but executory as to the owner. They contain various conditions and stipulations to be observed by the holders of the privilege, such as payment of a license fee, of a gross sum down, of a specific sum each year or a certain percentage of receipts, as a consideration or "in full satisfaction for the use of the streets."

There is no provision that the special franchise, or the property created by the grant, shall be exempt from taxation. Such a stipulation would be void, for no municipality has power to withdraw property from the taxing power of the State or to provide by ordinance or contract that it shall be free for all time from the common burden which property generally has to bear. Taxation is the rule, with every presumption to support it; while exemption is an exception, with every presumption against it.

The condition upon which a franchise is granted is the purchase price of the grant, the payment of which, in money, or by an agreement to bear some burden, brought the property into existence, which thereupon became taxable at the will of the Legislature, the same as land granted or leased by the State. There is no implied covenant that property sold by the State cannot be taxed by the State, which can even tax its own bonds given to borrow money for its own use, unless they contain an express stipulation of exemption.

No part of the grant is changed, no stipulation altered, no payment increased and nothing exacted from the owner of the franchise that is not exacted from the owners of property generally. No blow is struck at the franchise as such, for it remains with every right conferred in full force, but, as it is property, it is required to contribute its ratable share, dependent only upon value, toward the support of the government. No burden is placed upon it except such as is borne by the home of the people and money saved for support in old age.

The relators accepted their franchises subject to the right of taxation that applies to all property in the State, and we agree with the learned referee that the special franchise tax takes nothing from the grant, exacts nothing as further compensation for the privilege and impairs no contractual obligations.

The decision directly affects the Metropolitan Street Railway Company, the Twenty-Third Street Crosstown Railway Company, the Brooklyn City Railway, the Coney Island & Brooklyn Heights Railway Company, the Consolidated Gas Company, and the New Amsterdam Gas Company. These companies pooled issues and went to the Appellate Division, the Supreme Court, which sustained their contention that the Franchise Tax Law was unconstitutional. The case was carried to the Court of Appeals by the Attorney-General, with the result noted. An effort will be made to secure a review by the Supreme Court of the United States but this cannot be reached for several months. It is said that while an appeal to the Federal Court will not act as a stay in the execution of judgment the State will not collect the taxes due under the law until final decision is reached. It is estimated that the taxes collectable by reason of the decision handed down last week amount to \$17,000,000. A considerable portion of this will come from the transportation companies of New York.

AN EXTENSIVE INTERURBAN SYSTEM IN PENNSYLVANIA

Work has been begun by the Erie, Cambridge, Union & Corry Railway Company on a 42-mile interurban electric railway, which will connect Erie, Cambridge, Union City and Corry. The road will be built for its entire length on a private right of way, and is to be the nucleus of a system to be several hundred miles long. It is the intention to equip the road with ten combination passenger and express cars of the Pullman type, and to make the carrying of freight and express a feature of the road. The estimated cost of constructing the road is \$800,000. The company was chartered on Dec. 6, 1901, under the laws of Pennsylvania, having an authorized stock issue of \$1,000,000 and a bond issue of \$1,000,000. The power house will be located either at Cambridge or Le Boeuf, where there is a plentiful supply of water and where a coal supply can be had from the Philadelphia & Erie Railroad.

CENSUS REPORT ON STREET RAILWAYS

W. M. Steuart, chief statistician of the Division of Manufactures, which is the division of the United States Census Office compiling street railway statistics, has just made a preliminary report on the street railway industry as a result of the canvass conducted during the present year. The statistics have been compiled under the direction of expert advice furnished by T. Commerford Martin, editor of the "Electrical World and Engineer," special expert agent, and Professor E. Dana Durand, formerly of Harvard University and now special expert of the Bureau of Corporations, Department of Commerce. The report is for the year ending June 30, 1902, and comprises the following total results:

Number of companies	987
Length of line (first main track) miles.....	16,647.83
Length of single track, miles	(1) 22,589.47
Total number of cars	67,199
Passenger	60,290
All other	6,909
Steam engines:	
Number	2,337
Total horse power	1,298,133
Dynamos for generating power:	
Number	3,257
Horse power	1,200,138
Number of fare passengers carried	4,813,466,001
Number of transfer passengers carried	1,062,403,392
Total mileage	1,097,806,884
Accidents:	
Persons killed	1,216
Persons injured	47,428

(1) Includes 12.48 miles of duplicated track and 4.20 miles lying outside of the United States, but does not include track under construction and not operated.

The condensed income account for operating companies and balance sheet for all companies in the United States totalize as follows:

CONDENSED INCOME ACCOUNT, OPERATING COMPANIES	
Earnings from operation	\$241,584,697
Operating expenses	139,012,004
Net earnings	102,572,693
Income from other sources	2,907,156
Gross income less operating expenses.....	105,479,849
Deductions from income, taxes, interest, rental, miscellaneous	74,524,616
Net income	30,955,233
Dividends	15,908,216
Surplus	15,047,017
Percentage of operating expenses to earnings	57.54

BALANCE SHEET, ALL COMPANIES

Assets	
Total	\$2,428,317,117
Cost of construction and equipment	2,088,963,677
Other permanent investments	128,458,625
Cash on hand	27,342,313
Bills receivable	22,247,704
Supplies	10,340,448
Sundries	150,964,350
Liabilities	
Total	\$2,428,317,117
Capital stock	1,216,277,989
Fund'd debt	929,328,656
Bills and accounts payable.....	94,858,371
Interest due	13,748,010
Dividends due	2,342,827
Sundries	130,589,472
Profit and loss	41,171,792

The following is the average number of employees in their classifications and the salaries and wages paid them:

Salaried officials	2,749
Salaries	\$4,625,015
Clerks	4,301
Salaries	\$2,573,936
All other employees	131,133
Wages	\$77,437,324

The final report to be presented by the Census Office will contain an analysis of the above totals and present detailed statistics for other phases of the industry. While the statistics reported at the census of 1890 are not comparable in all respects with those for 1902, the totals indicate that during the twelve years the length of line has increased from 5,783.47 miles to 16,647.83 miles, or 187.85 per cent; the length of single-track miles from 8,123.02 to 22,589.47, or 178.09 per cent; the number of passenger cars from 32,505 to 60,290, or 85.48 per cent; the number of fare passengers carried from 2,023,010,202 to 4,813,466,001, or 137.94 per cent. The miles of single track operated by electric power increased from 1,261.97 to 21,920.07, or 1636.97 per cent; the miles operated by animal power decreased from 5661.44 to 259.10, or 95.42 per cent; the miles operated by cable from 488.31 to 240.69, or 50.71 per cent, and the miles operated by steam from 711.30 to 169.61, or 76.15 per cent.

The statistics for equipment, exclusive of length of track and number of cars, do not include two companies with 41.00 miles of single track, who failed to make reports of any character. The financial statistics do not include nineteen companies with 739.79 miles of single track who failed to answer the inquiries concerning financial operations.

CHICAGO UNION TRACTION MATTERS

The receivers of the Chicago Union Traction Company have secured permission of Judge Grosscup to borrow \$200,000 to meet interest on North & West Chicago Street Railroad bonds.

James H. Eckels has issued a circular to all stockholders, both of Union Traction and underlying companies, asking for harmony and united support for the receivers by the stockholders. This was issued probably because of talk in financial circles that the stockholders in the underlying companies, whose property is leased by the Chicago Union Traction Company, might attempt to break the lease and leave the Chicago Union Traction Company high and dry. Such an extreme move would, of course, be unlikely, but the failure of many stockholders in these underlying companies to deposit stock with the protective committee formed last winter would indicate some fear on the part of stockholders that the Chicago Union Traction stock would come in for too small a share in any scaling down for reorganization that might be carried out. Stockholders of both the West Chicago and North Chicago Street Railroad Companies (the lessee companies) have met and selected committees to see that their interests are looked after.

NEW CARS FOR ST. LOUIS

The St. Louis Transit Company, in order to be prepared adequately to handle the immense increase in traffic while the Louisiana Purchase Exposition is on next year, has worked out a systematic plan for improving its rolling stock. In March the company awarded the St. Louis Car Company a contract for 450 convertible cars, and the first of these are to be delivered in August, regular consignments to be made thereafter in stated lots until the opening of the fair. The new cars will be placed in operation as soon as they are received, thus permitting the company to withdraw from service some of the present equipment so that it can be thoroughly overhauled.

The new cars will be constructed along the lines of a model prepared by the Transit Company, and will resemble the new cars that have lately been placed in commission on the Olive Street line. The length over all will be 44 ft. 8 ins., and the length of the corner post will be 33 ft. 4¾ ins. The width will be 9 ft. There will be twenty-one stationary cross seats, upholstered in rattan, and two longitudinal seats. Dupont double

trucks are to be used. The front door will be slightly to the right, and will be single. The rear door will be double, and the rear platform will be of the Dupont type. The interior of the cars will be of cherry. The seating capacity will be increased to fifty, and the aisles will be slightly wider. The windows will be very wide and deep, and both the lower and upper sashes may be easily raised or lowered.

PETROLEUM AND PETROLEUM LUBRICANTS

The regular monthly meeting of the New England Street Railway Club was held at Wesleyan Hall, 36 Bromfield Street, Boston, on Thursday evening, April 30, with President Farrington in the chair. The subject of discussion was "Lubricants," and William F. Parrish, Jr., chief of the technical department of the Vacuum Oil Company, presented a paper on "Petroleum and Petroleum Lubricants."

Mr. Parrish began by stating that on account of the gradual extinction of the sperm whale and the great development of the petroleum industry in the last quarter century in this country, animal and vegetable oils have practically been displaced by petroleum products. Crude petroleum has been known since the earliest of times. Burning oil was produced in Scotland by the distillation of bituminous shale early in the last century, and in Central Europe petroleum was distilled in a small way. Many were aware of its value as an illuminant, but the small productions hindered the development of the industry.

The birthday of the petroleum business of the world was Aug. 28, 1859, when oil was struck by a well sunk to a depth of 169½ ft. near Titusville, Pa., by an E. L. Drake, after methods suggested by Bissell. This well gave twenty-five barrels per day.

Petroleum consists of about 85 per cent carbon and 15 per cent hydrogen, with a small percentage of oxygen, nitrogen, sulphur and other impurities. It is found in all parts of the world and in almost every geological stratum.

There are two theories held concerning the origin of petroleum, known as the "inorganic" and "organic." The former holds that it is formed by the distillation of rock masses in the presence of steam and under great pressure. The latter, which is held by the United States Geological Survey, and is most generally accepted, considers it to be the product of gradual vegetable and animal decomposition at low temperatures, and that the stock is now practically complete. The greater part of the world's supply is now furnished by the fields of Russia and the United States.

In refining, crude petroleum yields three classes of distillates. The first class distills off below 150 degs. C., and comprises rhioglène, gasolene, naphtha, benzine, etc.

The second class distills off between 150 degs. C. and 300 degs., and comprises the various burning oils.

The third class distills off at over 300 degs. C., and comprises residuum, from which is made the various lubricating oils, greases, wax, aniline dyes, perfumes, medicines, etc.

In the early days of the industry only the refined or burning oil was sought. The products of petroleum are multitudinous, and unlike any other natural product there seems to be no part which cannot be utilized. There is absolutely no waste except the small part unavoidably lost in manufacture. There are three general methods of distilling petroleum:

1. Destructive distillation, or "cracking." The crude oil is placed in a still with a large dome and heated to a certain temperature, when the fires are slacked and the distilling allowed to proceed slowly. The distillate passing off condenses on the cooler dome, and finally falling back into the hotter liquid below is further broken up. This is termed "cracking," and is the general method used in manufacturing burning oils. A large amount of product can be obtained in this way. The

residuum is used for the manufacture of lubricating oils, etc. This residuum, if simply distilled and purified by chemical treatment after the removal of the paraffine, is what is known as "paraffine oil" in this country.

2. Distillation by the introduction of superheated steam. This is done to prevent the overheating of the oil.

3. Distillation in a vacuum. In this process a partial vacuum in the still is maintained by a pump, and a higher comparative temperature may be used without danger of destroying any of the parts of the crude.

The last two processes are the ones used by the manufacturer who regards the lubricating oil as of first importance.

The crude petroleums have varying properties which govern their use. The manufacturer of burning oils selects his crude with the view to obtaining the greatest amount of burning oils. He manipulates the crude to this end, and the residuum, which is his by-product, he uses for lubricating oils and other purposes. The manufacturer of lubricating oils only selects his stock with the view to obtaining the greatest amount of lubricating oil possible that is consistent with proper handling. He regards everything else as a by-product. Crude oils for a certain purpose vary in price according to their quality, and the lubricating oil in quality and price depends necessarily upon the stock used and the care used in handling that stock.

A lubricating oil which is intended for a certain class of work should have, within limits, certain characteristics, such as gravity, viscosity, fire test, etc., which experience has shown to be best for that particular work. These readings do not indicate the lubricating properties of the oil. To know what value to attach to these various physical readings knowledge is required of the crude oil and entire method of distillation and subsequent handling, with a wide experience with that particular lubricant under actual work.

It is evident that these readings may be secured in various ways; by careful manipulation of proper crudes, by mixing oils of different characters, by adulteration. If dependence is placed upon these physical characteristics the selection is apt to be one which will not give the most efficient service.

Following up the question of lubricating oils from this standpoint and experimenting with oils of similar characteristics, but made from different stock and by different methods, have brought out the fact that with the proper adaptation of oil, properly made, the frictional item of machinery of all kinds can be influenced to a very marked degree. With all the different oils that are made to-day for any one class of work, if the manufacturer is allowed, he can place a material that will go farther or reduce friction more than any other oil. The manufacturer has gained knowledge from many sources, and when he is allowed to exercise his judgment he can, in nearly every case, give a lubricant that will exactly suit the mechanical and efficiency requirements. He is, however, very often limited by the desires of the purchaser. In textile mills, where the frictional item, including everything that can be influenced by oil, is a very large per cent of the whole, a change of one set of oils for another very often results in a reduction of the total power of from 5 per cent to 15 per cent. Seven per cent reduction in power on an average textile mill will offset by cost of coal alone the entire money expended for oil. Very elaborate and painstaking tests have been made upon textile mills and plants where the work load is steady or where a shafting load of sufficient weight to properly indicate it from the engine and from motors. Observations are usually made covering a sufficient period to equalize and average all influencing factors. These readings include temperature, relative humidity and horsepower from engine indicators and electrical equipments. After the first test is taken all oil upon machinery tested is changed to oils which have been determined upon by the inspecting engineers. The oils are applied in the ordinary way, no cleaning whatever being done. After a sufficient time has elapsed

for them to work to their base a duplicate set of readings are taken. Some tests upon large mills require the services of ten technical men, and upwards of 3500 indicator cards are taken and figured inside each week of test. Observations are made on a full test of coal consumption, ashes and water. Speeds of engine, line shafts, machinery and spindles are taken, and a complete record made of the number of machines actually in operation and the class of work going through during the test. For the comparative test all readings are duplicated, and an equalization table for machines not in operation is made. Sometimes the power is taken on these machines with dynamometers, to secure horse-power data for equalizing. Proper value of weather conditions is given, and the result shows nothing but the effect of a change of lubricating oils.

Owing to varying loads upon electric power and street railway stations a frictional test, such as is made upon a textile mill, cannot be conducted. It is impracticable to run engines and generators without load and attempt to influence the small power showing by lubrication. The pressures and friction under light load has no apparent relation to the pressures and friction under ordinary work, and lubricants that would be suited to one condition would not necessarily be adapted to the other. The general knowledge derived from efficiency tests in plants where such tests can be made is of the greatest value in making adaptations in street railway stations and similar plants.

For generator bearings and pillow blocks of engines a temperature test is probably the readiest method of securing knowledge in regard to the adaptability of the oil. This test is made by placing a thermometer in a mercury cup or in the oil, or against the bearing and taking readings, which are compared to room readings. A comparative test can be made in this way in a very short time.

Cylinder oil tests are made by carefully examining the inside appearance of the cylinder in conjunction with a careful inspection of various conditions shown by the engine under operation, and an oil applied that will produce a better lubricating effect under a less gallonage consumption for a given time. In every case the mechanical condition of the engine is noted and worked for. A cylinder oil test is interesting, as it shows how effective the proper kind of oil can be even when the cylinder oil is apparently giving good satisfaction. Here Mr. Parrish presented the following illustration:

Direct-connected cross-compound, 20-in. x 40-in. x 42-in. engine, 94 r. p. m., 160 lbs. steam pressure, superheated to 470 degs. F., running 75 per cent overload almost continuously. Upon examination, after having operated for some time under a certain cylinder oil, it was found to be dry, the walls presenting a scratched, dull appearance, with a considerable deposit of foreign substances in the clearances. The steam valves closed sluggishly with a chattering noise, and under light load did not close with ease. The low-pressure cylinder showed no internal signs of lubrication. The amount of cylinder oil fed was 15 quarts per day of 20 hours to each cylinder. This oil was changed to oils made by a different process, but with the same general readings, and the amount fed was exactly one-third, or 4 quarts to the high pressure and 6 quarts to the low pressure per day of 20 hours. The test covered nine days. The high-pressure cylinder, when examined, showed a very satisfactory state of lubrication with an entire absence of deposit of foreign substance of any kind. The cylinder in this short time had smoothed up like glass, dark brown in color, and the scratched appearance had nearly disappeared. The steam valves worked in a smooth and active manner, and under light loads closed with ease. The low-pressure cylinder was found to be in a perfect state of lubrication, oil hanging in drops from the valves and from the tops of the cylinder, and the valves, and every outside condition proved conclusively that the cylinder was perfectly lubricated.

Properly made engine oil can be filtered and used over in-

definitely. It is always advisable to have automatic lubricating systems in power plants. The cylinder oil should be fed by automatic pumps; the engine oil should be handled by a gravity system having an overhead tank. The oil is taken from the tank to each oil cup or bearing, and after use is run through a filter and then pumped through to the overhead tank. No oil is wasted by this system, and a lighter oil can be used and fed in a stream to the main bearings, which is the most effective method.

