



one who demonstrated that he could successfully perform the work assigned to him would receive substantial reward.

The application of this principle need not be peculiar to the business of the manufacture of steel, but is equally well adapted to the railway business. In the case of a large corporation, where the stock is sold on the exchanges, there is not the same reason for the adoption of a plan of this kind, because anyone can acquire an interest in the business. But in a close corporation such as are most of the smaller street railway companies it is a different matter. In cases of this kind we have often seen a superintendent or general manager, whose services have almost been invaluable to a corporation, work on for a number of years with no financial interest in the company which he represents, and practically no chance to ever obtain it, and finally go to another company because he was offered a slight increase of salary. It would have been a good investment of the first company, after the man had proved his usefulness, to have made some arrangement with him by which he could have acquired on some terms an interest in the business to which he was devoting his time. It would not only have secured his services as long as they were wanted but it would have given him an additional incentive to give his best time and energies to the work of the corporation which he was serving. Unfortunately the large stockholders of a small company do not usually realize the importance of a thing of this kind until it is too late. They think, until they are deprived of a man's services, that he will always stay with them as long as they want him, and are surprised if he does not. But the careers of the most successful capitalists have shown that they have made money in proportion to the extent to which they have allowed their chief subordinates to have some share in the profits.

### The Operation of the Jim Crow Law

A great deal of trouble has been caused by the enactment of the "Jim Crow" law in several Southern States, as the people who have been most inconvenienced by its enforcement comprise the class for whose benefit this legislation was intended. The complaints that were heard on all sides about the negroes crowding the white people, and the deep-seated Southern prejudice against admitting blacks to the same coaches in which white men and women rode, finally culminated in the introduction of several statutes prohibiting whites and blacks from riding in the same compartments in any public railway. Public sentiment favored these measures, that is, the opinion of the white population of the South was unanimous on this point, and that is the only sentiment that finds expression through the public press of that section; consequently, there was practically no opposition to the movement.

The railway companies accepted the decree and made provision for complying with its requirements. When practicable separate cars were assigned the negroes, and, in other cases, partitions or screens were erected to separate the classes. It may appear strange to a resident of New York, Chicago or any other Northern city, that such a distinction should be made, but it must be borne in mind that the conditions are entirely different here from those that obtain in Southern cities, and that the attitude of Northern patrons of street cars might undergo a marked change if they were subjected to the annoyance and discomfort incident to riding in a crowded car in which half or two-thirds of the passengers were blacks. At any rate the laws were placed on the statute books, and they have been rigidly enforced, but not, however, without considerable friction. The first person to be arrested for refusing to comply with this rule was a daughter of Jefferson Davis, and many times since then the operating companies have found it impossible at times to enforce the regulation against less distinguished patrons without resorting to severe measures.

Under the law in most States the company which permits white and black passengers to mingle in the same coach is liable as well

as the offending passengers, and the companies, in self-protection, are therefore obliged to enforce the rule strictly, although they have frequently found much difficulty in doing so, especially during the rush hours. Very few instances have been reported where the blacks have invaded that portion of the car reserved for the white man, but the latter has been less considerate of the rights of the colored man. In New Orleans, it is reported, the white passengers have been in the habit of taking possession of the entire car, thus practically excluding the colored patrons, and the latter have generally refrained from using the cars. Some of them, however, have insisted upon the strict enforcement of the rule, and have proceeded against the company for permitting violation of the law on their lines. A large number of cases have been selected in which, it is claimed, evidence has been secured to show that the law has been openly violated. It is believed that dissatisfied labor leaders are satisfying their resentment against the company by encouraging this movement.

The law places the company in a very trying position, and it is bound to suffer considerable loss, both because of the refusal of the blacks to patronize the cars when they are huddled together, and by reason of the fact that proportionately more room must be reserved for the whites than their relative number warrants. If, in addition to this, the company is to be punished because the whites persist in violating the law, the lot of the corporation will indeed be a most unenviable one.

### A Standard Set of Rules

The interest felt in the construction and adoption of a standard set of rules for the government of employees is shown by the fact that committees on the subject have been appointed by the Massachusetts and New York State Street Railway Associations and by the American Street Railway Association. Two reports have been rendered on this subject to each of the two latter associations, in which certain codes of rules have been suggested. Mr. Barnes, electrical expert of the New York State Railroad Commission, at the Caldwell convention, emphasized the importance of the adoption of some set of rules, stating that while the subject was of importance to the large companies it was of even greater vital interest to the smaller companies, many of whom were awaiting the action of the association upon the subject. All, or nearly all, managers agree that such a standard code is to the greatest degree desirable, but it has seemed impossible up to this time to unite upon any specific set of rules which will be satisfactory to all concerned. For this reason the article by Mr. Wheatly, published elsewhere in this issue, and which is a general discussion of the principles upon which such a standard code should be based, is deserving of careful reading.

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The difficulty in drawing up any standard code of this kind is that conditions which apply on one road very often do not exist on another system, so that it would be difficult to enforce completely on all roads any standard set of rules covering all branches of railway work. Mr. Wheatly's suggestion is to omit from consideration as a part of the standard code those regulations which may not be considered to be fundamental principles of operation, and to add such non-essential rules to the code only at the option of each road. In this case they could be issued in the form of special instructions if desired. Thus on a road in the country districts, or one where the passengers are in the habit of carrying packages into the car, it might be perfectly proper and advisable to permit a larger sized package than on another road in a crowded city street. A package or bundle, which in the latter case would be a serious inconvenience to both conductor and passengers, would cause no trouble where the car is less crowded. Mr. Wheatly cites a number of other classes of rules, as, for instance, the amount of change a conductor must carry, whether transfers should be registered or not, etc., which can thus be left out of consideration in the adoption of a standard code and upon

which practice differs. If this is done it should simplify the work of preparing a standard system and add considerably to its chance of general adoption. That this is true is shown by the fact that most, if not all, of the criticisms directed against the codes suggested at the recent conventions of the New York and American Street Railway Associations were on points which, while desirable, can hardly be considered to be of fundamental importance in street railway operation.

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Mr. Wheatly then discusses the general arrangement of the rules, recommends a proposed classification of them, and calls attention to the importance of the adoption of a standard nomenclature in the wording of the rules. The recommendations made by him are based largely upon the experience of the steam roads in the establishment of a standard code. Such a code, as has been shown by the experience of the steam roads, is not the production of a week or even of a year, but is the result of many years and of a large number of revisions. No one realizes the extent of the labor required in the preparation of a set of rules which are to be standard on all roads until he has undertaken the task. For this reason the establishment of a standing committee on this subject, as has been done by the American and New York associations, is a commendable step, as is also the retention from year to year on the committee of as many members as will serve and do valuable work. We do not expect to see at the next convention the completion of a code of rules which will be satisfactory to every member of the two associations. But the composition of each committee of the associations which have appointed committees on the subject is of the highest order, and we do expect at the next convention to see a revised set of rules which will constitute a long step toward the desired complete code.

#### The Use of Fuel Oil

The menacing coal situation has given great prominence to all possible remedial agents, but perhaps none has been more seriously considered than oil. In fact the householder jumped at the idea, and many furnaces and ranges have been equipped with kerosene burners. These can probably stand on their own merits, even at the comparatively high price of refined oil, for all household heating apparatus, for whatever purpose designed, is notably inefficient. But the larger uses of fuel, as, for instance, in power stations, have to be considered on quite another basis. Crude oil must be the material burned if any economy is to be realized, and great skill must be used in the burning. Let us look at the facts a bit and see where we stand. So far as mere calorific value is concerned crude oil is just about five-thirds as good as a standard grade of steam coal. It is very easy to transport, store and handle as compared with coal, and in particular it requires far less labor in the fire-room. In many locations, where it can be had by piping from the wells, it is quite capable of beating out even very cheap coal, but as a whole its apparent great usefulness has been rather disappointing in the realization. Thus far managers of power plants at a considerable distance from the source of supply have hesitated about using fuel oil or engaging in experimental work with a view of its ultimate adoption, because of the uncertainty of delivery and lack of knowledge as to the continuance of the supply. In several cases, too, which have come to our attention railway managers have given their consent to the making of trials in their power houses, but the concerns securing this permission have availed themselves of it only to the extent of advertising it from the housetops in the localities where they were endeavoring to dispose of stock. It has been given of late a rather careful trial on locomotives of the Southern Pacific system, and from recent announcements it has been found wanting, the company going back to the use of soft coal. In Russia oil-burning locomotives have made a rather better record, but the results of experiments tried under an autocratic government, with an eye to developing natural resources of its domains, are a little open to suspicion. The Southern Pacific trials were

apparently, at least, on a purely commercial basis, and therefore vastly more instructive.

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We need hardly tell our readers, however, that tests on locomotives are by no means conclusive as to results to be obtained under the boilers of a power station. A locomotive does not generally use fuel economically, not on account of any inherent fault, but from the fact that to save weight combustion must be forced considerably beyond the economical limit. In itself the locomotive-type of boiler is a good one, but fuel economy is not the only thing to be considered in locomotive practice, where immense steaming power must be obtained in small compass. Aside from this, fuel oil being very rich in carbon, and very volatile as compared with other fuels, requires a very large and perfect air supply for its rapid and complete combustion. This is not easy to supply when combustion has to be forced to a very rapid rate, and the result reported from the locomotive trials was a fine coherent deposit of carbon in the boiler tubes, hard to remove and rapidly lowering the steaming powers of the boiler unless frequently cleaned out. Again, petroleum contains about 15 per cent, by weight, of hydrogen, an enormous amount as compared with other fuels, and with a really good air supply the temperature of combustion is very high indeed, so that there is considerable risk of injury to the boiler if the firing is not very carefully done—a serious matter in locomotive practice. It would seem, however, that in case of well-constructed furnaces for large stationary boilers in power stations these especial difficulties could be minimized, and this, indeed, has been the experience of investigators. In the few steamships fitted with oil-burning furnaces the reported results are decidedly better than in the case of locomotives, but here the comparison is perhaps unduly favorable to the oil on account of the lessened weight of fuel to be carried, the better storage and the diminished labor in the fire-room.