"Motor bearings should be lubricated with oil instead of grease," said Mr. Parrish. He maintained that grease in any form is not an efficient lubricant when compared to oil on a power basis. In order that a continuous feed of oil may be supplied to the bearing a cup should be used, fitted with a spindle which rests on a shaft, or with wicking, which carries the oil over into the oil passage and from there to the journal.

In oiling journal-boxes of cars good wool waste should be soaked at least 48 hours before using with the proper kind of oil. The surplus oil should be drained off, allowing sufficient oil in the waste so that it will show under slight pressure. The first waste should be moderately dry, and packed tightly around the back end of the box, so as to make a guard for the purpose not only of retaining the oil but of excluding the dust. Then the box should be packed firmly enough with the drained waste to prevent its falling away from the journal when the car runs over crossings, etc., but not so tightly as to squeeze out the oil. The waste should be kept even with the line of the journal an inch below the line of the brass. This is most important, as the waste, if packed too high, will be caught and carried around, causing a hot box. The waste in the front end of the box should be as high as the opening, and have no thread connection with the waste underneath the journal. This waste should be placed in the box by hand after the box has been packed; it performs no service other than to act as a stopper to prevent the waste that is doing the work of lubrication from working forward.

DISCUSSION

In the discussion it was stated that in making tests of oil vs. grease it is sometimes found that the power required to run shafting is 25 per cent greater than normal for the first few readings when grease is used, but with good grease this excess contracts to 15 per cent after about 15 minutes. Tests made in the early morning and at noon on shafting show a gradual decrease in bearing friction through the day, but to a less extent with oil than with grease. Shafting which stands all right was reported to have 10 per cent greater friction, as shown by comparing morning and night indicator cards. Slightly warming both journal box oil or grease is productive of good results.

It was further stated that there is as much variation in buying oil as in purchasing different kinds of iron. Oil can be made stronger and better lubricant by different processes. Mr. Parrish stated that the gravity, flash, cool fire and viscosity tests were not good indicators of values of oils as lubricators.

C. F. Baker, of the Boston Elevated Railway Company, stated that it might be that the differences in the action of the same oil in similar engines were sometimes due to differences in feed-water.

Mr. Parrish stated that good oil should not deteriorate with use if properly filtered. Cheese cloth was recommended as a filtering material, and Mr. Miller, of the Boston & Maine, cited the satisfactory experience of his road in reusing passenger-car oil on freight cars. Mr. Pestell, of Worcester, gave the satisfactory results he had obtained on some of the interurban lines of the Worcester Consolidated, where speeds of 35 m. p. h. are reached. He used wool waste and grease both summer and winter. Remarks were made on the oil business from the salesman's point of view by Messrs. Cook, Schaeffer and others.

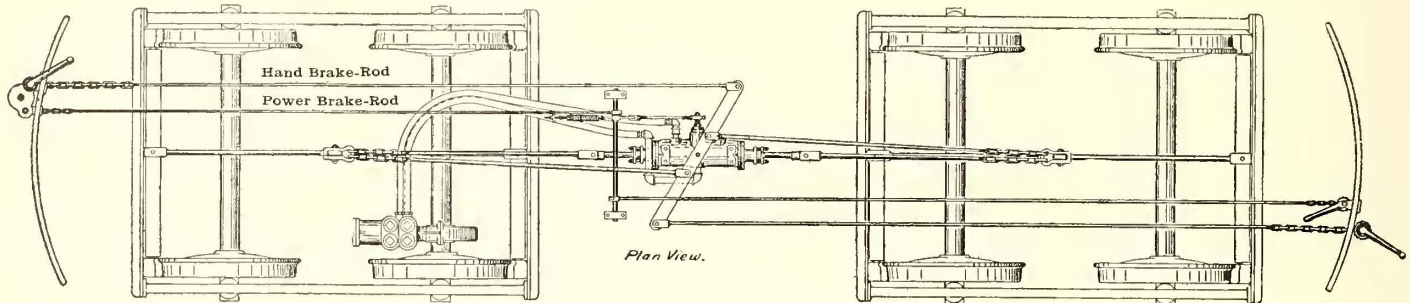
It was announced that the Cooper-Hewitt static converter would be exhibited at the next meeting.

RECENT DEVELOPMENTS IN THE NEAL DUPLEX BRAKE

This brake has been modified somewhat since it was first described in these columns and has been adopted on a number of roads, where it is giving very good results, especially in the direction of efficiency. As the action of the brake depends on the friction of the wheel and the rail, the brake-shoe friction must necessarily be slightly lower than that between the wheel and the rail, so that the ideal conditions of efficient braking are

Company, Union Traction Company of Indiana, St. Louis Transit Company, Boston Elevated Railway Company, Columbus (Ohio) Street Railway Company and the Scranton Street Railway Company.

So far the brake has been adopted principally for city service, to which the comparatively slow speed of the cars, its low first cost and the low cost of maintenance make it particularly adapted. It is understood to be the policy of the company to give attention first to this branch of the business, to which



DUPLEX BRAKE FOR DOUBLE-TRUCK CAR

automatically supplied. That this theoretical condition is followed in practice is shown by the fact that the number of skid flat wheels reported under the cars equipped with this brake are remarkably low.

The present form of Neal duplex brake, as installed on a double-truck car, is illustrated in the plan view presented herewith. No air is used in brake operation, and the usual compressor is replaced by a pump of ordinary construction. This pump is operated by an eccentric driven from the axle and forces oil, when the brake is not in use, through a piece of flexible hose into a cylinder located in the center of the car, from which the oil is returned to the pump through a second piece of hose. The cylinder contains two pistons which are connected directly to the regular brake levers, and a movement of the brake handle closes a valve in the outlet pipe of the brake cylinder. The instant the valve is closed the oil coming from the pump forces out the brake pistons at each end, and thus

field as yet but little has been done with other power brakes, and the brake is particularly recommended for this class of work.

NOVEL SNOW PLOW

The Morgan-Remington Company, of Boston, known in railway circles as manufacturers of vestibules, have recently perfected a novel type of snow-plow which is illustrated herewith. The company has also perfected a snow shoveler for use when the city regulations require the company not only to remove the snow from its tracks but prohibits piling it up along the side of the road.

The operation of the plow is shown clearly in Fig. 1. An

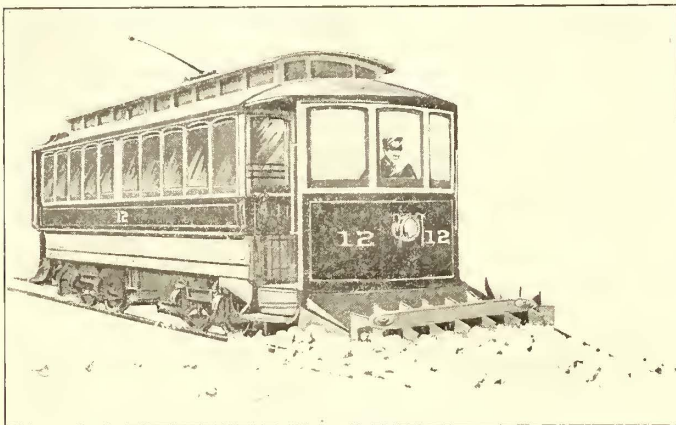


FIG. 1.—SNOW PLOW ON CITY CAR

operates the brake-shoes. The brake cylinder valve is provided with graduated ports so that the motorman can make either an emergency or a service stop, as occasion requires. And as the motive power is taken from the axle the momentum of the car is used for setting the brakes.

The entire equipment on double-truck cars weighs less than 500 lbs., and being simple in construction the first cost and the cost of maintenance of the equipment are low.

Among the companies which have installed brakes of this kind are the North Jersey Street Railway Company, Jersey City, Paterson & Hoboken Street Railway Company, Indianapolis Street Railway Company, Cleveland Electric Railway

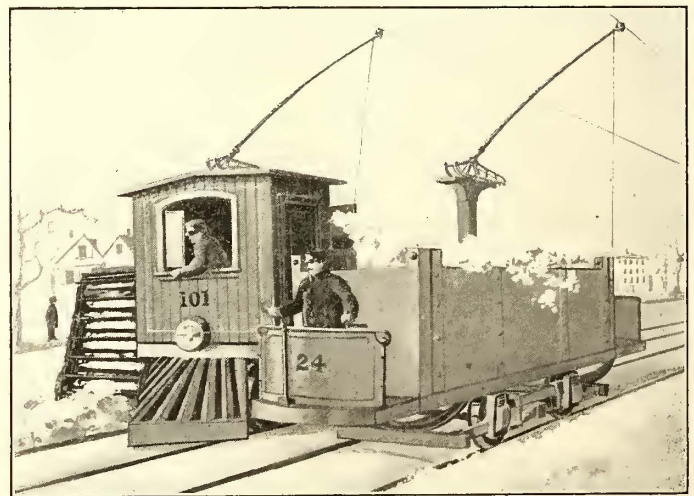


FIG. 2.—SNOW SHOVELER

endless belt, which is operated by an independent motor, catches the snow as it piles up on the inclined plane in front of the car and throws it to one side of the street.

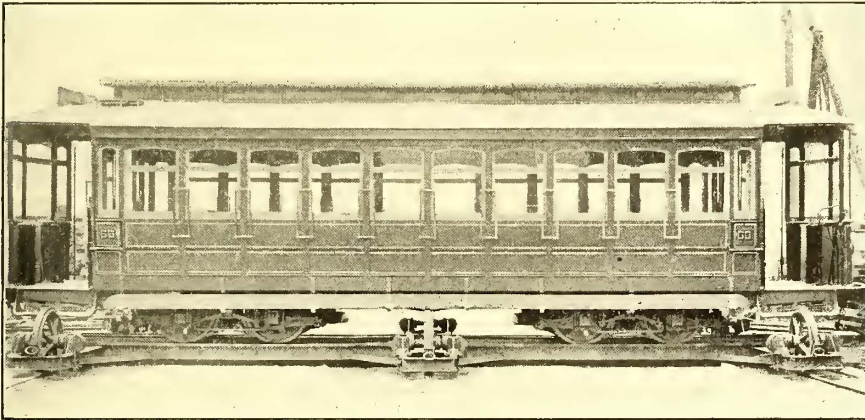
The snow shoveler is illustrated in Fig. 2. The elevating belt is 8 ft. wide, and contains conveyors which are 8 ins. deep and 1 ft. apart. This belt is driven by an independent motor, and as it travels at a speed of 400 ft. per minute its capacity is 88 cu. ft. of snow during that time. This belt discharges into a cross conveyor, which has double the speed of the elevating conveyor, and which in turn throws the snow into a dump-car operated on the second track. When the shoveler is not at work the elevating conveyor can be made to swing around over

the track in front of the car and without any over-hang.

By a slight change in the conveying mechanism the dump-car can be replaced by vehicles on runners or made to follow the snow-shoveling car if desired. The makers believe, however, that it will usually be found more convenient to have the two travel side by side, and as the dump-car can be loaded within four minutes, and as most of the shoveling of this kind would be done at night, there would be little or no interference with traffic. It would be easy, also, to shunt the dump-car on the main track by cross-overs, if necessary, during the day shoveling.

CONVERTIBLE CARS FOR EAST ST. LOUIS SUBURBAN RAILWAY

The American Car Company, of St. Louis, has recently completed an order of handsome convertible cars (Brill patent) for the East St. Louis Suburban Railway Company. The company



CONVERTIBLE CAR, WITH SIDES DOWN

has built a number of cars of this type within the last few months, among them being the Waterloo & Cedar Falls Rapid Transit Company, Austin Electric Railway, Manatee Light & Traction Company and others. The cars will have an excellent opportunity for showing their weather-proof qualities, since they must pass over the high unprotected bridge across the river into St. Louis.

To have the cars as open as possible during summer the cars are not furnished with full vestibules, but have portable vestibules which are particularly adapted to this type of car. The seats are of spring cane with reversible backs, eighteen double seats and four corner seats, giving a seating capacity of forty-four. Each corner seat includes a sand-box, the lid of which forms the seat itself. The sand-boxes are of a recent type made by the Brill Company, and known as the "Dumpit" sand-box. Other specialties of the same manufacture are the angle-iron bumpers, brake handles, dedenda gongs, gates, radial draw-bars, etc.

The interiors are finished in ash of natural color, with ceilings of birch, decorated in a neat pattern. The length of the cars measured over the crown pieces is 38 ft. 4 ins.; length over end panels, 28 ft. 4 ins.; from end panels over crown pieces, 5 ft.; width over sills, 7 ft. 9 ins.; width over posts at belt, 8 ft. 5 ins.; sweep of posts, 3½ ins.; from center to center of posts, 2 ft. 7 ins. The corner and side posts are 3¾ ins. thick. The manner in which the posts are secured at base and top, and the fact that the Brill round-corner seat end panels increase the stiffness, together with the double-corner posts, gives unusual strength, it is claimed, to the roof. Long-

leaf yellow pine side sills, 4¾ ins. x 7 ins., are plated on the outside, with ⅝-in. x 8-in. steel. The end sills are also 4¾ x 7 ins. The cars are mounted on Brill 27-G trucks, with 4-ft. wheel base and 33-in. wheels.

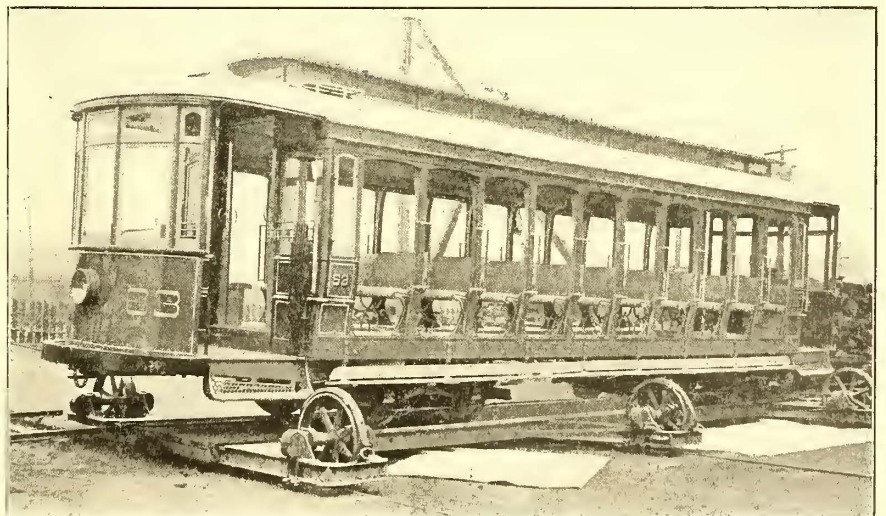
An order for ten twelve-bench open cars from the same company was completed about the same time as the convertibles. The open cars measure 39 ft. over bumpers, 7 ft. 8 ins. over sills and 8 ft. 1¾ ins. over posts at belt. They are furnished with round vestibules with three drop sash. These cars are also mounted on 27-G trucks.

AUTOMATIC CONTROL FOR ENGINES AND MOTORS

The Consolidated Engine Stop Company, of New York, which has been installing the Monarch engine stop and speed limit system in steam plants throughout the country, has developed a motor stop which places an electric motor, or a motor-driven machine, under control from any part of the factory, and forms a valuable addition to the automatic safety system which this company has been working out for several years.

The Monarch engine-stop and speed limit system applied to an engine not only prevents "racing" but it also provides a means for stopping the engine from any point, or any number of points in the plant, in case of accident to an employee or the machinery. The motor stop performs similar service for electrically-driven machinery.

Snap switches are placed at convenient positions, and one turn of the switch operates a separate battery system which throws the main switch at the board. A bell may be located in the office or engine room or in any part of the plant to give warning that the power has been shut off. These switches are always available for immediate use, but are protected from meddlesome and unauthorized employees. The switchboard is an attractive sheet of marble or slate, carrying a testing outfit as well as the main switch. The board itself



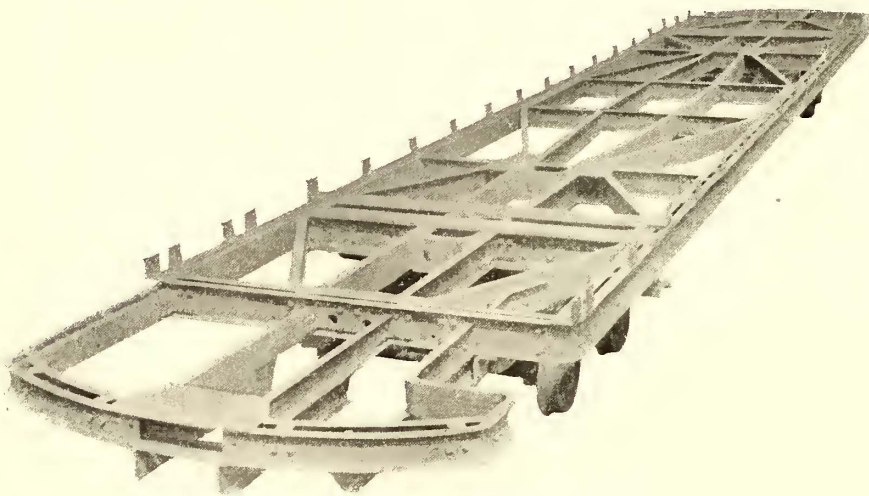
CONVERTIBLE CAR, WITH SIDES REMOVED

can be used as a main switchboard or it can be placed in the office or other part of the plant and used only in emergencies. The apparatus can be tested from the switchboard to detect low battery power or short circuits, and it can be utilized for any size motor and any degree of current. In practice it has stopped a machine under load in two seconds to five seconds. It can be applied to protect the whole line, or to a limited number of motors or a single motor.

STEEL FLOOR FRAMING FOR JOHNSTOWN CAR

The Fonda, Johnstown & Gloversville Electric Railway Company is having built at the works of the St. Louis Car Company some high-speed interurban cars which present a number of novel features. One of these is that the floor framing is entirely of steel, the purpose being to secure a car in which the effect of collision will be minimized as far as possible and the collapse of the superstructure under all conditions avoided. With this car it is hoped that a safe speed of from 75 miles to 85 miles per hour can be obtained.