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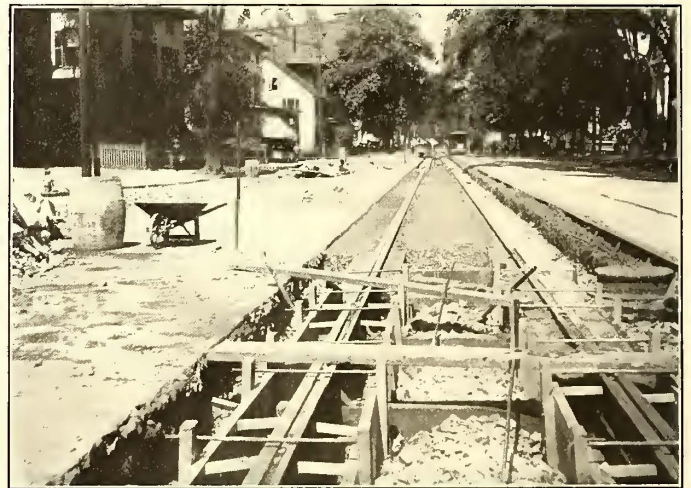
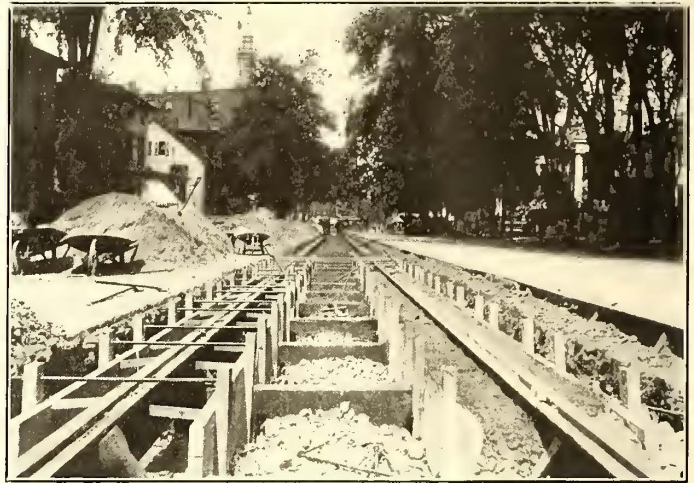
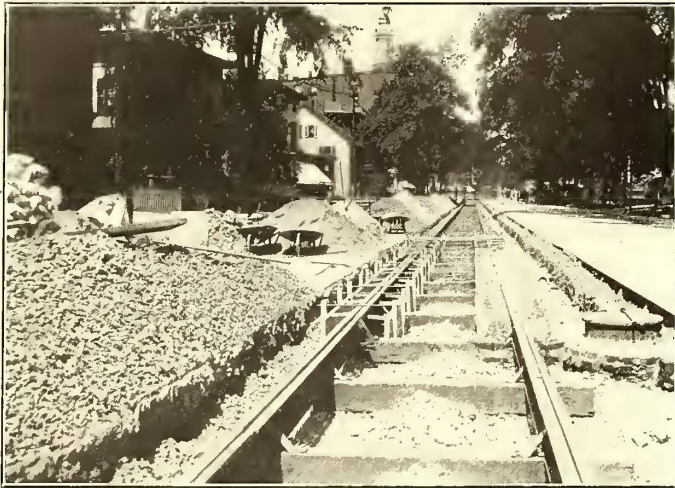
Some practical results recently obtained on steamships indicate that in actual steaming power, weight for weight, the petroleum is about four-thirds as good as coal. This result is evidently inferior to that which the relative calorific values of the fuels would indicate, but it checks fairly well with results obtained under stationary boilers. The truth is that the theoretical heating power of oil is very hard to approach in practice. If the combination is complete enough to do justice to the value of the thermal energy of the fuel, the flame must be nearly non-luminous, that is, with a very small mass of incandescent carbon particles. In this condition the fire gives out nearly all its heat by the convection of the heated gases and very little by radiation from the burning mass. And convection being a rather ineffective means of doing the work, it is hard in an oil-fed furnace to keep down the temperature of the flue gases, and considerable thermal effect is thus lost. If we are in the future to use fuel oil on a large scale as a substitute for coal, the furnace problem must be studied much more thoroughly than it has been in the past. Aside from the difficulty just mentioned, it has proved to be no easy or economical task to vaporize the fuel properly and render it fit for combustion. At present oil can be used economically in many localities where the oil supply is near, even where coal is fairly cheap, but unless considerable improvement is made in the methods of burning oil it will fail of the usefulness which properly should belong to it. Another serious practical objection to inaugurating any great increase in the use of fuel oil is that it is in the hands of probably the most perfect monopoly which has ever been organized. Hence, so long as, and wherever, oil has to be obtained through this single channel its price is fixed on a purely artificial schedule, which may sometimes be reasonable, but year in and year out will represent all the profit the business will stand. It, therefore, seems probable that for the present, at least, the station manager must exercise the greatest caution in going in for oil burning, and there seems to be a better outlook for economy in the skillful use of the lower grades of coal than in the tempting but rather troublesome use of oil.

## New Track Construction in Hartford

In an article published in the *STREET RAILWAY JOURNAL* for April 13, 1901, an account was given of the investigation by the municipal authorities of Hartford on the desirability of grooved girder rails and their use by the Hartford Street Railway Company on some of the main streets in that city. The city authorities, without giving any particular reason, expressed themselves in favor of the installation in Hartford of the "Metropolitan Standard" type of grooved rail, as employed by the Metropolitan Street Railway Company, of New York. The general manager, Norman McD. Crawford, of the Hartford Company, appeared before the committee of the Council and argued that while a rail of this kind might be most desirable for New York city streets, it was not necessarily the best for the conditions in Hartford,

Wood paving has for a long time not been popular in this country, although it has been used very extensively abroad. One reason for this has been the early wood paving in this country was laid with round or hexagonal blocks, which were not chemically treated or else were simply dipped in tar. As a result, the paving blocks suffered from dry rot, and soon became useless, leaving the paving in a very uneven condition.

As the Hartford Street Railway Company was obliged by its charter to do a certain amount of paving, the use of wooden blocks was seriously considered by Mr. Crawford, who inspected the installations of wood paving made during the last two years in Springfield, Boston and elsewhere. The testimony was so greatly in favor of this type of street that about 800 linear feet of it will shortly be laid in Hartford. The creo-resinate block of the United States Wood Preserving Company will be used. The creo-resinate process differs from the well-known creosoting process in



VIEWS OF HARTFORD TRACK CONSTRUCTION, SHOWING METHOD OF LAYING RAILS IN CONCRETE

where the climatic conditions were more severe than in New York, and a tour of inspection was made by the committee of the Council to several cities in which various types of grooved rail were in use. A compromise was finally effected, in which the type of rail shown on the opposite page was adopted. This section is very similar to the Metropolitan type except that the groove is about  $\frac{1}{4}$  in. wider at the top. It weighs 103 lbs. per yard.

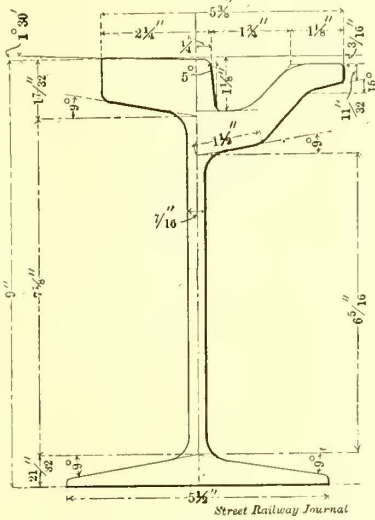
During the present season a considerable amount of track has been laid with these rails in Hartford. The rails are laid on ties, which are spaced 6 ft. apart and in a concrete stringer, which is 18 ins. deep and 21 ins. wide. No concrete is placed under the ties, which simply serve the purpose of lining and surfacing the track. The ties used are 6 ins. x 8 ins. x 7 ft. Different stages of the process of laying this rail in asphalt-paved streets are shown in the accompanying four engravings. As will be seen, elbow braces are used inside and outside of each tie for both rails. The concrete stringer is then formed around each rail and clamped in place, after which the space between the ties and the stringers are filled up with broken stone, with a top dressing of 6 ins. of concrete. The asphalt is then laid over the concrete.

In view of the success attained in other cities with wood paving, the company has also recently decided to put in a considerable amount of wood paving between its tracks.

several particulars. Dry heat is used instead of steam in the preliminary treatment, thereby killing all germs of decay. The blocks are heated up to 215 degs. F. without pressure, and then to 285 degs. with a pressure of about 90 lbs. The heat is then shut off and the tanks allowed to cool gradually until the heat has been reduced to 250 degs. and the pressure to about 40 lbs. Vacuum is then applied until about 26 ins. is reached, when the creo-resinate mixture is run into the cylinders at a temperature of 175 degs. to 200 degs. Hydraulic pressure is then applied, reaching 200 lbs. per square inch, and kept at this point until from 21 lbs. to 22 lbs. of the mixture per cubic foot has been absorbed. The liquid is then run off and milk of lime, at a temperature of 250 degs., is run in and a pressure of about 200 lbs. is applied for about an hour.

The blocks are of heart Georgia or long leaf pine, 3 ins. deep, 3 ins. wide, and 8 ins. long. They are laid on a sand cushion 1 in. deep, which rests on 6 ins. of concrete. The blocks are laid with the grain vertical. The joints are first filled with dry screened sand, and the pavement is then rolled with a 5-ton roller until the blocks present a uniform surface. The joints are then filled with a creo-resinate mixture heated to 300 degs. F., and the whole is covered temporarily with  $\frac{1}{4}$ -in. dressing of clean, screened, dry sand.

According to Mr. Crawford, the cost of construction is practically the same for wooden block paving as for asphalt paving, except that the manufacturers give a ten-year guarantee instead of the usual one for five years, given with asphalt. There are a number of advantages, however, which the wood paving has over the asphalt. It is, of course, practically noiseless and far less slippery than asphalt, so that it gives a better footing for horses. Another advantage is that a company can do its own repairing and can replace a single block at any time without trouble. The question of wear is one which in the past has been, of course, a very critical one with wood paving, but the treatment to which the blocks are subjected seems to give a vitrifying effect, certainly so far as wear is concerned, to the blocks which gives them a long life. The effect of wear then seems to mat down the vertical fibers, making a hard, almost impenetrable surface, and when in this condition it is claimed that the wood will wear almost, if not quite, as long as granite blocks. In Boston, where a wood pavement has been in use on Newbury Street, Beacon Street and Harvard Bridge for several years, the wear is almost unnoticeable, and as the blocks on these streets are 4 ins. deep a wearing surface of from two to three times as deep as that of the ordinary asphalt pavements is provided.



SECTION OF NEW RAIL, HARTFORD, CONN.

**An Important California Decision**

Judge O. M. Wellborn, of the United States District Court, at Los Angeles, Cal., has handed down a decision to the effect that neither the Pacific Electric Company nor the Pacific Electric Railway Company will receive the famous freight carrying street railway franchise in the Sixth Ward and Seventh Ward, the sale of which was attempted by the City Council on Feb. 11 and 12, 1902. As a result, the matter of the proposed franchise stands just where it did before its original advertisement for sale; the bid of the Pacific Electric Company of \$152,900, the cash for which has remained in the city treasurer's office ever since it was deposited by H. W. Hellman, will be drawn down and the Los Angeles Traction Company is adjudged to have secured no rights under its bid of \$139,000. The court holds that the Council in refusing to accept the bid of the Traction Company had the power to do so, but having so acted and the raised bid of the Pacific Electric Company being wholly improper, the entire proceedings then fell, and a readvertisement of sale was the only thing that could have been done.