The total length of the car over bumpers is 55 ft. 4 ins., and the width of the car 8 ft. 7½ ins. The main sills consist of two 10-in. channels built together with malleable iron separators, 3 ft. apart, and at the ends of all transverse beams. These separators are inserted so that the riveting of the metal work will be entirely independent of the woodwork, and so that no loosening of joints will occur by the shrinkage of any timber put on the car. The outside channels are rounded at the corners, as shown, and form the end sills. The longitudinal



STEEL FLOOR FRAMING FOR INTERURBAN CAR

braces and struts consist of 10-in. channels, so as to make the frames rigid. All joints are coped to the pieces to which they are joined with angles and plates riveted in place. The transverse beams consist of 10-in. I-beams secured to the main sills with angles and plates, while the platform is framed with 6-in. channels constructed in same manner as the main sills. The bolsters are built up from 8-in. 21¼-lb. channels and reinforced with 1-in. x 7½-in. plates. Top and bottom plates are riveted to main sills. The body framing, which will be referred to in a later issue, will be of cage construction.

The steel in this bottom weighs 18,400 lbs., and 3900 rivets were required in its construction. The entire work was done at the plant of the St. Louis Car Company.

FROM ROCHESTER TO SYRACUSE

Among the large systems in Western New York upon which work will be begun this year is the Rochester & Syracuse Electric Railway. This line will connect Rochester and Syracuse, 90 miles distant, and the promoters are now perfecting the details of construction. It is generally expected that active work will be begun within a few days. The right to build the line was opposed by the New York Central Railroad, whose line it will parallel for the entire distance between the two cities. Being built over a private right of way the new road ought to be a formidable competitor of the New York Central. As a link in the extensive system of proposed roads in New York the new line is very important. Already the company has bought in

the Newark & Marion road, now nearing completion. In addition to the main line between Rochester and Syracuse the company will build a number of short feeder lines for future operation. Among these feeder lines is one from Weedsport to Auburn, for which a franchise has been obtained. While, as stated, the road will parallel the New York Central Railroad, there is hardly a village along the entire route of the new line that lies nearer to the Central than a mile. The cost of power station equipment alone for the new line is estimated at \$750,000. Prominent Eastern financiers are interested in the company, the board of directors including among its members Ferdinand W. Roebing, who is connected with the Roebing Company, of Trenton, N. J., and Clarence W. Seamans, who is a member of Wyckoff, Seamans & Benedict, of New York.

NEW RAILWAY BATTERY FOR SEATTLE

The Seattle Electric Company will shortly have installed in its Fremont sub-station a railway storage battery composed of 288 cells, of the Electric Storage Battery Company's "type-G" elements, each tank containing fifteen plates and having an hourly discharge capacity of 560 amps. The tanks will have an ultimate capacity of twenty-three plates, giving 880 amps. The average voltage during discharge is 600, based on 2.08 volts per cell. The floor space required by the battery, exclusive of the differential booster which will be installed, is about 2500 sq. ft., or about 4.7 sq. ft. per kilowatt of ultimate-hour rate discharge.

Fremont is a northern suburb of Seattle, and the sub-station is located near Green Lake. The present equipment consists of two General Electric induction motor-generator sets. The motors are rated at 450 hp each, and are two-phase, operating at 60 cycles, and 2200 volts at 450 r. p. m. They are each directly connected to an 8-pole, 300-kw, 600-volt railway generator. The floor space occupied by each set is about 8 ft. 6 ins. x 10 ft. 6 ins., or about .3 sq. ft. per kilowatt. The motor-generator room is 32 ft. long by 48 ft. wide, and has room for two other 300-kw sets, to be added when future traffic requires more power. The railway switchboard is about 16 ft. long, and is set about 4 ft. from the wall. The battery will be placed in an addition to the station, which is supplied with alternating current from the Post Street station of the Seattle Electric Company, about 4 miles distant.

"INTERURBANS" ARE LEGALLY "ELECTRIC ROADS" IN OHIO

In the case of the State against the Southern Ohio Traction Company to compel the company to place an interlocker at the Cincinnati, Hamilton & Dayton (steam) crossing in Dayton, the Circuit Court has decided in favor of the railroad company. The Railroad Commissioner ordered the company to install a derailer, and while this order was obeyed the device was not used. Suit was brought for the penalty of \$500 per week for violation of the order. The road pleaded that where the words "electric roads" were used in the statute, they did not refer to interurbans. The State, in its argument, maintained that "interurbans" were included in "electric roads." The decision for the Traction Company was based on the technicality that the Railroad Commissioner did not specify by whom the crossing should be maintained, but the court held that the words "electric road," as used in the statutes, includes "interurban roads."

LEGAL DEPARTMENT

CONDUCTED BY WILBUR LARREMORE, OF THE
NEW YORK BAR

PHYSICAL EXAMINATIONS OF PARTIES

There is a serious judicial controversy in this country as to the inherent right of courts to order the physical examination of a party before trial. The question was discussed by the Supreme Court of the United States in the celebrated case of *Union Pacific Ry. Co. vs. Botsford* (141 U. S., 250), wherein it was held (Justices Brewer and Brown dissenting) that the Federal Courts have no power to compel the plaintiff in an action for personal injuries to submit to a physical examination at the instance of the other side. The argument of the prevailing opinion is largely historical, showing that no direct precedents existed under the common law, as adopted in this country, for granting such an examination in cases of that character. The answer of Mr. Justice Brewer to this contention was as follows: "The end of litigation is justice. Knowledge of the truth is essential thereto. It is conceded, and it is a matter of frequent occurrence, that in the trial of suits of this nature, the plaintiff may make in the court room, in the presence of the jury, any not indecent exposure of his person to show the extent of his injuries; and it is conceded, and also a matter of frequent occurrence, that in private he may call his personal friends and his own physician into a room and there permit them a full examination of his person, in order that they may testify as to what they see and find. In other words, he may thus disclose the actual facts to the jury if his interest require, but by this decision, if his interests are against such a disclosure, it cannot be compelled. It seems strange that a plaintiff may, in the presence of a jury, be permitted to roll up his sleeve and disclose on his arm a wound of which he testifies; but when he testifies as to the existence of such a wound, the Court, though persuaded that he is perjuring himself, cannot require him to roll up his sleeve, and thus make manifest the truth, nor require him, in the like interest of truth, to step into an adjoining room and lay bare his arm to the inspection of surgeons. It is said that there is a sanctity of the person which may not be outraged. We believe that truth and justice are more sacred than any personal consideration; and if in other cases, in the interests of justice or from considerations of mercy, the Courts may, as they often do, require such personal examination, why should they not exercise the same power in cases like this to prevent wrong and injustice?"

This dissenting opinion by Mr. Justice Brewer embodies the views of many American courts, especially those of the Western States.

In further answer to the stress laid by the prevailing opinion upon the sanctity of the person, it may be said that special statutes that have been passed in many States authorizing the courts to order the physical examination of plaintiffs in actions for personal injuries have quite uniformly been held constitutional. It would seem that courts should incline toward recognizing this very efficacious expedient for the administration of justice, even in the absence of exact common law precedent. In New York, however, the policy has been severely conservative and in line with the views laid down by the Supreme Court of the United States. In *McQuigan vs. D., L. & W. Ry. Co.* (129 N. Y., 50) it was held by the New York Court of Appeals that the New York Supreme Court has no inherent power, and, in the absence of a statute conferring the right, may not, in advance of the trial of an action for personal injuries, compel the plaintiff, on the application of the defendant, to submit to an examination of his person by surgeons appointed by the court, with a view to enable them to testify on the trial as to the existence of extent of the alleged injury. Shortly after the rendering of this decision a statute was passed in New York authorizing a certain limited right of examination of the persons of plaintiffs in actions for personal injuries. Such provision was incorporated in the

law generally regulating examinations before trial. It was directed that the examination, when permitted, be made by physicians or surgeons to be designated by the court or judge, and under the espionage of a referee, also appointed by the Court. In interpreting this statutory innovation the New York courts, true to their traditional attitude, have treated the right of physical examination as an innovation. In *Lyon vs. M. Ry. Co.* (142 N. Y., 298) it was held that the amendment does not authorize an order directing a physical examination apart from or independently of an examination of plaintiff as a witness before trial. It cannot be said that this decision is unsound; indeed, the Court of Appeals gives substantial, as well as technical, reasons for the position it takes. It is observed, among other things, that "the referee becomes something more than a mere spectator at an idle ceremony. He may take the plaintiff's testimony upon the issue and report to the Court as upon an examination before trial. He has, of course, power to administer an oath and to authenticate the proceedings, and the plaintiff is bound to appear before him and answer all proper questions with respect to the nature and extent of the injuries, whether framed by the medical experts from their own examination or as a part of it, or by the counsel present. It becomes a fair struggle for truth, and both parties may participate." In a still more recent case in New York, *Whitaker vs. Staten Island Midland R. R. Co.* (76 App. Div., 351), also, the actual result was probably fair and just. It was held that while section 873 of the Code of Civil Procedure, relative to the physical examination of a plaintiff in an action for personal injuries, contemplates that the physician making the examination shall be appointed by the Court, if, under a stipulation of the parties, an examination has been made by a physician nominated by the defendant, the latter has waived his right under the statute, and is not entitled, after such physician has, without objection, testified concerning the results of the physical examination upon two trials of the action and is still available as a witness, to have another physical examination of the plaintiff made by a physician appointed by the Court.

Examinations of this character should never be suffered to become a means of oppression. As far as the circumstances are disclosed by the report of the case on appeal, it seems not at all unlikely that defendant's application for another examination was properly denied. Exception, however, may be taken to the following language from the opinion of the Appellate Division: "The general purpose of the enactment was to change a rule of the common law (*Lyon vs. M. R. Co.*, 142 N. Y., 298, 302), and it ought not to be extended beyond the clearly expressed intention of the Legislature, which, while not expressly limiting the examination to a single occasion, makes no provision for more than one examination, and this is before trial." In a proper case a court should have the right to order a second examination; there is little danger that it would ever be abused. As above shown, the New York tendency to very strict construction is explainable by the systematic position of its courts against the existence of inherent power and their conception of the super-sanctity of personal rights. It is believed, on the other hand, that the attitude of all courts should be broad and liberal in construing statutes of this character in aid of the remedy in view.

LIABILITY FOR NEGLIGENCE

ALABAMA.—Street Railroads—Injury to Passenger—Evidence.

1. Where, in an action by a passenger for injuries received in alighting from a street car, he testified that the car was stationary when he attempted to alight, and was suddenly started, and four wholly disinterested witnesses testified that it was going about 10 miles an hour, the preponderance of evidence so clearly establishes the absence of negligence on the part of defendant, and the want of due care on the part of plaintiff, that a refusal of defendant's motion for new trial on a verdict for plaintiff was error.—(*Birmingham Ry., Light & Power Co., vs. Owen*, 33 Southern Rep., 8.)

ALABAMA.—Street Railways—Ejection of Passenger—Fare—Coin—Legal Tender—Pleading—Appeal—Transmission of Coin to Appellate Court.

1. A coin issued by authority of law to circulate as money is not deprived of the quality of legality merely by being worn in the process of circulation, so long as it is not appreciably diminished

in weight, and retains the appearance of a coin duly issued from the mint.

2. In an action against a street railroad company for ejection of a passenger, defendant's plea alleged that plaintiff tendered to the conductor a coin, as a fare, so worn that the conductor could not tell whether it had originally been a coin of the United States Government or not, and that, when the conductor declined to receive the coin, plaintiff declined to pay his fare with any other money, and was ejected. Held that, irrespective of whether the plea was a good defense, it put in issue the condition of the coin.

3. Where, in an action against a street railroad for ejection of a passenger from a street car, the allegations of the plea put in issue whether the conductor, owing to the condition of the coin offered as fare, could determine it legal tender, and the conductor testified that he could not tell the coin from a piece of tin, it was error to instruct that, if the coin tendered were legal tender, plaintiff could recover, as ignoring the plea of defendant.

4. In an action against a street railroad for ejection of a passenger, the defense was that the coin tendered as fare was so worn that the conductor could not determine it legal tender. The conductor, as a witness, while denying that the dime exhibited in evidence was the same that was offered for plaintiff's fare, testified that the coin so exhibited was a good, visibly lettered dime. Held, that the court was justified in charging on the assumption that the dime introduced was of legal tender quality.

5. Supreme Court rule 27 authorizes transmission to the Supreme Court for inspection of original papers used in evidence. Held, that the rule does not authorize the Supreme Court to inspect a coin in evidence, and transmitted on appeal, to determine its character.

6. In action against a street railroad for ejection of a passenger on the ground that fare tendered was not legal tender, an objection to a question to plaintiff as to where he got money to pay his fare after he was put off should have been sustained.—(Mobile St. Ry. Co. vs. Watters, 33 Southern Rep., 42.)

ALABAMA.—Personal Injury—Wantonness—Negligence—Appearance of Danger—Pleading—Experts—Hypothetical Question—Proximate Cause.

1. A complaint alleging that an act by which plaintiff, a passenger, was injured, was done with "knowledge or notice" of defendant's agent, does not state a cause of action for wantonness; notice not being the equivalent of knowledge, and the averment in the disjunctive not affirming either.

2. A complaint for personal injury, alleging that defendant's agent negligently caused another car "to appear to be in imminent danger" of colliding with the car on which plaintiff was a passenger, whereupon she jumped, is defective in not showing that the appearance was such as to convince a reasonable person of the imminence of the danger.

3. A hypothetical case calling for an expert opinion should be limited not only to facts in evidence, but to those necessary to the forming of an opinion.

4. Defendant's negligence, causing imminent danger of a car colliding with that on which plaintiff was a passenger, or an appearance of such danger, was the proximate cause of her injury, whether she jumped off, or was pushed off by a companion, or another passenger jumped off onto her after she had got off.—(Birmingham Ry. & Electric Co. vs. Butler, 33 Southern Rep., 33.)

ARKANSAS.—Limitations—Actions on Case—Statutory Construction.

1. Revised Statutes 1838, section 6, provides that all actions on the case, founded on any contract or liability, expressed or implied, all actions for trespass on lands or for libels, and all actions for taking or injuring goods or chattels, should be commenced in three years. Section 7 provides that: "The following actions shall be commenced within one year after the cause of action shall accrue, and not after: First, all special actions on the case, for criminal conversation, assault and battery and false imprisonment; second, all actions for words spoken, slandering the character of another; third, all words spoken, whereby special damages are sustained." In Gantt's Digest, section 7 was represented as follows: "The following actions shall be commenced within one year after the cause of action shall accrue, and not after: First, all actions for criminal conversation, assault and battery and false imprisonment; second, all actions for words spoken, slandering the character of another; third, all words spoken whereby special damages are sustained." Two subsequent digests represented the section in the same way. Held, that both because the construction placed on it by the digests has become too firmly fixed to be now overturned, and because such is its natural import, section 7 should be construed to place a one-year limitation on the designated actions for criminal conversation, etc., only, and not on all special actions on the case.—(Emrich vs. Little Rock Traction & Electric Co., 70 S. W. Rep., 1035.)

CALIFORNIA.—Street Railroad—Injuries—Crossing Track—Contributory Negligence—Finding—Conflicting Evidence—Review—Damages—Pleading—Pre-Existing Disease—Effect.

1. The fact that a person attempts to cross in front of a street car seen to be approaching does not of itself constitute contributory negligence.

2. Plaintiff was driving along the side of a street, two or three feet from the street car track nearest him. He testified that before attempting to cross he looked and saw a car 450 feet distant, and that he thought he had plenty of time to cross, and that, though his team was trotting while he endeavored to cross, and he endeavored to hurry them, he was struck. The evidence as to the distance of the car was conflicting. Held, that a finding in favor of plaintiff on that issue would not be disturbed on appeal.

3. Increased injury sustained by plaintiff by reason of her diseased condition at the time of the accident, occurring from defendant's negligence, does not constitute special damage, which must be pleaded in order to be recovered.

4. Where plaintiff at the time of an injury by reason of defendant's negligence was suffering from disease, and such injury hastened the development of the disease, and aggravated the same, she was entitled to recover for such increased injury.—(Campbell et ux. vs. Los Angeles Traction Co. (L. A. 1030), 70 Pacific Rep., 624.)

DELAWARE.—Street Railways—Rights—Pedestrians—Care—Contributory Negligence.

1. A street railway company is bound to use reasonable care in operating its cars, that they move at a reasonable rate, and that they slow up or stop if need be, when danger is imminent, and persons using the street are also bound to stop, and, if need be, turn out of the tracks, in the presence of danger.

2. Where a street railway approaches a street crossing at a steep down grade, or where the rails are wet or the view of the railway is obstructed, greater care is required of the motorman than where the approach is at or near the grade of the crossing, or where the rails are in the usual condition, or the view is unobstructed.

3. Where a person approaches a street railway crossing at a point where his vision is obstructed, he is bound to look for approaching cars in time, if possible, to avoid collision, and if he fails to do so, and for this reason does not see an approaching car until it is too late to avoid a collision, he is guilty of negligence.

4. While the right of a street railway company on the street is superior to that of other users of the street, the public has a right to cross the tracks as well within the blocks as at street crossings.—(Snyder vs. People's Ry. Co., 53 Atlantic Rep., 433.)

DELAWARE.—Attorney—Pending Suit—Authority to Compromise—Presumption—Plea—Sufficiency.

1. In a personal injury action, the defendant pleaded that one E., "counsel of record for said plaintiff in this cause," agreed in writing with defendant's attorney to receive a certain sum in settlement. Held, that a demurrer to the plea admitted the authority of plaintiff's counsel to make the agreement.

2. An attorney, being an officer of the court, is presumed to have had authority to compromise a pending suit in which he appeared.—(Strattner vs. Wilmington City Electric Co., 53 Atlantic Rep., 436.)

DELAWARE.—Street Railways—Injury to Passenger—Alighting from Car—Negligence—Contributory Negligence.

1. Where a conductor of a street car fails to stop it at the usual place, as requested by a passenger, but, after passing it, slows up in the middle of a block, so as clearly to invite him to alight, and he attempts to get off, with the knowledge of the conductor, it is the conductor's duty not to cause the car to start up or jerk so as to endanger the passenger's safety.

2. Whether a passenger, in attempting to get off a slowly moving street car, is guilty of contributory negligence, is a question for the jury, under all the circumstances.—(Betts vs. Wilmington City Ry. Co., 53 Atlantic Rep., 358.)

DELAWARE.—Death—Electricity—Reasonable Care—Highways—Rights of Traveler—Negligence—Proximate Cause—Damages.

1. What constitutes negligence is a question of law, but whether negligence exists in a particular case is a question of fact.

2. Where a guy wire supporting an electric trolley line fell and became charged with electricity, and defendant company had notice thereof, it was its duty to exercise such care to prevent injury as a reasonably prudent man would exercise under the circumstances, considering the dangerous character of the wire, the existing conditions and surrounding circumstances.

3. A traveler on a highway is entitled to assume that it is reasonably safe, and, while required to use reasonable care and caution to avoid danger, is not required to search for obstructions and dangers therein.

4. Where the proximate cause of the death of plaintiff's intestate was defendant's negligence in permitting a guy wire to fall into a street and become charged with electricity, it was immaterial that the negligence of some third person may have contributed to the accident.

5. The measure of damages for the wrongful killing of plaintiff's intestate is such a sum as deceased would probably have earned in his business during his life, and left as his estate, considering his age, his ability and disposition to labor, and his habits of living and expenditures.—(Neal vs. Wilmington & N. C. Electric Ry. Co., 53 Atlantic Rep., 338.)

DELAWARE.—Street Railroads—Negligence—Contributory Negligence—Comparative Negligence—Death—Damages.

1. In an action against a street railway company for injuries owing to a collision with a car, the burden is on plaintiff to show defendant's negligence.

2. A street railway company has the right of way within the limits of its tracks.

3. It is incumbent on a street railway company to exercise such care as to speed, giving signals, and slowing up and stopping the car in presence of danger, as is reasonably demanded by the surrounding circumstances.

4. A person using a highway occupied by a street railway company must exercise reasonable care to avoid an injury to himself.

5. In an action against a street railway company for injuries, it is to be presumed, in the absence of evidence to the contrary, that plaintiff exercised reasonable care to avoid injury.

6. Where the negligence of one injured in a collision with a street car entered into the accident, he may not recover, though defendant was also guilty of negligence.

7. Where one is injured in a collision with a street car, he is entitled to recover, though there had been some negligence on his part, if the street railroad's negligence alone was the proximate cause of the injury, and his negligence did not enter into the accident at the precise time thereof.

8. In an action by a widow for wrongful death, the damages awarded should be such a sum as to reasonably compensate her for all damage sustained or that she may subsequently sustain by reason of the death; basing the calculation on the number of years deceased would probably have lived.—(Cox vs. Wilmington City Ry. Co., 53 Atlantic Rep., 569.)

GEORGIA.—Expulsion of Passenger—Damages.

1. A railroad company is liable in damages for an injury to the feelings and sensibilities of a passenger, caused by his wrongful expulsion from one of its cars, though such passenger may not have received any physical injury thereby.—(Mabry vs. City Electric Ry. Co., 42 S. E. Rep., 1025.)

GEORGIA.—Trial—Instructions—Failure to Present Phase of Defense—Prescription—Right to Maintain Dam—Evidence.

1. A ground in a motion for a new trial to the effect that the court erred in admitting in evidence, over the objection of counsel, a plat referred to in the testimony of a witness, cannot be considered, when a copy of the plat is not attached to the motion, or set out or explained in any way, save only by reference to the brief of evidence, and when it does not appear what objections were made to the trial judge, and overruled by him.

2. Sayings of a person in possession of real estate, or some interest therein, ought not to be admitted against another, unless it appears that this other claims through or under him, or stands in privity with him; these declarations not being offered, apparently, to prove adverse possession on the part of the person making them. When such declarations are offered, it is material to show accurately or approximately when they were made.

3. While a party cannot complain of the failure of the court to give in charge to the jury a request not in writing, he can complain, without any request having been made at all, of the fact that the court has not presented with reasonable fullness and clearness (if this be true) a material and substantial contention made by him. (a) When a defendant claims that he had a prescriptive right to maintain a mill-dam attached to land claimed by the plaintiff (that is, that he enjoyed an easement of this kind as to the plaintiff's land), and the charge, in its entirety, while dealing with prescription, does not present this specific defense, certainly not with reasonable fullness and clearness, the error is material, in the light of the pleadings and the evidence in this case.

4. It is error for the court to charge that permissive possession cannot ripen into a prescriptive title until the defendant asserting this possession first surrenders possession, and turns it over to the other party, and claims it adversely. This is putting a burden upon the defendant which the law does not impose in a case like that now before the court.

5. It is error for the court to charge that in order for the defendant to acquire prescriptive title to an easement, such as the right to maintain a dam, he must have kept the dam at a certain

place, and "just so high, and no higher," for over twenty years. This error becomes more material when the court subsequently charges the jury that, where the defendant claimed a prescriptive right to a dam, they must be satisfied from the evidence "that he claimed a dam at a certain place, of a certain height, and with certain privileges, for the full term of twenty years."—(Whelchel vs. Gainesville & D. Electric Ry. Co., 42 S. E. Rep., 776.)

ILLINOIS.—Trial—Instructions—Pleading—Withdrawal of Count.

1. Where plaintiff, by leave of court, and in the presence of the jury, withdrew one count of her declaration, a subsequent instruction that if the jury believed that the plaintiff had made out her case "as laid in the declaration, then," etc., cannot be supposed to have misled the jury.

2. After plaintiff had withdrawn one count of her declaration, an instruction was given at her request that if the jury believed she had made out her case "as laid in the declaration, then," etc. An instruction was given on behalf of defendant that the burden of proof was not on it to prove the absence of negligence "charged in the declaration, or in some count thereof;" and another, that the plaintiff must prove that the defendant was guilty of negligence "in the manner charged in the declaration," and that "such negligence" was the proximate cause, etc. Held, that defendant could not complain of any error there may have been in the giving of plaintiff's instruction; a like error appearing in the instruction given by its request.

3. Where only a general objection was made by defendant to the action of the court in permitting the jury to take a declaration with them to the jury room, he cannot be heard on appeal to urge the specific objection that one count of the declaration had been withdrawn by plaintiff.

4. Where one count of a declaration has been withdrawn by plaintiff in the presence of the jury, it cannot be supposed that they were misled by being permitted to take the whole declaration with them to the jury room.—(West Chicago St. R. Co. vs. Buckley, 65 N. E. Rep., 707.)

ILLINOIS.—Street Railways—Passenger in Other Vehicle—

Collision—Declaration—Negligence—Scope of Issue—Instructions—Modification—Cure—Admissibility of Evidence.

1. Plaintiff alleged that she was a passenger in defendant transfer company's cab; that defendant street car company was under obligation to run its cars with due care; that defendants "did not regard their said duties, but so carelessly, unskillfully, and negligently conducted themselves that by and through the negligence and default of their servants, and for want of due care and caution," the cab was, "by reason of the negligence" of defendants, run into by a street car which was running "at a great rate of speed, * * * by means whereof" plaintiff was hurt. Held, that, on issue joined, the question of the street car company's negligence was not limited to the single element of the excessive speed of its car.

2. Defendant cannot complain that plaintiff's requested instructions referred to the negligence necessary to be proved merely as "negligence as charged in the declaration," where its own requested instructions contained the same defect.

3. In a personal injury case against a transfer company, in whose cab plaintiff was a passenger, and a street car company, whose car ran into the cab, the street car company's requested instruction that, before it can be held negligent, the jury must believe the plaintiff's injury was a natural consequence of its negligence, flowing directly therefrom, is properly modified by striking out the additional clause, "without any possible intervening and probable efficient cause to which such injury might have been due," etc.

4. In a personal injury case, error in an instruction that the jury may assess such damages as, under the evidence, "plaintiff is entitled to," without stating any rule to guide the jury, is cured by another instruction that, in determining the amount of damages "the plaintiff is entitled to recover," the jury should consider her pain and suffering, etc.; stating her elements of damage with substantial accuracy.

5. In a personal injury case against a street car company by a passenger in a cab, a question put to a motorman, as to whether he knew of anything he could have done, which he did not do, to avoid colliding with the cab, is objectionable as calling for a conclusion.—(Springfield Consol. Ry. Co. et al. vs. Puntenny, 65 N. E. Rep., 442.)

ILLINOIS.—Street Railways—Pedestrians—Injuries—Headlight—Insufficiency—Negligence—Question for Jury—Look and Listen Rule—Trial—Instructions—Credibility of Witnesses—Appeal—Supreme Court—Jurisdiction—Scope of Review—Sufficiency of Evidence—Excessiveness of Verdict.

1. The amount of damages sustained by plaintiff in an action for injuries is a question of fact, and, where a verdict claimed to be

excessive is sustained by the Appellate Court, it cannot be reviewed by the Supreme Court on that ground.

2. An objection in an action for injuries that the verdict sustained by the Appellate Court is against the evidence cannot be considered by the Supreme Court.

3. Where plaintiff was injured by being struck on a dark night by a street car while crossing a street behind a car on another track, which had just passed, and there was evidence that the headlight on the car was insufficient and could not be seen more than a half a block, and that the car passed over the crossing at a high rate of speed without sounding a bell or giving other signal to warn pedestrians of its approach, there was sufficient evidence of defendant's negligence to entitle plaintiff to go to the jury.

4. Plaintiff was injured by being struck by a street car running at a high rate of speed, without a sufficient headlight, at a crossing. She looked for a car when she came out of her house, less than a block from the crossing, and again as she started to walk diagonally across the street, between the curbstone and the east rail of the east track, where she waited for a train going in the opposite direction to pass her, and saw no car coming from the other direction. Held, that she was not guilty of contributory negligence, as a matter of law, in not looking a third time, just before she started to cross the track on which she was injured.

5. Where, in an action for injuries, the court charged, at defendant's request, that plaintiff could not recover unless it was shown that she was exercising ordinary care, the omission of the element of plaintiff's care from an instruction authorizing a recovery by her under certain contingencies was not error.

6. An instruction that while the burden of proof is on the plaintiff, and it is for her to prove her case by a preponderance of the evidence, still, if the evidence preponderates in plaintiff's favor, although but slightly, it would be sufficient for the jury to find the issues in her favor, was correct.

7. In an action for injuries, an instruction that, in estimating plaintiff's damages, it will be proper to consider the effect of the injury upon the plaintiff, the use of her body and limbs, and her ability to pursue any ordinary trade or calling, if these will be affected by the injury complained of, and also the bodily pain she sustained, if any, and all damages, if any, which the jury find from the evidence to be the direct result of the injury complained of, was proper.

8. Where the proposition embodied in a requested instruction was fully covered by other instructions given, a refusal of the request was not error.

9. Where the court charged that, if any witness willfully swore falsely to any matter material to the issues, then the jury were at liberty to disregard his entire testimony, except in so far as it had been corroborated, etc., the court was not required to charge a request that a witness could be impeached by showing that he had made contradictory statements on material points on former occasions.—(Chicago City Ry. Co. vs. Fennimore, 64 N. E. Rep., 985.)

ILLINOIS.—Garnishment—Personal Injury Action—Judgment—Assignment—Evidence.

1. An assignment purporting on its face to assign a judgment in a personal injury action executed before the entry of the judgment to secure the claim of plaintiff's attorneys for services in the action, and to secure another creditor, is valid as between the parties, and the judgment is not subject to garnishment by a creditor of the assignor.

2. Where an assignment of a judgment is valid, the question whether a second assignment was delivered before the service of summons in a garnishment proceeding by a creditor of the assignor is immaterial.

3. The fact that no notice of the assignment of a judgment was given to the debtor does not render the assignment void as against a garnishing creditor of the assignor.

4. In garnishment to recover on a judgment rendered in favor of the debtor, evidence showing the circumstances under which the judgment was assigned is material to show good faith.—(Williams et al. vs. West Chicago St. R. R. et al., 64 N. E. Rep., 1024.)

ILLINOIS.—Trial—Motion for Directed Verdict—Weighing Evidence—Review on Appeal.

1. In a personal injury case the trial court can no more weigh conflicting evidence in passing on a motion for a directed verdict for defendant, made at the close of all the evidence, than when such motion is made at the close of plaintiff's evidence; but if, in either case, there is any evidence to support plaintiff's case, it is for the jury.

2. Under the statute providing that all controverted questions of fact shall be deemed settled by the verdict of the jury and the judgment of the Appellate Court, the Supreme Court can no more weigh the evidence in reviewing the trial court's refusal of a directed verdict for defendant, asked at the close of all the evidence,

than when such request is made at the close of plaintiff's evidence.—(Chicago City Ry. Co. vs. Martensen, 64 N. E. Rep., 1017.)

ILLINOIS.—Street Crossings—Injuries to Persons at Crossing—Negligence—Question for Jury—Request to Charge—Limitation of Number—Appeal—Harmless Error.

1. Where before plaintiff attempted to drive across a street car track, he looked and saw the car, by which he was struck, approaching the crossing a distance of half a block away, he was not guilty of contributory negligence, as a matter of law, but was entitled to go to the jury on the question whether a reasonable man, under all the circumstances, would have assumed that he had time to cross the track in safety.

2. Plaintiff was struck by a street car while crossing the track, and the gripman testified that he saw the plaintiff, with his horse and wagon, as he came into the street from a cross street, and thought it was plaintiff's intention to drive across the track, but admitted that the car was going from one-half to two-thirds its regular speed when the collision occurred, and the impact slid the horse and wagon nearly three-quarters across the street. Held, that there was sufficient evidence of defendant's negligence to take the case to the jury.

3. While the trial court has authority to make rules governing the presentation of requests to charge, an order limiting the number of requests which each party shall be entitled to present to twelve is unreasonable.

4. Where during the trial of an action the court refused certain instructions under an unreasonable rule limiting the number of requests which each party might present to twelve, but, on appeal, counsel pointed out but one instruction, the refusal of which it contended was prejudicial, and the substance of such instruction was contained in an instruction given, the error in so limiting the requests was harmless.—(Chicago City Ry. Co. vs. Sandusky, 64 N. E. Rep., 990.)

INDIANA.—Street Railroad—Broken Trolley Wire—Injury to Traveler in Street—General Verdict—Inconsistent Findings—Effect.

1. In an action by a traveler in a street against a street car company for injuries occasioned by the breaking and falling of a trolley wire, the jury returned a general verdict for plaintiff, but answered in the negative an interrogatory as to whether the evidence showed that the wire was subjected to more than "the ordinary usage of wires at that place", from the time it was put up till the accident. Held that, as this was not equivalent to a finding that the wire had been subjected to only ordinary usage in general, since the ordinary usage "at that place" might have been excessive, it left room for the inference that the wire had become crystallized from hard usage, whereby the company was put on notice of its condition; and consequently the general verdict was not overthrown by the finding.

2. In response to interrogatories as to what caused the wire to break at that particular time and at that particular place, the jury found there was no evidence. Held that, as it was immaterial what caused the breakage at the particular place and time, but the jury might nevertheless have been able to conclude that the wire for some distance and for some time had been in an unsafe condition, the general verdict was not overthrown by such findings.

3. The jury were asked what method, if any, had ever been discovered by which to ascertain in advance when or where a wire might probably break, and answered, "No evidence." Held, that this finding did not overthrow the general verdict.

4. The jury found that the wire broke as plaintiff was passing under it, "without warning." Held that, as the term "warned" would apply rather to plaintiff than to the company, which might rather be said to be "advised" of the danger, the interrogatory would not be construed as negating notice to the company, and therefore would not overthrow the general verdict.—(Citizens' St. R. Co. vs. Batley, 65 N. E. Rep., 2.)

INDIANA.—Negligence—Pleading—Appeal—Record—Evidence—Bill of Exceptions.

1. A complaint charging in general terms a railroad company with having carelessly and negligently started its car with a sudden jerk while a passenger was alighting from the car, which threw her to the ground and injured her, is sufficient, in the absence of a motion to make more specific.

2. Action of the court in rereading to the jury a portion of the instructions, not being brought up by bill of exceptions, cannot be reviewed.

3. The taking of the original manuscript of the evidence from the bill of exceptions, and putting it into the transcript, instead of copying into the transcript that part of the bill of exceptions, does not bring the evidence into the record.—(South Chicago City Ry. Co. vs. Zerler, 65 N. E. Rep., 600.)

FINANCIAL INTELLIGENCE

WALL STREET, May 6, 1903.

The Money Market

The money market has drifted into the easy condition usual at this season. Call money on the Stock Exchange lends freely at 2½ per cent, and owing to the current dullness of speculation even lower rates are being talked of. Time money is also in abundant supply for sixty and ninety-day periods at 4 per cent. For loans of from four to six months 4½ per cent is the official quotation, but inasmuch as these carry into the crop-moving season bankers are not disposed to do much business in this class of accommodation. There is no reason why the prevailing rates should not last without interruption for another three months at least. We are evidently not going to witness any such enormous strain upon bank credits from the operations of promoting syndicates as characterized the spring and summer of 1901 and 1902. It was the huge loan expansion thus occasioned which, it will be remembered, kept down surplus reserves in both these years, and later on greatly accentuated the stringency in the money market. Currency is flowing back from the interior in the usual volume, and this flow will continue until preparations for moving the crops begin toward the middle of July. It is possible, on account of the surplus government revenue, that the banks will have to pay out more than they receive from the Treasury. The practical effects of the Panama Canal settlement are also a matter of some doubt. But it is generally assumed, if the Treasury increases its working cash balance in the meantime, that the transaction will release money available for the market rather than absorb it. The only thing that could cause any stiffening of money rates during the next few weeks would be heavy exports of gold to Europe. We are on the point of shipping gold now. Sterling exchange has risen sufficiently here and declined sufficiently in Paris to make profitable transfers of specie from America to France. The issue of the new Transvaal loan has momentarily produced a more active demand for capital in Europe than in this country, and since we still have a balance of unpaid obligations in the foreign markets, exports of gold are a natural incident. The size of the movement is the only matter in question. On this point, however, local bankers are unanimously agreed that the volume of gold to go out will be comparatively small, and will not be seriously felt in the local market.