As has been stated, when the freight franchise was granted, allowing the company to haul freight within the city limits, and after it had been vetoed by the Mayor, the company refused to take back its \$152,000 cash bid, the money being allowed to remain in the city treasury. The company claimed that the Council had full power to grant a valid franchise without the Mayor's sanction. The concession applied for by the syndicate covered the principal streets, and reached to the southern and eastern city limits. The opponents of the company claimed that after the bids for the sale of the franchise were opened it was found that the notice of the sale had been tampered with prior to its publication. Greater freighting privileges than were originally contemplated were granted, and the use of a third was provided for. Competitive bids were allowed twice before the franchise was granted. It is likely that the higher courts will be appealed to for a final decision.

An ordinance has been introduced in the City Council of St. Louis to authorize the Water Commissioner to collect fares on the electric railway that is operated by the city from Baden to the Chain of Rocks, a distance of 4 miles. At present the road is equipped with one car, and is operated solely for the city employees, especially those connected with the water department, who use it in going to and returning from their work.

**Notes on Heavy Electric Traction Near Paris**

Although Paris is behind every other large city in the world except, possibly, London, in modern methods of surface transportation, the city has an entirely different standing in regard to the utilization of electricity for heavy electric railway service. The backwardness in the application of electricity to surface transportation has not been the fault of the tramway companies, who

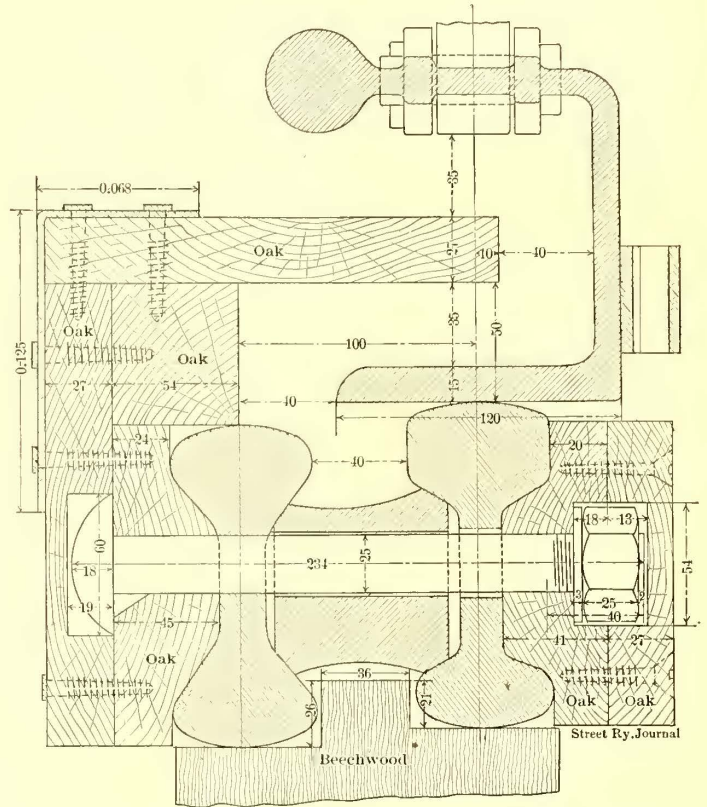


FIG. 1.—SECTION OF THIRD-RAIL CONSTRUCTION USED BETWEEN STATIONS, ORLEANS RAILWAY

have shown a most laudable effort to introduce mechanical traction on the city streets and have made experiments with steam, compressed air, fireless and Serpollet locomotives, storage battery cars, surface contact systems and underground conduit lines. But as the trolley has been prohibited, and as the length of the

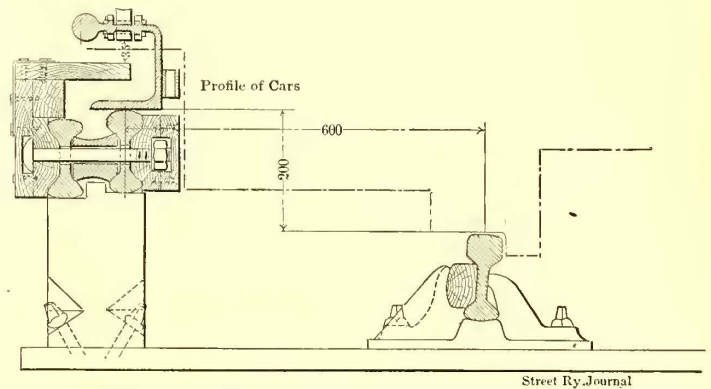


FIG. 2.—SECTION THROUGH THIRD RAIL AND SERVICE RAIL BETWEEN STATIONS

companies' franchises has not been sufficient to warrant the introduction of the more expensive conduit system, little progress has been made. This is not so, however, with heavy electric traction, where the companies have not been hampered with municipal restrictions, but have been in a position to adopt the most improved types of electric apparatus.

The three principal systems of this kind of traction in Paris are the Metropolitan Underground Road, the electrical terminal line of the Paris and Orleans Railway, and the Paris-Versailles electric line, which is operated by the Western Railway Company, of France. It is not the purpose of this article to describe the

Metropolitan system, which was fully covered in the STREET RAILWAY JOURNAL for Sept. 1, 1900, and Sept. 6, 1902, nor to give a description of the Paris-Orleans line the engineering data of which were published on Dec. 21, 1901, but to describe some particulars of the latter system, derived from a recent inspection of the line, and also to give some details of the electric service of the Paris and Versailles line, which was put into commercial operation June 7, 1902.