The Stock Market

The stock market continues entirely in the hands of professional traders, with no outside business to speak of, and with prices fluctuating on a narrow range. The experience of the last two weeks has removed all doubt that liquidation has run its course, and that the movement of decline has been finally checked. Speculative attention is now turning to the chances for a period of rising prices, as this is felt to be the natural tendency of the market during the next few months. On the face of things outside conditions are favorable to an advance. The decline in money rates, to use a popular phrase, has made money cheaper than stocks. Business men in general and railway officials in particular are looking forward to another season of great activity. The effect of the higher rates for transportation is beginning to manifest itself in an increasing ratio of net earnings, and this feature superadded to the already handsome surpluses lends greater probability to the reports of dividend increases on a number of the important railway systems. Expectation of larger dividends is the chief incentive in the advance in Missouri Pacific, the Eries, Canadian Pacific, Baltimore & Ohio, and one or two others which have been the leaders of the recent market. As to whether these hopes will be realized, a great deal depends upon the outcome of the crops. Winter wheat suffered considerable damage from the cold wave which swept over the West a week ago, but, allowing for this, the outlook for a heavy yield is still exceptionally promising. Planting of spring wheat, corn and oats has been retarded by the cold weather, and this is an unfavorable feature in the situation. Yet, as nothing definite is ever known about these crops until well into June, the market is not likely to pay much attention at present to their prospects.

The decision against the companies in the State franchise case was received rather curiously on the Stock Exchange. Almost immediately upon the announcement the traction list, instead of breaking sharply, as most people expected, began to advance. The

entire group is now up from two to three points from where they were selling at the time the news from Albany was made known. This shows, of course, that in the market, as elsewhere, the decision had been fully expected, and its effect discounted. Friends of the properties lost no time in pointing out that many of them had already made provisions for the increased taxation out of earnings. In the case of the Manhattan Elevated, it is an open secret that the company has long written off the full amount of its apportionment. There are one or two other companies not so well off, financially, in which the question of their ability to stand the new burdens may be brought up for discussion later on. But for the time being the disposition is to let the subject drop and to treat the franchise tax as a contingency already provided for. When the libel suit against Mr. Vreeland, of the Metropolitan, was finally thrown out of court on Saturday last, the actual announcement excited only languid interest in Wall Street; it was no more than every one had expected. More attention was given to the talk of a bankers' pool having been formed to support Metropolitan against any further bear raiding, and perhaps to punish some of those who have been so free in selling the shares short. It is possible that the reappearance of organized support in this stock may have some connection with the call for a new installment of subscriptions to the shares of the Metropolitan Securities Company.

Philadelphia

The fortnight's dealings in Philadelphia have developed little of consequence in the local traction stocks. A statement, emanating undoubtedly from speculative quarters, that Rapid Transit's earnings for the present year would suffice to pay the entire dividend on Union Traction nearly twice over, has attracted some attention, but it has had little effect on the market for the stocks. Rapid Transit has, in fact, been decidedly heavy; it sold down a half point to 12¼, and recovered only half the loss. Union Traction has held comparatively steady between 46½ and 47, and Philadelphia Traction between 97½ and 97¾. Trading in all these issues has been very light. Some uneasiness is occasioned by the call for an additional \$5 payment on Rapid Transit shares, which is expected toward the end of the month. This may have something to do with the recent decline in the stock. On sales of a few hundred shares Fairmount Park Transportation jumped from 26½ to 30. Sales of American Railways were scattering and unimportant on a range from 49¼ to 49¾. Indianapolis Street Railway rose a point from 82 to 83. Consolidated Traction of New Jersey changed hands between 66 and 67, Railways General sold at 3¾ to 4, United Traction of Pittsburg preferred at 51, and United Railways of San Francisco preferred at 57¾ and 58. On rumors of a possible new bond issue Philadelphia Company common sold down to 44¾, but later rallied to 45½ on the annual earning statement, which was favorably received.

Chicago

The market for traction stocks in Chicago has been greatly disturbed, first by the news of the receivership in Union Traction and second by the violent fall in one or two of the elevated shares. Although the appointment of a receiver for the Union Traction Company had been expected in well informed circles for some time, the action seemed to cause consternation among many of the holders of the various securities concerned. Union Traction common when the news was first announced broke from 7 to 5 and the preferred from 33 to 28. The greatest drop, however, took place in the higher priced shares of the underlying properties. North Chicago broke 10 points to 120, this being a total loss of over 30 points during the past month. West Chicago lost 8 points and at 62, which was its low price, it was selling 30 points below the ruling price of last winter. Subsequently all these stocks recovered part of their losses, the establishment of protective committees serving in some measure to restore confidence. Now that the Mueller enabling bill has passed the State Legislature it is possible that progress will soon be made toward clearing up the uncertainties regarding the franchise matter. Another sensation in a different quarter was afforded by the drop of Northwestern Elevated common from 24 to 18, which meant a total decline of 10 points within a week. There was no explanation for this extraordinary break, except the tardy recognition of shareholders that the Northwestern Company's business position has been rendered somewhat dubious by the recent op-

erations of the Lake Street Elevated Company. The shock occasioned by the urgent liquidation of Northwestern stock was felt to some extent among the other elevated issues. Metropolitan common broke 3 points, from 27½ to 24½, and the preferred a point, from 75½ to 74½. Lake Street reached a new low mark, at 47; South Side was the only one of the group to show any resistance; it held firmly around 107. Announcement of the last named company's plan for financing its extensions is expected soon. It is understood that large stockholders in the company have pledged themselves to take at par all new stock that is not subscribed under the terms of the offer to shareholders in general.

Other Traction Securities

In the Boston market the feature has been the erratic fluctuations in Massachusetts Electric common. The stock went up from 33 to 35, representing a recovery of 7 points from the recent low level, then dropped within a few days to 30½, and finally recovered to 31½. Speculative manipulation on a small scale seemed to be about all there was in the movement. The preferred stock was comparatively quiet within a range of a point, from 87½ to 88½. Scarcely anything was done in Boston Elevated, such sales as there were occurring at 146½ and 146¾. West End common "ex-rights" went as high as 93 and then fell back to 92. The preferred rose a point, from 112¼ to 113¼. The rights sold as low as 5 cents and as high as 10 cents, the average being about 6 cents. In Baltimore there were recoveries of about a point in United Railways common stock, and in the income bonds. The stock reached 12¾ and the bonds 68¾. The 4 per cent general mortgage bonds were dealt in between 93¼ and 93¾. Other sales included Anacostia & Potomac 5s at 97¾ and 97½, City Consolidated 5s at 100, and Knoxville Traction 5s at 100¼. On the New York curb the only important movement was the advance in American Light & Traction issues, the common going up from 69 to 78, and the preferred from 97½ to 100¼. Rights in the same stock sold at ¼. St. Louis Transit, on sales of a few hundred shares, gained 2 points, from 27¼ to 29¼. Interborough Rapid Transit (80 per cent paid) sold at 104. New Orleans 4½s at 79, and Brooklyn Rapid Transit 4s from 82½ to 83.

Security Quotations

The following table shows the present bid quotations for the leading traction stocks, and the active bonds, as compared with last week:

	Closing	Bid
	April 21	May 5
American Railways Company	49	49
Aurora, Elgin & Chicago	a29	a29
Boston Elevated	146	146
Brooklyn Rapid Transit	66¾	66¼
Chicago City	210	206½
Chicago Union Traction (common)	7½	5½
Chicago Union Traction (preferred)	39	32
Cleveland Electric	a79¾	a81
Columbus (common)	80	85
Columbus (preferred)	104¾	104
Consolidated Traction of New Jersey	64¾	67¼
Consolidated Traction of New Jersey 5s.	107	107¾
Detroit United	83	81
Electric People's Traction (Philadelphia) 4s.	98	98
Elgin, Aurora & Southern	a52	a54
Lake Shore Electric	a14	a15½
Lake Street Elevated	4½	4¾
Manhattan Railway	140½	142¼
Massachusetts Electric Cos. (common)	32½	31
Massachusetts Electric Cos. (preferred)	88½	88
Metropolitan Elevated, Chicago (common)	27	26
Metropolitan Elevated, Chicago (preferred)	75	72
Metropolitan Street	131¾	134¼
New Orleans Railways (common)	13½	14
New Orleans Railways (preferred)	—	39¾
North American	99	99½
Northern Ohio Traction & Light	23¾	23¾
Northwestern Elevated, Chicago (common)	26	22
Philadelphia Rapid Transit	12½	12½
Philadelphia Traction	97½	99½
St. Louis Transit (common)	26½	28½
South Side Elevated (Chicago)	106	105
Syracuse Rapid Transit	32	—
Syracuse Rapid Transit (preferred)	80	—
Third Avenue	119	120
Toledo Railway & Light	34	30½
Twin City, Minneapolis (common)	113½	113
United Railways, St. Louis, 4s	84	85
United Railways, St. Louis (preferred)	79¾	80
Union Traction (Philadelphia)	46¾	46½

a Asked.

Iron and Steel

The decline in lower grade iron prices has continued during the past fortnight, but as importations have now practically ceased, it is believed in the trade that the market has about struck bottom. Basic pig iron is reported to be scarce in the East, but Bessemer pig in the Pittsburg district is offered freely. The heavy demand for iron and steel products is still not in the least affected by the price recessions in the lower branches of the industry. A shortage in steel billets in the face of very urgent buying is reported from Chicago, and a large tonnage is coming forward in wire and tin plate bars. In steel rails, although the entire domestic product is engaged ahead for a long time, makers are trying to recover the Pacific Coast and Canadian markets which have been lost to foreign competitors.

ANNUAL REPORT OF THE PITTSBURG RAILWAYS COMPANY

The first annual report of the Pittsburg Railways Company, of Pittsburg, Pa., has just been made public. It shows in detail the combined earnings for the year ended March 31, 1903, of the Consolidated Traction Company, United Traction Company, Pittsburg & Birmingham Traction Company, West End Traction Company, Monongahela Street Railway Company, Pittsburg & Charleroi Street Railway Company and Suburban Rapid Transit Company, all of which are controlled by the Pittsburg Railways Company through ownership of stock, or by lease. Prior to Jan. 1, 1902, all of the companies mentioned were operated separately. The report itself shows the economies that have been effected by joint operation under careful management. The figures as they were made public are:

Gross	\$8,276,565
Expenses, taxes and tolls	4,802,623
Net	\$3,473,942
Other income	118,449
Total income	\$3,592,391
Deductions	1,059,548
Balance	\$2,532,843
Charges	1,380,592
Surplus	\$1,152,251
Dividends	870,000
Surplus	\$282,251
Deficit previous year	75,064
Balance	\$207,187
Charged off	225
Profit and loss, March 31, 1903.	\$206,962

During the year ending March 31, 1903, the gross receipts from operation increased \$1,006,729 over the same period for the preceding year:

Passengers carried	164,407,446
Car mileage	33,577,214
Earnings per car mile (cents)	24.65
Expenses per car mile (including taxes) (cents)	14.33
Net earnings per car mile (cents)	10.32

ELECTRIC RAILWAY SERVICE IN OSKALOOSA, IA.

The Oskaloosa Traction & Light Company, which is owned by the same interests as the Ottumwa Traction & Light Company, recently inaugurated an electric railway service at Oskaloosa, Ia., which is probably one of the best to be found in a town of this size in the United States. Oskaloosa has a population, according to the 1900 census, of 9212. Four miles of street railway line have been constructed, and another mile is to be built. Three cars are operated. In brick-paved streets 60-lb. Shanghai rail is used; in dirt streets, 60-lb. standard steam road section T-rail is used. The company controls also the lighting, and has erected an entirely new power plant which will replace the lighting plant formerly giving service to Oskaloosa. This station will give 500-volt railway current and 2300-volt three-phase alternating current for light and power. The road was planned and the equipment purchased under the supervision of General Manager J. F. Springfield, of the Ottumwa Traction & Light Company. An interurban line between Ottumwa and Oskaloosa is being projected by these same interests.

YOUNG MEN'S CHRISTIAN ASSOCIATION WORK AMONG STREET RAILWAY EMPLOYEES*

BY T. J. NICHOLL

In the first place let me say that I feel strangely out of place upon this platform, when I suffer myself to think for a moment that I am in the presence of so many great and good people—those whom I know are so much better versed in matters of religion and the beneficial work of this great organization. In fact, I feel like shrinking from the task, and would, were it not for the hope that perhaps some words that I shall speak may have the effect of encouraging some of the laborers in the field that I have the honor to represent.

It is great consolation to know that in this association no one man or congregation of men is respected more than another. The Catholic, the Protestant and even the agnostic is able to find a warm welcome and a loving hand. I am particularly thankful that the good Lord implanted the faith in my heart early in life and has not suffered it entirely to die, and that He has permitted me to be the instrument in His hand, at this late day, to assist in establishing the first street railway branch of the Young Men's Christian Association in the world, and made me its first member. It is hoped that the seed sown in Rochester, N. Y., under the unavoidably adverse conditions consequent upon entering a new and hard field, may grow and spread with the same rapidity as has characterized the steam railroad branch. It is true that the soil may not be as rich or as capable of producing such eminent examples as the steam railroad field, but we believe that with careful cultivation the results will not be far below those of our steam railroad brothers, and certainly the glory and honor will be much greater, because, as I have suggested before, the field in which we work is more thickly covered with the thorns and thistles of temptation and vice, which are being planted and nurtured by the worst part of humanity, with whom we are constantly in contact.

Right here let me say that street railroads are most prosperous and consequently employ more men where population is most dense, and where population is most dense there we find vice and crime most rampant. I have often said that the street railroads of the country were doing more towards the uplifting of humanity, morally and socially, than any other force in existence, because in the use of the street railroad people are enabled to become more widely separated. The rapidity with which he can be carried from the outskirts of a city to the center, enables the poor man to enjoy more of God's free, pure air, and he is not compelled, as in olden times, to live close to his work, breathing foul air, with his offspring being brought up and nurtured amidst all manner of sinfulness. I believe that facts will bear me out when I say that not less than 75 per cent of the sinfulness of the world is due proportionately to density and to communities such as Five Points in New York city and similar localities in other cities.

Now it is amidst these people that the street railroad man is compelled to live and work, and therefore it does not require much stretch of imagination to understand why the field is hard, and why it is going to require more and harder labor to develop than has been the case with the steam railroad branch. We all know that the steam railroad man is beset by many temptations and hardships, being away from home and friends, but it must not be forgotten that a great portion of his time is spent alone, and, furthermore, that he has many hours and days of rest that give him an opportunity to attend divine service and renew his moral and spiritual strength.

Street railroads are compelled to operate always—nights, days and Sundays. Sunday, the day that others rest, is the day upon which the street railroad man has to work the hardest, and this he does for his fellow men, enabling those who are so inclined to attend to their religious duties, and others to reach places of pleasure and recreation. I take it that were it not for the supposedly corrupt and sinful street railroad man but few of our churches in the cities would flourish to any great extent. Even the pastors of many of them are compelled to use the street railways on Sunday, and doubtless but few of them ever think of the fact that it is at the sacrifice, to some extent, of human souls that they are enabled so to do.

In view of what I have already said, and the actual experience of many of you, I beg of you to think kindly of the poor street railroad man. Think of the example that is set him by the public, in his everyday communication with them. Think of the many outrages that he has to bear with patience. Think of how he must stand and allow himself to be called a thief, without an opportunity of resenting it, except at the risk of being called a blackguard and

placed under arrest. Think of how he is daily expected to receive the slap on one cheek and turn the other. Think of how many duties he is required to perform under the most trying circumstances, and yet be pleasant and affable. Think of how he is to be all things to all people, and never lose his temper. Think of how he is obliged to accept the severe and harsh utterances of an arbitrary public, aimed, whether rightfully or not, against the company for which he is working, and notwithstanding all this to be always gentlemanly, attentive and polite to all, and to keep it up every day in the year, with hardly an opportunity of receiving a kind word or thought for his good. When you think of all these things seriously, I believe that you will agree with me that there is a great field open for the street railway branch of the Y. M. C. A., and I know that you will give it the benefit of your best thought, your best work and prayers, that it may be put into the hearts of those in charge of street railways to see that a branch is organized in their city, and the larger the city, let me say, the more necessary is the work.

To such people as myself and those I represent the Y. M. C. A. is pre-eminently qualified and organized for our benefit. Through its officers and active members it has an opportunity of entering into the lives of all classes and conditions of men, college students, colored men, Indians, soldiers, sailors, railroad men, and, in fact, men of every color and vocation of life. With all of them it has so far had an uninterrupted success, and why may not the same success attend the work among our street railroad men?

In the second place let me say that the Y. M. C. A., with its complete, thoroughly tried and efficient methods of work, with its international and State committees and its local associations—all of which add to the strength of any point where this or similar work may be instituted—is particularly qualified for work among our class of people.

Again, this wonderful institution, whose organization I believe is second to none in the world, save, perhaps, the Catholic Church, is constantly making a specialty of hunting up men for its secretaryships, training and equipping them for the noble work by teaching them to approach the veriest sinner in somewhat his own language, and still doing effective work with and for him in the direction of increasing his moral responsibility if not his religion. It must also not be forgotten that the history of this association has thoroughly demonstrated the fact that while it is distinctively a religious organization, it is not, as I have said before, sectarian, having within its membership men of widely divergent thought and creed, and in this connection it may be well to state that I am informed that more than half the men belonging to the Y. M. C. A. are not members of any church, either Protestant or Catholic, and that among those who have church relationship, more members are connected with the Catholic Church than with any two Protestant denominations.

Now, as to our work in Rochester. Early in the spring of 1902 the street railway company which I have the honor to represent decided, through its board of directors, that we should make an attempt to attract our motormen and conductors, when not at work, from idleness, liquor, gambling, etc. Let me explain, for the benefit of many of my hearers who probably will not understand why such conditions should exist, that in addition to our regular men, who operate our regular cars, we are obliged to keep on hand at our car stations enough men to man cars for any occasion, and at any time. Men are often taken sick or are called away on account of sickness, which also makes this extra force necessary, but probably the greatest reason is the changeableness of the weather, which can be depended upon for but a few hours, so that we are often obliged, on account of rain or storm, to put into operation 50 per cent more cars within the space of twenty or thirty minutes, and if we do not have the men on hand to take charge of these cars, very bad service would result. Thus it is absolutely necessary in the street railway business to have, during the hours of service, enough men in waiting to meet almost any emergency, and it is these men that our company sought to attract and amuse. At a very large cost we fitted up a billiard-room, reading-room, bathroom, bowling alley, etc., our intention being to run the rooms ourselves in an orderly manner, but without regard to religion, ethics or high moral instruction.

The city secretary of the Young Men's Christian Association heard of what we were doing and called upon me, setting forth the nature of the methods of his association, and indicating what they were doing among steam railroad men, which enabled me at once to grasp the idea of the necessity and probable success of such a work among our own men, but the question was as to how it could be applied, from the fact that street railway men are of somewhat different temperament and knowledge from steam railroad men, their duties being vastly more confining, etc. After giving the question due consideration I decided to make at least the attempt, and with the aid of Mr. Starritt, the city secretary, we secured

* Paper read at the Eleventh International Railroad Conference of the Y. M. C. A., Topeka, Kan., May 1, 1903.

the services of Mr. Montignani, our present secretary (who is here to-day), and under his administration, with what aid I could give him, we have succeeded in establishing a live, up-to-date and growing branch, with a membership of over 125 men, who have come into the association of their own free will and accord. Religion is not pressed upon them, at the same time they are far enough advanced so that many religious meetings are held. A generally good influence prevails in the rooms, and where, at one time, could be heard scarcely anything but vile words and blasphemy, now it is very much out of place for the men to say anything of the kind. In fact the whole moral tone of our men has been raised in this way. Furthermore, I am very much pleased to report that out of five or six saloons and loafing places in the neighborhood of our rooms, one has already been compelled to abandon its business, as our men were not patronizing it so much. I notice that those remaining are very much milder in their form than they were, and I think it is only a question of time when more of them will go out of business.

I cannot close my remarks without most heartily endorsing the work of the Y. M. C. A. in general, and recommending most earnestly to the attention of managers of street railways the necessity of their joining in this work. From a financial standpoint I am quite sure that it will pay them. We all want sober, moral and religious men, and I know of no better instrumentality to bring this about than this grand association which is so well equipped for the work, providing the managers of the companies with which it is connected will give it the proper support. I think that we have in Rochester demonstrated the practicability of an institution of this kind, from the fact that we have increased from nothing to 125 members in nine months, and that to-day we are receiving proportionately more applications for membership than ever before, and the moral standing of our men is at least, conservatively speaking, 50 per cent better than it was nine months ago.

I trust that my humble utterances, coming from one who is to some extent a looker-on and not a partaker in the great work, may be of some little benefit to those who are stronger, as well as to those who, like myself, know very little about professional Christianity, but considerably more of practical humanity. Give us your help, my brothers, and the street railways will not only be the poor man's carriage, but the force that will go a long way toward Christianizing the world, with its daily lessons of patience and forbearance to all.

BY EMINENT DOMAIN IN MASSACHUSETTS

As the outcome of several petitions which have been presented to the Massachusetts Legislature, the joint committee on street railways of that body has evolved a bill to enable Aldermen and Selectmen to authorize street railway companies to take land for certain purposes. The bill provides that any street railway company organized under the laws of this Commonwealth may apply to the Board of Aldermen of any city or to the Selectmen of any town in which it desires to take land, for an adjudication that public necessity and convenience require that certain land or interests in land be taken to enable safe construction. If the board to which such application is made finds in favor of the petitioner, the company, upon complying with certain charter provisions, may apply to the Board of Railroad Commissioners for a certificate that public necessity and convenience require the construction of the proposed railway. If the Railroad Commissioners, after public notice and a hearing, grant the certificate as prayed for, the petitioner may take in any city or town in the manner to be stated, such land or rights in land as shall have been so approved by the Railroad Commissioners. Sections 2, 3 and 4 of the bill provide:

A company acting under authority of this act shall be subject to all the provisions of Sections 88, 91, 93 to 116., 118 to 120, 123, and, if its railway crosses a public way or another street railway, except where its railway is constructed within the limits of another public way crossing, such way or street railway, it shall also be subject to all the provisions of Sections 124 to 129, and of Sections 190 to 195 of Chapter 111 of the Revised Laws applicable to railroad corporations; provided, however, that wherever by said sections any jurisdiction is conferred upon a board of County Commissioners, the same shall in the case of a street railway be exercised by the Board of Aldermen of the city or Selectmen of the town in which the land or other property proposed to be taken is situated.

A company authorized to construct its railway at grade across a public way in any place where such crossing is not a part of the crossing of such way by another public way, and incidental to the construction of the street railway longitudinally within the limits of such other public way, shall, in any proceedings hereafter begun for the abolition of such grade crossing, be deemed and considered as a railroad corporation under the provisions of Sections 149 to 160 of Chapter 111 of the Revised Laws and of all acts in amendment thereof and addition thereto, if such company has taken any land or other property under authority of this act; and it may bring a petition, or be made a respondent to any petition brought by any of the other parties named in said

acts, in the same way, and shall be subject to the same liabilities, as a railroad corporation.

A railroad corporation may construct and operate, for the convenience of passengers, and subject to the provisions of Chapter — of the acts of 1903, for the conveyance of freight, any part of its railroad, upon which it uses only electricity as a motive power, in a public way or street to such extent and in such cases, and subject to all the liabilities, restrictions and regulations applicable to street railways, as the Board of Railroad Commissioners shall approve as consistent with public necessity, convenience and safety; provided, it shall have first obtained locations in such public way, in the same manner as is provided by law for street railway locations. To the extent that a railroad is constructed in a public way it shall be deemed a street railway, and shall be subject to all laws applicable to street railways and to the alteration and revocation of street railway locations.

Sec. 5. This act shall take effect upon its passage, but shall not enlarge the extent or purposes for which a street railway may be constructed or operated outside the limits of public ways as defined and limited in Sections 9 and 29 of Chapter 112 of the Revised Laws.

NOTICE OF THE ACCOUNTANTS' CONVENTION

President H. J. Davies and Secretary W. B. Brockway, of the Street Railway Accountants' Association, have issued a circular in regard to the Saratoga convention of the association. The circular is as follows:

"The seventh annual convention of this association will be held in the Grand Union Hotel, Saratoga, N. Y., Sept. 2, 3 and 4, 1903, which hotel will also be headquarters for this meeting and for the American Street Railway Association, which will be held at the same time and place. While the hotel is one of the largest in the world, and there are other large and good hotels in Saratoga, it is wise to make reservations for rooms at once that no disappointment may be had.

"Following our usual plan, the programme is not announced in full at this time, but the completion of present purposes will make a programme containing papers to be read which will be strong and interesting. Provision has been made for the interurban railways, and they will be as fully interested as those strictly urban.

"There will be three half-day sessions, the afternoons being assigned to the exhibits and entertainment. This change will be very acceptable, as it serves to break the 'all work—no play' features of the last two or three years.

"Arrangements for railroad rates and the full programme will be announced in another circular to be issued about a month before the convention.

"While any time is a good time to join with us, as there is no best time for good work, now is a particularly fortunate time, for the reason that it gives the benefits of participation in the coming convention. There is something tangible in the discussions of subjects by and with men in your own frame of mind, and the personal contact with them and they with you brings results always. The accountant of an electric railway occupies a peculiar position, in that there is rarely more than one of him in a town, and he always has to get his exchange of personality by visiting or being visited. This convention gathers together accountants from all parts of North America, more than you have time to visit in a year, and then it depends upon yourself how much you absorb.

"An application blank is enclosed for your use. If your company is a member now, get some other company to join. If your company is not a member now, it is a paying investment to fill it out and send it to the secretary.

"New companies will receive sets of the back reports as long as they last, which of itself is a good investment."

SYSTEM OF PENSIONS AT WASHINGTON

General George H. Harries, vice-president of the Washington Railway & Electric Company, of Washington, D. C., on behalf of the officers and directors of the company, announced Monday, April 20, at a reception tendered to Mr. R. E. Lee, retiring superintendent of the company, that the directors had decided to pension every employee of the road who becomes incapacitated after twenty years' service. The details of the plan by which the pensions will be granted to the employees have not yet been worked out by the officers of the company, but it is promised that the matter will receive the earliest attention of those in whose hands it has been placed, and they will make public announcement of the progress as soon as possible.

As far as disclosed by Mr. Harries the company intends to retire men who have served faithfully for twenty years on a certain percentage of the average yearly pay earned by them during the fifteen years previous to retirement.

THE ORGANIZATION OF THE LONDON SUBWAY COMPANY

Subject to slight changes, the details are announced of the organization of the parent company which will absorb and manage the five underground roads of London acquired by the Speyer and Yerkes interests. The name of the company will be the Underground Electric Railways Company of London, Ltd. The capital will be £5,000,000 (\$25,000,000) of which 50 per cent has been paid in, the remaining, 50 per cent being subject to call. The articles of association provide that for a period of ten years the majority of the board of directors shall be named by Speyer Brothers, of London; Speyer & Company, of New York, and the Old Colony Trust Company, of Boston. The first board of directors will consist of the following: James Speyer, T. J. Coolidge, Jr., James A. Blair, James H. Hyde, L. F. Loree, Robert H. McCurdy, Charles A. Spofford, The Right Hon. Lord Farrer, Major Ernest St. Clair Pemberton, Walter Abbott, Frank Dawes, Charles J. C. Scott, Edgar Speyer, Henry Teixeira de Mattos.

Charles T. Yerkes will be chairman of the board.

The policy of the company probably will be to control different companies through traffic agreements and ownership of securities, or both, the bulk of the actual capital to defray the cost of construction of each of the roads being obtained through the sale of guaranteed securities of the subsidiary companies, the interest or dividends being guaranteed by the parent company.

The capital of the parent company is necessary to finance the subsidiary companies until their respective securities have been marketed, and to give the proper stability to the parent company in order to make it a satisfactory guarantor company. The surplus earnings, over and above the guaranteed interest and dividends, on the sub-company securities will constitute the chief source of income of the parent company. Another source of income will be in the ownership of ordinary shares obtained through the profit of construction of sub-companies.

The new company now controls the Metropolitan District Railway, which is a shallow subway and surface road, owning its right of way in fee. In addition the new company is building three deep level tube roads; namely, the Baker Street & Waterloo, Great Northern, Piccadilly & Brompton, and the Charing Cross, Euston & Hampstead. It also controls the United Tramways Company, with many miles of surface roads running in a general westerly direction from around Shepherd's Bush and Hammersmith.

Of the Metropolitan District Railway over one-half of the ordinary stock will be, on the completion of the work under way, owned by the parent company, and the voting power of a large amount of the preference stock has been secured under a guarantee. The guarantee begins at 1 per cent per annum the first year on the deposited stock, and runs up to a limit of 3½ per cent after some six years. Surplus earnings above the guaranteed amount go to the parent company. This railway is now being electrically equipped. It is expected that this work can be finished before the end of 1904.

ARBITRATION IN CHICAGO

Union employes of the Chicago City Railway Company having made certain complaints regarding the treatment they were receiving, the matters were submitted to a board of arbitrators according to the agreement made between the company and men last spring. The matters passed upon were mainly details of no general interest, but the following two paragraphs from the decision of the board show the lines on which it was carried out:

"That in the matter of union and non-union men, the board decides that to maintain harmony between employer and employes, which is indispensable to efficient work and good service, the company shall not discriminate against members of the union and employes that are not members, either in the matter of appointments or in the matter of transfer or promotion, and shall lay no obstacle in the way of peaceable and lawful endeavor to strengthen the union or enlarge its membership.

"The board decides that the union shall not discriminate between its own members and their fellow employes who are not members of the union by boycott or otherwise, and shall pursue only peaceable and lawful methods to extend its influence and increase its membership. Both the officers of the company and the members of the union shall endeavor to maintain amicable relations to one another in a frank and manly spirit of mutual good will and cordial confidence."

The arbitration board consisted of W. Prentiss, chosen by the men; N. C. Sears, chosen by the company, and Dr. E. G. Hirsch.

CHANGE IN JERSEY LAWS

Governor Murphy has signed House bill No. 58, known as a codification of the railroad laws of the State, superseding all laws heretofore applying to steam railways within the State of New Jersey. It is of especial interest to electric railways, inasmuch as it specifically provides that either steam or electricity may be used as a motive power. This has been supposed to be the case, heretofore, but has never been made clear under the law. Under this law electric railroad companies may condemn lands either for the line itself, or for terminals, or any purpose connected with the railroad's operation. Bridges may also be built across the Delaware River without legislative consent. Practically all the new companies operating electric railroad have traction charters, although there are three or four using steam charters. The traction act of the State allows companies to condemn lands to a width of 60 ft., and is believed to admit of carrying freight, but this latter feature has never been made clear. Under a steam railroad charter an electric railway may now not only perform all the functions of a steam or electric railway, but it may build tracks upon the streets of any city, excepting those of the first class, provided the property owners consent. It also provided that these consents may be secured by condemnation of property fronting on such streets. Still another feature provides that lands and property which are afterward not needed by the railroad company may be resold. This would enable a company to build through a street by condemning the properties of all those who refused to grant the right, and after the right was once secured, these properties might again be sold, and whether or not the company would be the loser would depend upon how sharp it was in the final real estate deal. A track thus built upon a street could be used for running over it passenger and freight trains and steam and electric locomotives. To a suburban electric road in the State of New Jersey, where only one or two cities are to be entered upon by way of a street, the new law is a new thing. Some of its features have been criticised as giving too much power to railroad companies, but be that as it may there is no question but that steam and electric railways are having a comparatively easy time of it under the New Jersey law.

LARGE ENGINEERING BUILDING IN NEW YORK

The announcement was made this week of an offer by Andrew Carnegie to give \$1,000,000 for the erection of a suitable engineering building for the use of the national associations of electrical, civil, mechanical and mining engineers, and other similar bodies in New York. The offer was extended directly by Mr. Carnegie to the four bodies mentioned and to the Engineers' Club, and contemplates the erection of a building of this kind on land to be furnished by the societies.

The functions of such a building would be numerous. It would include among other features a large assembly hall to be available for lectures and for holding general conventions of engineering societies; a number of halls to accommodate smaller audiences, suitable for monthly meetings of the societies; a common library, reading and writing rooms, and the administration rooms of the several societies. It would also include facilities for serving lunches or dinners, with a cuisine common to the Engineers' Club. The site selected for the building is on Thirty-Ninth Street and Fortieth Street, between Fifth Avenue and Sixth Avenue, a point which is ideally central. Another advantage of this site is that it will be adjoining the new public library in New York, a feature which appealed especially to Mr. Carnegie.

The offer has been officially brought up for action before the societies mentioned and also before the Engineers' Club. It is proposed that each of the four societies and the Engineers' Club shall purchase the land for the building, and for which Mr. Carnegie has already secured options, and shall convey them to the other societies as tenants in common. There will then be a committee composed of the president and two other members of each of the organizations, to oversee the erection and administration of the building. The expense of administration will be divided between the societies according to the floor space occupied by each; provision will also be made for such other engineering bodies as are located in New York or who care to meet in the city, and who desire to utilize the building or any part of it, as the auditorium, and it is thought that many of the large national organizations will take advantage of this opportunity for their national conventions.

The plan proposed does not contemplate any amalgamation of the societies mentioned. The method to be adopted by each society for financing its portion of the expenses will necessarily be determined by itself.

EXTENDING A LONG ISLAND SYSTEM

The New York and Long Island Traction Company, now operating about 13½ miles of line in Nassau County, N. Y., and whose system was described in detail in the *STREET RAILWAY JOURNAL* for June 28, 1902, is securing the last of a number of franchises for the construction of about 16 miles of line in order to make direct connections between Mineola and Jamaica, Hempstead and Jamaica, and along the south shore between Freeport and the Borough of Brooklyn. At present the company has pending before the city authorities of New York an application for the right to build over four routes and two branches, part of which will be over private right of way. Franchises have already been secured from the various local authorities for two other lines. The first of these is from Mineola westerly along the Jericho turnpike to the city line of New York. This franchise, however, is inoperative until the company shall secure from the City of New York a franchise extending the same to Jamaica. The second franchise provides for the construction of a line from Freeport westerly through various villages and over a private right of way along the northerly side of the conduit line of the Brooklyn Water Works, to the city line of New York at Rosedale. The road west from Freeport is now under construction, and is being rapidly rushed to completion. About the middle of this month the company expects to start work on a new power house at Rockville Center.

INTERURBAN SYSTEM EVENTUALLY BETWEEN DETROIT & CHICAGO

W. A. Boland, of New York, who is in control of several electric railway properties now in operation and also under construction between Detroit and Chicago, has recently made an important acquisition to his operations in Michigan by forming a new syndicate composed of some of the strongest financial men in the country, among whom are William Halls, Jr., vice-president of the Hanover National Bank of New York; W. N. Coler & Company, of New York; N. S. Potter, of the Jackson City Bank, Jackson, Mich., and W. N. Coler, Jr.

The road now under construction from Jackson to Battle Creek, in which Spitzer & Company, of Toledo and New York, are largely interested, will be in operation by June 1, and it is intended by the new Boland syndicate to complete the road now under construction from Jackson east to Ann Arbor, Plymouth and Detroit. Under this section is to be consolidated the Jackson & Suburban Traction Company, the Wolf Lake Railway & Resort Company, the Jackson & Ann Arbor Railway Company, and the Detroit, Plymouth & Northville Railroad Company. Traffic arrangements have already been perfected with the Jackson & Battle Creek Traction Company, and by Jan. 1 a continuous line from Detroit to Battle Creek will be in operation, a distance of 122 miles.

The road is being built on private right of way outside of the cities and villages with a regular steam railroad bed, using the third-rail construction. It is claimed by the parties interested that it will be one of the most modern interurban roads that has ever been constructed. Mr. Boland intends to carry out his original idea and extend the line to Chicago, which will make a total distance of 285 miles.