The Orleans Railway installation is somewhat similar in char-

acters, of which there are four on each locomotive, are hung in the usual way by means of links, but, as shown in Fig. 1, the lower part is made L-shaped so as to pass under the timber guard which protects the third rail from accidental contact. The shoe is in two pieces, a lower wearing part of cast-iron and an upper part of steel, rivetted together. The upper and outer end of the shoe is made in the form of a cylinder, 1 3/4 ins. (45 mm) in diameter, to keep the center of gravity of the shoe under the center of support. The third rail on the outside track is made up of two "bull-

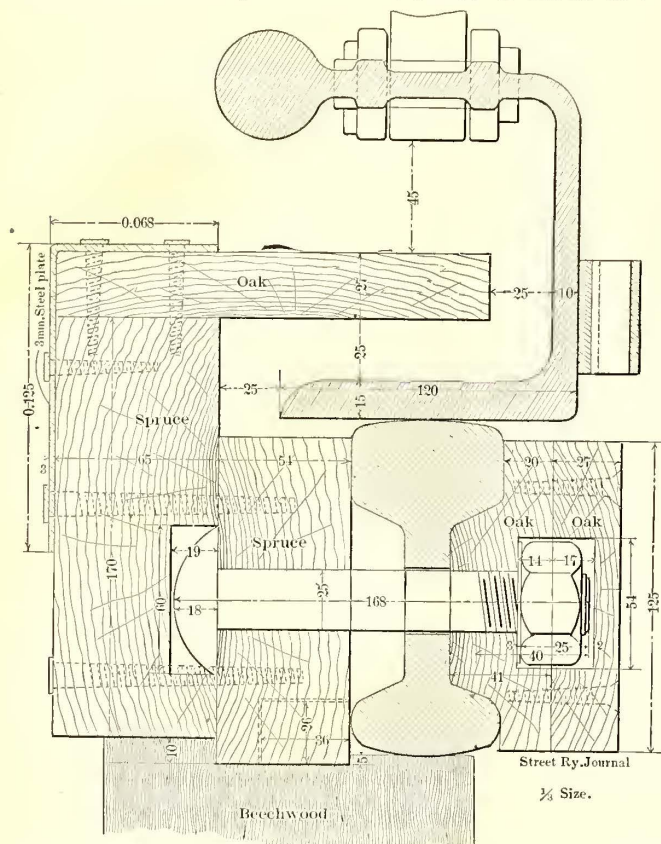


FIG. 3.—SECTION OF THIRD-RAIL CONSTRUCTION USED IN STATIONS

acter to that proposed by the New York Central and Pennsylvania Railroads in securing an entrance into New York City. That is, the through steam trains are stopped at the Austerlitz station, which is near the outskirts of the city, and are then drawn by electric locomotives a distance of 2 1/2 miles (4 km) to the Quai d'Orsay station, not far from the Champs de Mars. The main features of the plant, which have already been described in these pages, are briefly as follows: Power is obtained from a station 3 miles (5 km) distant from the Quai d'Orsay station, and is transmitted at 5500 volts and 25 periods to two sub-stations, where it is transformed into 550 volts, direct current, by means of rotary

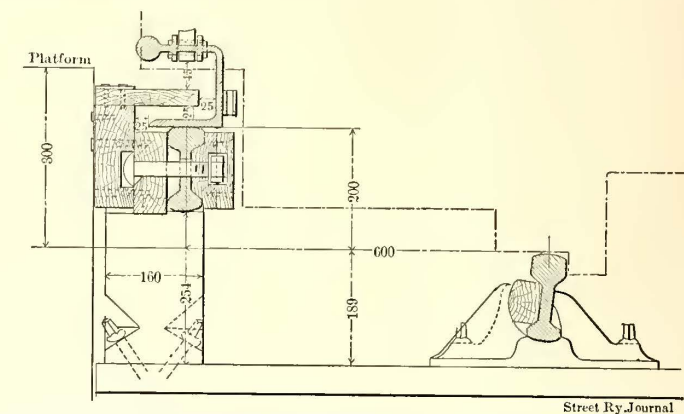
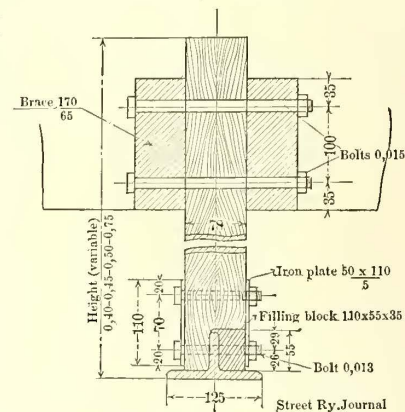


FIG. 4.—SECTION THROUGH THIRD RAIL AND SERVICE RAIL IN STATIONS

headed" rails, weighing 72 lbs. per yard (36 kg per meter), which are bolted together through a cast-iron filling block, the bolt also holding the wooden guard in place. Two rails are used on straight track, partly to get a symmetrical structure, for the third rail is not spiked to its wooden support or held in any way except by gravity, and partly to get additional conductivity. The third rail in the stations (Fig. 3) is slightly different, the head of the third rail being of a different shape, and there being only one rail, as there is less need for conductivity and the space available is less.