STATE EXPERT'S REPORT ON BROOKLYN RAPID TRANSIT

Charles R. Barnes, electrical expert of the State Board of Railroad Commissioners, has submitted a supplemental report to that body showing that the Brooklyn Heights Railroad Company was complying with the orders of the Commissioners. The report says that the first 4000-hp unit in the Third Avenue station has been operating since March 22, and the second will soon be ready. The 4000-hp generator for Kent Avenue station will be placed in service about May 15, as a result of former orders. A form is issued by the company on which conductors record the car and trip number, destination, running time, etc. The inspectors receive a form on which they answer questions as to maintenance of headway, condition of cars, lack of service, etc.

Plans are being prepared for enlarging the Kent Avenue station, and the company will also erect a coal storage plant next to the Third Avenue station.

In general Mr. Barnes finds that there has been a marked improvement in the company's service, and the completion of the new power plants will obviate the need for buying power from other companies.

THAT STEAM-ELECTRIC CROSSING FIGHT AT YARDVILLE, PA.

The Trenton Street Railway Company, of Trenton, N. J., has again been refused the right to cross the Pennsylvania Railroad tracks at Yardville, 5 miles from Trenton. Vice-Chancellor Reed, before whom the hearing took place, has filed an opinion, in which he holds that the Trenton Company has failed to have re-recorded the rights of way along the route. The fight has been in the courts for several years, and unless the higher courts reverse the decision of the Vice-Chancellor the Trenton Company seems practically stranded, so far as the Yardville crossing is concerned. The road was extended some years ago from the Trenton city line to Harrison Avenue, Broad Street Park, and from there to White Horse and Yardville. A crossing of the Pennsylvania Company's Camden & Amboy Division was sought at Yardville in order that the Trenton Company might be extended on through the town and to Crosswicks and Allentown, a few miles further on. After carrying the case through all the courts of the State the fight was lost because the company had failed to accept the Hamilton Township ordinance granted for an extension in Broad Street Park, and the White Horse and Yardville extensions were further extensions of this line. Because of the illegality of this section the court held that the extension to Yardville was also illegal, and consequently the company had no legal standing such as would be necessary in order to apply for the crossing. After this failure the Trenton Street Railway Company made application to Hamilton Township in the name of its subsidiary company, the Mercer County Traction Company, for the right to build a line from Yardville across the Pennsylvania Railroad to Broad Street Park. The township granted this right, the company accepted it, and the road was then purchased by the Mercer County Traction Company. (The court had already declared that the Trenton Company's line from Broad Street Park to Yardville did not exist so far as records showed, legally), and a new application made for a crossing. The Pennsylvania Company claimed that the Mercer County Traction could not legally occupy the same right of way as that already held by the Trenton Company, but the court ruled otherwise, because of the non-existence (technically) of the former line. Now the Court of Chancery, through Vice-Chancellor Reed, holds that the present line has no legal existence because no property owner consents have been filed covering the proposed (or rather existing) route. This leaves the company in a bad fix, and it is probable that only a steam railroad charter and the building of a partly new line will overcome the difficulty. The crossing is one that is desired by all the people of the towns affected.

BUREAU OF EXPERT INVESTIGATION AND CONSTRUCTION

James B. Cahoon, formerly general manager of the Elmira Street Railway, Lighting and Water System, and ex-president of the National Electric Light Association, has organized a company with the above title to undertake the critical examination and valuation of all kinds of properties and projected enterprises. The company is prepared to undertake the investigation of corporate charters, franchises, patents, etc., the conducting of tests, the preparation of plans and specifications for all classes of work, the supervision of contracts, and the organization and management of properties with a view to securing the highest degree of economy and the maximum of returns.

Mr. Cahoon has secured an expert board of engineers to assist him in carrying out the work of the company, including the following:

Electrical and mechanical engineers, Horatio A. Foster, Frank B. Rae, George T. Hanchett, Thorburn Reid; hydraulic engineers, George W. Birdsall, Ira H. Carpenter; civil and mining engineers, M. H. Alberger, Walter A. Calhoun; chemist, Dr. William McMurtrie; counsel, Cecil Higgins, Joseph T. Brown, Jr.; patents and patent laws, Howard P. Dennison, Thomas J. Johnston.

The offices of the company will be at 35 Nassau Street, New York.

TO ARBITRATE THE NEW YORK SUBWAY STRIKE

The strike of the rockmen and excavators who have held up the work on the New York subway since May 1 was called off Tuesday afternoon. The contractors and representatives of the Central Federated Union and the union of rockmen and excavators met and agreed to submit the questions in dispute to arbitration. Pending the further negotiations all of the men are

to return to work at once. The laborers in earth excavation demanded an increase from \$1.50 to \$2.00 per day, while the rockmen, who now receive \$2 per day, demand \$2.50 per day. During the strike there were several small outbreaks, but the police promptly quelled the disturbances.

MUELLER MUNICIPAL OWNERSHIP BILL

The measure bearing this title, which caused such a controversy in the Illinois Legislature, and was passed only after a disgraceful squabble in the House, from which the Speaker was compelled to retire precipitately, may be said to represent the views of those advocating city control of traction matters in Chicago, and its passage was urged by all who have been prominently engaged in this agitation. It seems to be the general impression that the Mueller bill will receive the Governor's sanction.

It is known officially as "An Act to Authorize Cities to Acquire, Construct, Own, Operate and Lease Street Railways, and to Provide the Means Therefor," and a summary of its provisions, with abstracts from the text, follows:

While it is aimed to meet the conditions that prevail in Chicago it may be applied to smaller cities. Section one confers power on all cities to own, construct, acquire, purchase, maintain and operate street railways within its corporate limits, and to lease the same to any company incorporated under the laws of Illinois for the purpose of operating street railways for any period not longer than twenty years.

But no city shall proceed to operate street railways unless the proposition shall first have been submitted to the electors as a separate proposition and approved by three-fifths of those voting. It shall be lawful for any such city to take over all or part of such street railways at or before the expiration of such grant upon such terms and conditions as may be provided in the grant, and in case this right be not exercised by the city, it may transfer the privilege to any company to operate a street railway in the streets and parts of streets occupied by its grantee under the former grant, and the grantee shall purchase and take over the street railway of the former grantee upon the terms that the city might have taken it over; permission may also be given for the construction and operation of a street railway when tracks are already located at the time of the making of such grant, without the petition or consent of any of the owners of the land along the line.

Provision is made for submitting all grants to popular vote upon petition of 10 per cent of the voters at the last preceding mayoralty election. Each city has the privilege of formulating its own rules and methods, as well as its system for maintaining the property when acquired. The use of steam as a motive power is prohibited on all railways obtaining franchises under this act.

For the purpose of acquiring street railways either by purchase or construction, or for their equipment, the city may borrow money and issue its negotiable bonds, provided the plan shall first have been approved by two-thirds of those voting thereon. The issue shall not be in excess of the cost to the city of the property, and 10 per cent in addition thereto.

In case of the leasing by any city of any street railway owned by it, the rental reserved shall be based on both the actual value of the tangible property and the franchise contained in the lease, and shall not be less than a sufficient sum to meet the annual interest upon all outstanding bonds or street railway certificates issued by the city on account of the street railway.

Section two provides that in lieu of issuing bonds the city may issue interest-bearing certificates, to be known as "street railway certificates," which shall under no circumstances be or become an obligation or liability of the city or payable out of any general fund thereof, but shall be payable solely out of a specified portion of the revenues or income to be derived from the street railway property for the acquisition of which they were issued."

"In order to secure the payment of any such street railway certificates and the interest thereon the city may convey, by way of mortgage or deed of trust, any or all of the street railway property acquired or to be acquired through the issue thereof, which mortgage or deed of trust shall be executed in such manner as may be directed by the City Council and acknowledged and recorded in the manner provided by law for the acknowledgment and recording of mortgages of real estate, and may contain such provisions and conditions not to conflict with the provisions of this act as may be deemed necessary to fully secure the payment of the street railway certificates described therein.

"Any such mortgage or deed of trust may carry the grant of a privilege or right to maintain or operate the street railway property covered thereby for a period not exceeding twenty years from the date such property may come into the possession of any person or corporation as the result of foreclosure proceedings, which privilege or right may fix the rates of fare which the person or

corporation securing the same as the result of foreclosure proceedings shall be entitled to charge in the operation of said property for a period not exceeding twenty (20) years."

On default of payment, the property may be sold under foreclosure, the right to operate being conferred upon the purchaser and exercised under the same conditions and regulations as if the grant had been made direct and had not been acquired through foreclosure.

The provision for keeping and publishing accounts of the system are particularly interesting and are therefore reproduced herewith entire:

Every such city, owning, or owning and operating street railways, shall keep the books of account for such street railways distinct from other city accounts and in such manner as to show the true and complete financial results of such city ownership, or ownership and operation, as the case may be. Such accounts shall be so kept as to show the actual cost to such city of street railways owned, all costs of maintenance, extension and improvement, all operating expenses of every description, in case of such city operation, the amounts set aside for sinking fund purposes; if water or other service shall be furnished for the use of such street railway without charge, the accounts shall show, as nearly as possible, the value of such service and also the value of such similar service rendered by the street railways to any other city department without charge; such accounts shall also show reasonable allowances for interest, depreciation and insurance, and also estimates of the amount of taxes that would be chargeable against such property if owned by a private corporation.

The City Council shall cause to be printed annually for public distribution a report showing the financial results, in form as aforesaid, of such city ownership, or ownership and operation. The accounts of such street railways kept as aforesaid shall be examined at least once a year by an expert accountant, who shall report to the City Council the results of his examination. Such expert accountant shall be selected in such manner as the City Council may direct, and he shall receive for his services such compensation, to be paid out of the income or revenues for such street railways, as the City Council may prescribe.

The City Council may, by ordinance, direct that the question of the adoption of this act be submitted to popular vote at any general, city or special election, coming not sooner than thirty days after the passage of the ordinance.

The method of submitting the propositions under this act to popular vote is explained in detail. Special provision is also made that nothing in this act shall be construed to authorize any city to make any act or grant or to lease any street railway property for a period exceeding twenty years, and when a right to maintain and operate a street railway for that period is contained in a mortgage or deed of trust to secure street railway certificates, it shall commence as provided in section two, which has already been outlined.

CRIMINAL LIBEL SUIT AGAINST PRESIDENT VREELAND, OF THE METROPOLITAN COMPANY OF NEW YORK, DISMISSED

Magistrate Barlow, on Saturday, May 2, announced his decision in the preliminary hearing of the suit for criminal libel brought by W. N. Amory against H. H. Vreeland, president of the Metropolitan Street Railway Company, of New York. He discharged the defendant, Mr. Vreeland, dismissing the complaint. The Magistrate's decision was as follows:

"I deem it to be no part of the duty of the committing magistrate to write an opinion expressing the magistrate's conclusions in cases where his decision is not absolutely final. Still, in view of the wide interest aroused by the peculiarities of this case, I desire to correct an impression which has been given great publicity, namely: That the words 'Notorious character' have been applied to the complainant. No such words are to be found in the complaint, nor in the printed matter which is made a part of the complaint.

"I have read the testimony on both sides at the greatest length, and with the utmost attention, and I have read and reread all the record, and I find that there is not sufficient cause to believe Herbert H. Vreeland guilty of the offense charged. I order him to be discharged, and the complaint dismissed."

A SUMMER SCHOOL FOR ARTISANS

The University of Wisconsin will open July 6 next for its third annual session of six weeks, a summer school for artisans which is held under the direction of the College of Engineering.

The school is in no sense a private commercial undertaking, but is a public enterprise conducted by the State of Wisconsin for its citizens, and for men of other localities who are anxious to secure the benefit of such a course of study as is offered.

Detailed description of the school, the methods of instruction, courses offered, shop and laboratory facilities, etc., may be had by addressing F. E. Turneure, acting dean, College of Engineering, University of Wisconsin, Madison, Wis.

SPREAD OF THE CONNECTICUT STRIKE AVERTED

A strike on all the lines of the Connecticut Railway & Lighting Company throughout Fairfield County, Connecticut, has been averted through a compromise between the company and its employees, who demanded recognition of their union, increased pay and shorter hours. The company has agreed to meet a committee of the union at any time in reference to grievances, and has increased the pay of the men, while not to the extent desired, but so as to satisfy them. Shorter hours have been promised by the company. The men say that as the company has met them half way there will be no strike.

STREET RAILWAY PATENTS

UNITED STATES PATENTS ISSUED APRIL 21, 1903.

725,650. Switch Operating Mechanism; Charles E. Badger, Minneapolis, Minn. App. filed Jan. 17, 1903. Details of construction of a lever and shoe for throwing the switch from a moving car.

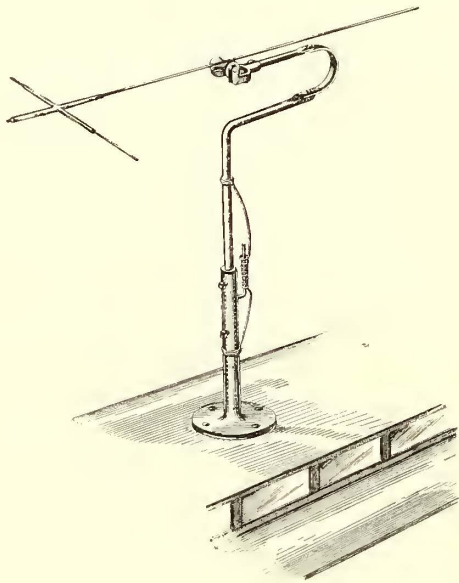
725,667. Trolley Pole; Charles A. Bray and Florian C. Fry, Schenectady, N. Y. App. filed Sept. 17, 1902. The pole is pivoted on top of the car and has a bend in it whereby the wheel can make contact with a wire suspended either above the car or to one side at the level of the car roof.

725,719. Trolley Stand; George F. Johnson, Pimmers, Va. App. filed June 26, 1902. Details.

725,730. Controller; John B. Linn, Schenectady, N. Y. App. filed Aug. 4, 1902. Details of construction of the reversing switch.

725,754. Electric Headlight; John A. Mosher, Chicago, Ill. App. filed June 17, 1902. The casing contains both incandescent and arc lights, the former to be used in city limits and the latter in the country districts; an automatic switch provides for the cutting in of one lamp when the other fails.

725,767. System of Control for Electrically Propelled Vehicles. William B. Potter, Schenectady, N. Y. App. filed June 22, 1898. A multiple-unit system in which the motors are automatically transformed into generators in case the conductor between cars is broken.



PATENT NO. 726,211

725,801. Track Sanding Device; Thomas E. Townsend, Mahoningtown, Pa. App. filed June 26, 1902. An apparatus adapted to deposit sand on the rails by means of an air blast, and which, in case of failure of the air supply, may be used simply as a gravity sanding device.

725,914. Rail Block; William H. Arthur, Stamford, Conn. App. filed Feb. 13, 1903. The rail block is provided with an inclined shoulder with reduced edges forming a raised rib upon the shoulder, thereby reducing the liability of the groove beside the rail becoming clogged with dirt.

725,985. Electromagnetic Brake; Frank C. Newell, Wilkesburg, Pa. App. filed Dec. 16, 1899. A suitable switch controls the braking force of the several shoes on the track.

725,996. Car Seat; John E. Siegel, Corona, N. Y. App. filed Feb. 25, 1902. Details of construction of a reversible car seat.

726,061. Safety Device for Automatically Preventing Accidents from Trolley Wires; William A. Heyes and Lancelot O. Heyes, Wigan, England. App. filed Jan. 3, 1902. In case the trolley wire sags or falls, it automatically closes a circuit to ground the wire.

726,129. Drop Brake Handle for Cars; Arthur U. Willing, John Christenson and George A. McLean, Oelwein, Ia. App. filed Nov. 12, 1902. The brake handle normally hangs suspended vertically by gravity from the hub, and when raised to a horizontal position engages clutch mechanism in the hub whereby the handle and staff are locked together.

726,211. Trolley; William H. Bachtel, Canton, Ohio. App. filed March 10, 1903. The pole is vertical and has a horizontal loop near the top, the bend of which is a spring.

726,225. Mechanism for Cutting, Crushing and Dislodging Ice or Sleet on the Third Rail of Electric Railroads; Henry Klein, Hoboken, N. J. App. filed Feb. 17, 1903. A wheel having serrations formed on the periphery thereof is adapted to be thrown down against the contact surface of the third rail to remove ice therefrom.

UNITED STATES PATENTS ISSUED APRIL 28, 1903

726,269. Electric Track Circuit and Method of Insulating Same; Edward A. Everett, Detroit, Mich. The ties beneath the rails and the bonds connecting the adjoining rails are coated with oil.

726,339. Brake-Shoe for Railway Brakes; John Player, River Forest, Ill. App. filed Feb. 12, 1903. A skeleton steel plate is intercast with foundry metal in such a manner that portions of the plate appear at the face of the shoe, and other portions thereof are embedded in the attaching lug.

726,345. Fastening for Fenders; Albert D. Ray, Cleveland, Ohio. App. filed Feb. 21, 1903. Details.

726,390. Car Fender; William E. Zachry, New York, N. Y. App. filed Oct. 27, 1902. Consists of two co-operating members, one being permanently attached below the car, and the other detachably supported in front of the car platform, and so connected to the rear member as to cause the latter to be thrown downward in contact with the ground when the front member strikes an obstruction.

726,501. Switch; Alexander Bouvier, Concord, Mass. App. filed July 1, 1902. A depressible spring controlled roller on the car adapted to actuate treadles in a slotted plate thereby actuating the switch point.

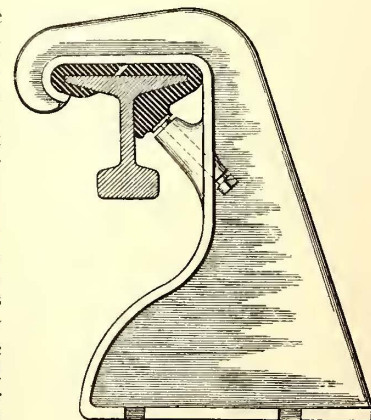
726,587. Trolley Wheel; Charles S. Stanton, Hartwick, N. Y. App. filed Aug. 20, 1902. Details.

726,590. Third-Rail Support for Underrunning Third-Rail Electric Railway; Leonard Wheeler, Wheaton, and John T. Murphy, Chicago, Ill. The supporting bracket carries a screw which bears laterally against the third rail to hold it in its seat.