The rails are bonded with Crown bonds. The insulator is a block of beach wood, 10 ins. (254 mm) high, as shown in the diagram. This wood is dipped in asphalt before being installed, but sections of the block show that the asphalt does not penetrate very far into the wood. The block is fastened to the ties by lag screws. As shown in Figs. 2 and 4 the center of the third rail is 23 1/2 ins. (600 mm) outside the center of the outside of the service rail. Although mounted



SECTION OF OVERHEAD CONDUCTOR

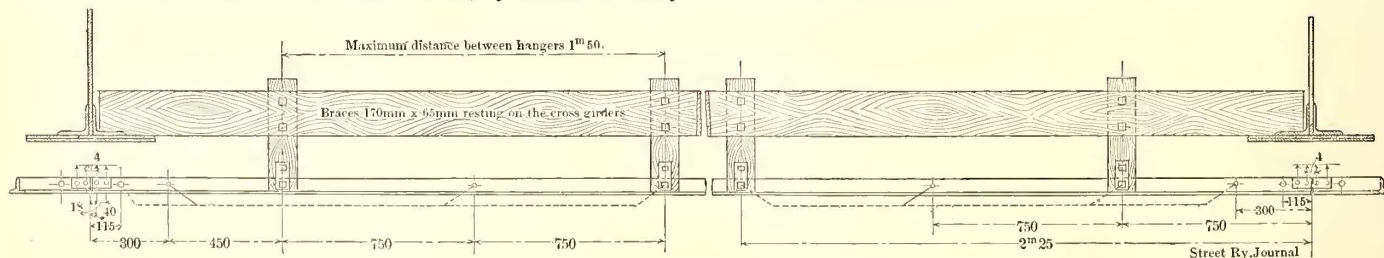


FIG. 5.—OVERHEAD CONSTRUCTION USED IN CAR HOUSES AND SWITCH YARDS

converters. The electric locomotives used for this service were supplied by the French Thomson-Houston Company. Each locomotive weighs 49 tons, and is equipped with four General Electric 65-motors, which are geared to the axles. Each locomotive is capable of hauling, without overload, a train of 300 tons weight, not including the electric locomotive, the distance of 2 1/2 miles in seven minutes. The maximum grade is 1.1 per cent. The series parallel controller used connects the motors in groups of two in series, then of four in parallel.

The principal points of interest on this road which have not been heretofore described, are the third-rail shoe, third-rail conductor and overhead conductor used in the switch yards and other points where the third-rail system could not well be applied. The

in wooden insulators the leakage is only 0.24 amps. per mile (0.15 amps. per kw) of track.

The overhead conductor used in track yards and elsewhere, where a third rail would be inadvisable, is shown in Fig. 5. It consists of a steel channel, 5 ins. x 1 in. (125 mm x 25 mm), weighing 27.4 lbs. per yard (13.70 kg per meter), suspended from a wooden frame. The different sections of this channel are connected by flexible bonds. For use in connection with this overhead conductor the locomotives are equipped with a low universal trolley, with sliding shoe contact, in addition to the shoes for the third rails, already described.

The total length of single track equipped with electric traction between the Austerlitz and the Quai d'Orsay stations is 9.55 miles

(15.288 km), of which 4.375 miles (6.998 km) are double third rail, 3.12 miles (4.58 km) are single third rail, and 2.32 miles (3.71 km) are overhead conductor.

THE PARIS-VERSAILLES LINE

The equipment of the line between Paris and Versailles, owned by the Western Railway Company of France, differs materially

The compressed-air cars having failed to give satisfaction, the company had constructed by a local electrical firm, the Société Anonyme de Locomotion Electrique, of Paris, ten electric locomotives, similar to that shown in Fig. 7. Four cars were equipped with General Electric motors and the other six with Brown, Boveri and Westinghouse motors, all of 225 hp each and four to the locomotive; but the method of attachment was that of the

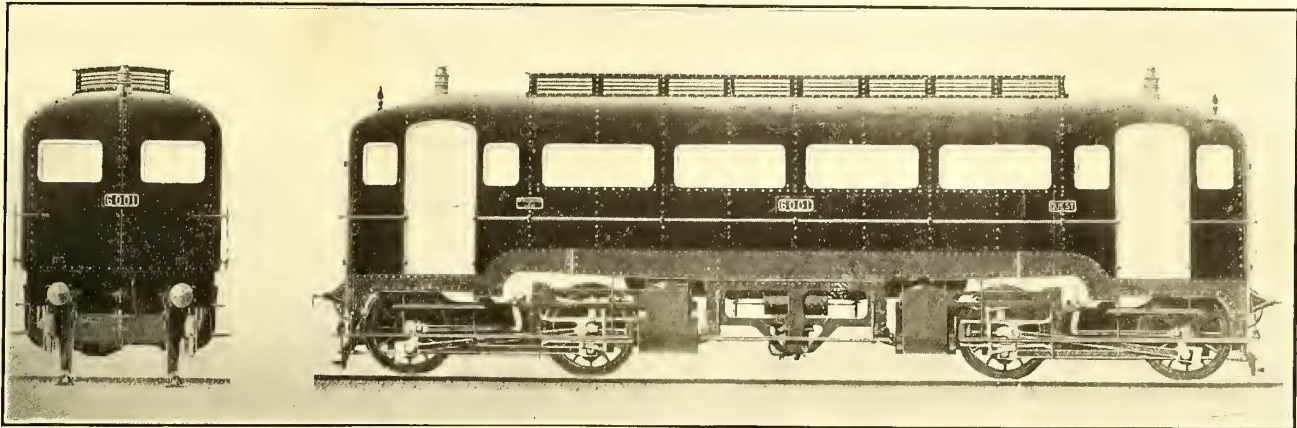


FIG. 6.—COMPRESSED AIR LOCOMOTIVE BUILT FOR VERSAILLES LINE

from that on the Orleans line, from the fact that the line is not in use for through service but for local service only, and electricity was adopted for its economical advantages and to avoid the use of smoke-producing locomotives in the tunnels through which the line runs.