726,600. Rail Contact-Shoe and Support Therefor; Leonard Wheeler, Wheaton, and John T. Murphy, Chicago, Ill. App. filed Feb. 24, 1903. A shoe adapted to contact with either an over or under contact third rail.

726,612. Switch; John L. Albiez, Jr., West Homestead, Pa. App. filed Jan. 28, 1903. Consists of a saddle, rollers journaled therein, a laterally movable bar operating on the rollers and having inclined faces, a tilting bar adapted for engagement with the inclined faces at each end of the switchbar, locking means for engagement with the switchbar and means for actuating the tilting bar.

726,721. Third-Rail Guard for Electric Railways; Jacob Martin, New York, N. Y. App. filed Jan. 23, 1903. The third rail is provided with a flexible cover which is opened by a plow as the car moves along to admit the collecting device.



PATENT NO. 726,599

PERSONAL MENTION

MR. H. F. LINCOLN has resigned as superintendent of the St. Albans Street Railway Company, of St. Albans, Vt., to become city engineer of St. Albans.

MR. HARRY DE STEESE, New York representative of the Stuart-Howland Company, of Boston, Mass., was married in New York April 26 to Miss Mabel Grey Sharpe, of London, England.

MR. E. P. WILLIAMS, vice-president of the Sherwin-Williams Company, and one of Cleveland's best known business men, died at his home in Glenville, Ohio, Sunday, May 3, aged sixty-one years.

MR. FRANK C. FISCHER, formerly connected with the Camden Interstate Railway Company, and stationed at Ashland, Ky., has accepted the position of master mechanic and electrician for the Fairmont & Clarksburg Electric Railroad Company, of Fairmont, W. Va.

MR. A. L. NEEREAMER, formerly chief clerk to the general passenger agent of the Columbus, Sandusky & Hocking Railroad, has been appointed general passenger and freight agent of the Columbus, Delaware & Marion Railway Company.

MR. H. E. SMITH has been appointed general passenger agent of the Hudson Valley Railway Company, of Saratoga, New York. Mr. Smith was formerly connected with the treasury department of the Atchison Railway, and subsequently as private secretary to President Colvin, of the Hudson Valley Company.

MR. S. W. CHILDS, who recently completed the construction of the lines of the Kalgoorlie Electric Tramways in Western Australia for J. G. White & Company, and who has been constructing engineer for a number of the foreign lines built by this company, is about to return to the United States.

MR. A. W. McLIMONT, some time president of the Federal Electric Company, of New York, and who more recently acted as chief engineer in connection with the Monterey, Mexico, electric traction project, has gone to Peru for the purpose of superintending the construction of the proposed Lima-Chorillos Electric Railway.

MR. GEORGE K. EDWARDS has been appointed superintendent of the San Jose & Santa Clara Railroad Company, of San Jose, Cal. Mr. Edwards occupied a similar position some years ago, but for the last two years he has been connected with the Oakland, San Leandro & Haywards Electric Railway, of Oakland, Cal.

MR. JOHN CAMPBELL, for several years superintendent of power distribution of the Boston Elevated Railway Company, of Boston, Mass., is shortly to leave that organization to join the Westinghouse Electric & Manufacturing Company at its East Pittsburg works, with the ultimate prospect of devoting his attention to the duties of a traveling engineer.

MR. C. S. BIDWELL has resigned as manager of the Springfield & Xenia Traction Company, of Springfield, Ohio, and has gone with the Cleveland Construction Company in charge of the work on the Youngstown & Ohio River line, which the company is building. Mr. Bidwell has been succeeded at Springfield by Mr. J. W. Parker, formerly with the Dayton, Springfield & Urbana Railway.

MR. W. W. WHEATLY, formerly superintendent of surface lines of the Brooklyn Rapid Transit Company, has an interesting article in the current issue of the "World's Work" entitled "Transporting New York's Millions." The article discusses the congestion problem in this city and contains an excellent portrait of President Vreeland, of the Interurban Street Railway Company.

MR. EDWARD STOUTD, who has been general foreman of the Twin City Rapid Transit Company's shops at Minneapolis, Minn., for eight years, has resigned from the company and accepted a position as assistant superintendent with the Washington Light, Water & Power Company, of Spokane Falls, Wash. Mr. Stoutd is a thorough mechanic, and, while at Minneapolis, gained for himself the reputation of being an excellent business man.

MR. PAUL WINSOR, assistant to the vice-president of the Boston Elevated Railway Company, of Boston, Mass., gave a smoke talk to the Calumet Club, of Winchester, Mass., on the evening of April 25, his subject being the Boston Elevated Railway. Mr. Winsor illustrated his talk by charts and diagrams, and discussed in an interesting manner many problems bearing upon the working of surface and elevated lines, power required by the cars, timetables of car crews, distribution of work and cost of operation.

MR. E. E. DOWNS, vice-president and general manager of the Winnebago Traction Company, of Oshkosh, has been elected president of the company, to succeed Mr. Emerson McMillin, of New York. Mr. McMillin continues as a director of the company, and his financial relations with the company do not change. The position of president comes to Mr. Downs in recognition of his ability and as an expression of appreciation of his services in the organizing of the company, the building of the lines in and about Oshkosh and their most successful operation.

MR. ALLEN F. EDWARDS has resigned as general manager of the Detroit, Monroe & Toledo Short Line Railway to take up the management of the Detroit & Toledo Shore Line, of which he has been receiver since the Everett-Moore embarrassment. The road is now the property of the Grand Trunk (steam) and will be operated as a steam line. Mr. Edwards' successor on the Monroe line, as has been stated in the STREET RAILWAY JOURNAL, is Mr. W. B. Tarkington, who resigned from the superintendency of the Omaha & Council Bluffs Railway & Bridge Company, of Council Bluffs, Ia.

MR. B. J. ARNOLD, consulting engineer to the New York Central Railroad and to the Chicago City Council, delivered a lecture before the New York Electrical Society, April 29, on "The Transportation Problem in Chicago and Other Great Cities." Mr. Arnold epitomized in a clear and comprehensive way the traffic difficulties in Chicago as covered by his recent report, which was published in abstract in the STREET RAILWAY JOURNAL, and described his solution for the adjustment of problems in that city. The meeting was largely attended and was one of the most interesting of the series which has been given during the present season.

MR. FRANK J. GERDON, who had for some time held the position of assistant superintendent of the Utica & Mohawk Valley Railway, of Utica, N. Y., has been appointed superintendent of transportation of the system. The office of general superintendent, held by the late Mr. James A. Stewart, has been abolished, but in the superintendency of transportation Mr. Gerdon assumes practically the same duties. He is to have charge of the running of all cars and of the conductors, motormen, despatchers, etc., engaged in their operation. Mr. Gerdon has been in the street railway business fifteen years. He went to Utica from Cleveland.

MR. J. F. CALDERWOOD was appointed on May 4 by the directors of the Brooklyn Rapid Transit Company third vice-president of the company, an office which was created especially for him, and on the same day he was appointed by President Winter general manager of the system, an office which has been vacant with the Brooklyn Rapid Transit Company for some time. Mr. Calderwood's title since his connection with the Brooklyn system about a year ago has been that of "assistant to the president," but he has been virtually the working head for a long time, and has been so recognized by the employees of the company. He will now have the title of general manager as well as the recognition, and his position will thus be an official instead of a semi-official one. Mr. Calderwood has had a long experience in street railroading, and is generally recognized as being one of the ablest street railway managers



J. F. CALDERWOOD

and also street railway accountants in the country. It is not often that ability in both of these directions is combined in one man, but Mr. Calderwood possesses both qualifications in an eminent degree. His office with the Twin City Rapid Transit Company was that of comptroller, and during his connection with that company he established the accounts of that company on such a sound and scientific basis as greatly to enhance the prestige of the company in financial circles, a fact which undoubtedly contributed to the well-known success of the company. He has always been prominently connected with the Street Railway Accountants' Association of America, was one of its founders, filled the office of president for one year, and was largely instrumental in the establishment and adoption of the standard system of accounts of that association. He is also a member of the Institute of Secretaries, of London. His administration of the affairs of the Brooklyn Rapid Transit Company has already resulted in a number of marked economies and in an increase in the general efficiency of the system.

NEWS OF THE WEEK

CONSTRUCTION NOTES

LOS ANGELES, CAL.—Surveys are now being made to extend the Monrovia line of the Pacific Electric Railway Company to Azusa, a distance of about 10 miles. A big bridge is now being built across the San Gabriel River.

FRESNO, CAL.—William G. Kerchoff, president of the Pacific Light & Power Company, has concluded a deal for the purchase of the Fresno, Belmont & Yosemite Railroad and the Fresno Railroad Company, both of which are operated by horses. Mr. Kerchoff has announced that it is the intention to equip both of the lines with electricity at once.

LOS ANGELES, CAL.—Surveys have been completed for the new electric railway to be built immediately from Hueneme, Ventura County, to Bakersfield, a distance of 115 miles. Gervaise Purcell, engineer of the road, is in charge of purchasing construction material and equipment. The promoters, John W. Burson, of Ventura, and Major H. M. Russell, of Los Angeles, are after about a million dollars' worth of freight per year in competition with the Southern Pacific. The route of the new line will be from Hueneme, which is on the coast, to Oxnard, through Oxnard to Satcoy, to Santa Paula, up the Sespe River, over the Mutaw Meadow, down the Queen River, over the hills to Sunset, and thence to Bakersfield. It is hoped to be able to make the trip in four and one-half hours. In the valley will be laid 62-lb. rails; in the mountains 70-lb. The track will be standard gage and the heaviest grade will be 3 per cent. At the top of the summit on the Mutaw Meadow will be built a 5000-hp plant. The Sespe River will be crossed five times, necessitating as many steel bridges with heavy stone abutments. A bridge will also be built across the Santa Clara River. The products to be hauled by the new road are petroleum, raw and refined sugar, lima beans, mineral ore and all sorts of farm produce. There will also be heavy passenger traffic.

FLORENCE, COL.—The Woods Investment Company has commenced the work of building its electric railway from Beaver to Pueblo, a distance of 28 miles.

HARTFORD, CONN.—The petition of John Watrous, of Blue Hills, and others for power to build an electric railway from Berlin to Meriden has been submitted to the Railroad Commissioners. A second petition from the same interests for the incorporation of a company to build an electric railway connecting those in Meriden and Berlin has also been presented.

MERIDEN, CONN.—An agreement has been reached between the Meriden Electric Railroad Company and the Middletown Street Railway Company, by which the cities of Meriden and Middletown will be connected by electric railway. It is understood that each company will build and own a section of the connecting line.

HARTFORD, CONN.—The House has passed a resolution incorporating the Wallingford Tramway Company. The company is authorized to build from the terminus of the Meriden Electric Company's lines in Wallingford south, through North Haven to Montwese, where connections are made with the lines of the Fair Haven & Westville Railroad Company, of New Haven. The incorporators are: Walter J. Leavenworth, Frank A. Wallace, George E. Dickerman, Charles B. Yale and Ralph T. Ives, of Wallingford.

HARTFORD, CONN.—The Woodbury & Seymour Street Railway Company has been chartered to build an electric railway in Woodbury, Southbury, Oxford and Seymour. The company is capitalized at \$400,000. The incorporators are: Floyd F. Hitchcock and Levi E. Curtis, of Woodbury; Christian Strobel, of Waterbury, and Frederick L. Averil, of Branford.

KEWANEE, ILL.—An electric railway is projected to connect Morrison, Annawan, Hoopole and Prophetstown. Charles Dunbar, of Kewanee, is interested.

CHICAGO HEIGHTS, ILL.—The Chicago Heights Land Association is planning to build a short street railway in Chicago Heights this year. Inquiries may be addressed to M. H. Kelgallen, general manager, Chicago Heights Land Association, 172 Washington Street, Chicago.

SPRINGFIELD, ILL.—At a meeting of the Springfield & St. Louis Railroad Company held here a few days ago action was taken towards building an electric railway from Springfield to St. Louis. H. H. Littell, of Buffalo, N. Y., resigned the presidency, and the directors elected Horace Riordan, former superintendent of the Chicago, Peoria & St. Louis, and later general manager of the Litchfield, Carrollton & Western, as his successor. W. E. P. Anderson, of Carlinville, and John Gelder, of Virden, were elected directors to fill vacancies caused by President Littell's resignation, and by the death of Hon. David T. Littler. The board of directors, as now constituted, is: Horace S. Riordan, Bluford Wilson and Charles K. Minary, of Springfield; William Jarvis, of Louisville, Ky; George W. Hutton, of Auburn; John Gelder and John P. Henderson, of Virden; Henry T. Hamilton, George L. Tipton and M. Metcalf, of Girard; Andrew H. Bell, W. E. P. Anderson and Dr. J. P. Matthews, of Carlinville. Representatives of E. W. Clark & Company, owners of the Springfield Construction Company, and of a St. Louis trust company, were present, and it is said that a deal is on to have these companies finance the project.

STERLING, ILL.—The contract for constructing the Sterling, Dixon & Eastern Electric Railway has been awarded to the Columbia Construction Company, of Milwaukee, Wis. About 17 miles of road are to be built.

BELLEVILLE, ILL.—The City Council has granted twenty-year franchises to the Belleville & Mascoutah Electric Railway and the Belleville & Freeburg Electric Railway, to operate on certain streets of the city. A franchise

has also been granted the Interurban Electric Railway Company to operate here. The Interurban Company will have a branch line to O'Fallon, Lebanon, Millstadt, Smithton and East St. Louis.

ANDERSON, IND.—Franchises have been granted to the Richmond & Northwestern Traction Company and also to the Union Traction Company for an electric railway from this city to Newcastle and Richmond.

MADISON, IND.—In about sixty days the Madison, Greensburg & Indianapolis Railway Company expects to be ready to let contracts for furnishing the equipment and constructing its proposed line. The plan is to build between Madison and Osgood first and eventually extend the road to Greensburg. Thirty miles of line are to be built. It is possible that construction work will be begun by Aug. 1. The officers of the company are: Richard Johnson, president; M. D. Wilson, vice-president and general manager; Lincoln V. Cravens, secretary; N. Horuff, treasurer; David Johnson, superintendent; E. F. Layman, engineer.

MADISON, IND.—Construction work has been started on the Madison, Greensburg & Indianapolis Railway. Richard Johnson and Richard Horuff are the promoters.

NEW CASTLE, IND.—The Indianapolis & Eastern Traction Company has commenced work on the extension of the line from New Castle to Dunrieth. Material is being distributed.

RICHMOND, IND.—It is reported that contracts have been closed by the Eastern Indiana Traction Company, represented by Peter Schwab, of Hamilton, Ohio, and Alfred M. Lamar & Company, bankers, of New York, for the construction of an electric railway from Richmond to Marion, Ind., extending through Spring Grove, Chester, Fountain City, Lynn, Snow Hill, Spartansburg, Winchester, Woods, Stone Station, Deerfield, Kiogeville, Redkey, Dunkirk, Mill Grove, Hartford, Renner, Upland, Gas City, Jonesboro and the Soldiers' Home, a distance of 86 miles, with contemplated extensions for a through line from Cincinnati to Chicago.

SULLIVAN, IND.—The Western Indiana Traction Company has applied for a franchise in Sullivan. The company has already secured a franchise in Vincennes, through Bruceville, Bicknell, Freeland and Oaktown in Knox County, and through the county from the Knox County Commissioners. The proposed route is through Carlisle, Sullivan, Shelburn, Farmersburg, Pimento, Youngstown to Terre Haute.

MARION, IND.—It is said that the Union Traction Company, of Indiana, will begin work this summer on an electric railway from Fort Wayne to Indianapolis by way of Huntington, Warren, Marion, Elwood and Noblesville. It is the intention to make an air line from Marion to Indianapolis, operating independently of the Union Traction Company's other lines. The proposed road will connect with the Indianapolis Northern at Noblesville and will enter Indianapolis over this line.

ANDERSON, IND.—The Union Traction Company has granted franchises at Winamac and North Judson for its line from Logansport to Hammond, which will connect with the Lake system at Hammond and the Indianapolis & Northern at Logansport, thus connecting Indianapolis and Chicago by electric railway. Franchises have now been granted to the company by all the principal points from Logansport to Chicago, including Royal Center, Winamac, North Judson, Valparaiso, Hobart and Hammond.

KOKOMO, IND.—The Kokomo, Marion & Western Traction Company recently incorporated, which has acquired the Kokomo Railway & Light Company, has commenced the construction of 33 miles of road over a private right of way, connecting Kokomo, Marion and intermediate towns. Later on it is proposed to build 47 miles of road east of Marion. This will be a single-track line, and the power house of the Kokomo Railway & Light Company will be used in the operation of the road. The contract for the roadbed has been let to the Indiana Interurban Construction Company, of Kokomo. F. F. Van Tuyl & Company, of Detroit, are the consulting engineers for both the railway and the construction company. It is proposed to rush construction work so that 10 miles of the road will be ready for operation by July 4.

HARTFORD CITY, IND.—The Council has granted to the Eastern Indiana Traction Company a 50-year franchise for a single track interurban line from the east corporation line to the west corporation line on Washington Street. A bond of \$5,000 will be given that the road will be built and in operation within one year from date of acceptance of franchise by the company.

SHELBYVILLE, IND.—The Shelbyville Traction Company is reported to have perfected arrangements for extending its line from Shelbyville to Greensburg, a distance of 20 miles. It is understood that the company plans eventually to extend the road to Cincinnati, a distance of 64 miles.

SIoux CITY, IA.—The Sioux City Traction Company will commence changing the gage of its city lines to the standard gage some time during May. The West Third Street line will be changed first. The construction of the new car house at Third and Water Streets will begin within the next thirty days. The new car house will cover a half block and will accommodate all the cars now in service.

BURLINGTON, IA.—John W. Topping and others propose to construct an electric railway to Farmington.

DES MOINES, IA.—The Des Moines City Railway Company has contracted for twelve new cars to be built by a St. Louis firm for delivery within the next two months. They will be double-truck cars with vestibule front and large smoking compartments in the rear. The new cars will be assigned to the various lines to replace the old single-truck cars.