The line, which is 11 miles (17.6 km) in length, is now in

French builders, and curious, to say the least. Two methods were followed. In the case of the Brown, Boveri motors and most of the Westinghouse motors, the armatures were mounted on a hollow shaft encircling the axle, and with a diameter considerably larger than the axle itself. The shaft was then connected to the car wheel, and supported so as to be concentric with the axle by

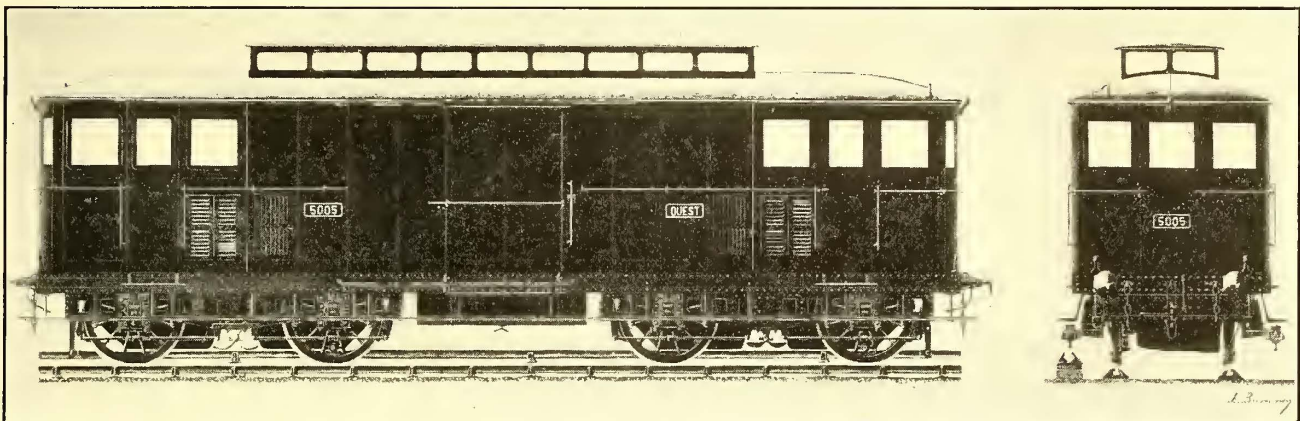


FIG. 7.—ORIGINAL ELECTRIC LOCOMOTIVE BUILT FOR VERSAILLES LINE

operation on the multiple unit system as a result of trials extending over two years, first with compressed-air locomotives and then with electric locomotives.

The compressed-air locomotives first tried were mounted on double trucks, as shown in Fig. 6, each carrying a compound,

means of six spiral springs connected to the spokes of the car wheel. The geared motors were connected to the axles in the same way, that is, the gears were not mounted directly on the axle but on a hollow shaft, which was spring-supported from the car wheels in the manner already described. The locomotives

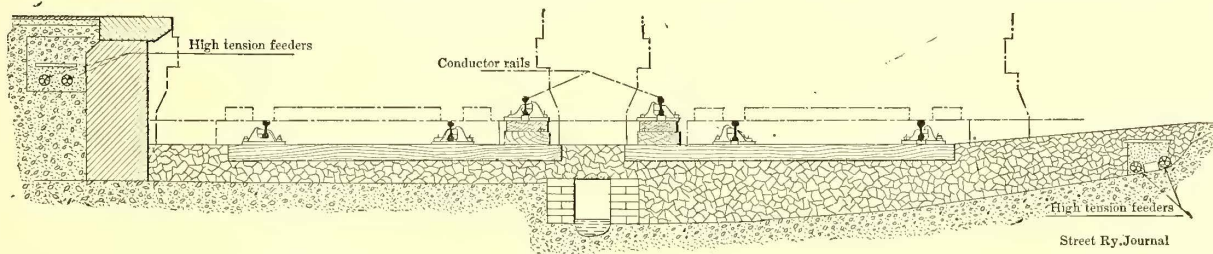


FIG. 8.—SECTION OF THIRD-RAIL TRACK, PARIS-VERSAILLES LINE

two-cylinder motor. The car contained thirty-three reservoirs, capable of carrying 4400 lbs. (2000 kg) of compressed air at 1420 lbs. per square inch (100 kg per centimeter) pressure. This was reduced in the motor cylinders to 280 lbs. (20 kg), as a working pressure in the high-pressure cylinders, and 140 lbs. (10 kg) in the low pressure. The reheater was carried under the middle of the motor car. The dimensions of the motor cylinder were 12.2 ins. and 29.9 ins. x 22-in. stroke (320 mm and 530 mm x 560 mm stroke). The length of the cars over all was 44 ft. (13.46 m),

were designed to run at 25 miles (40 km) per hour, and weighed complete 50 tons. The geared motors had four poles, and the gearless motors six poles.

The arrangement proved too complicated as well as inefficient, and was abandoned in favor of the multiple unit system. Last summer the traffic on the line was being cared for by means of two multiple unit trains, one equipped with the Sprague system and the other with the General Electric. The General Electric motor cars, of which there were two, were supplied by the French

Thomson-Houston Company. They weighed 23.5 tons each, and were designed to draw four trail cars, weighing 11.3 tons each, making the total weight of the train, empty, 72.2 tons, and loaded, 87.2 tons. The motor cars are mounted on Brill No. 27 trucks, and are each equipped with two General Electric 55 motors. The Sprague equipment used the same motors, but the cars were mounted on McGuire trucks.

The third-rail construction used on the line is shown in Fig. 8. The construction differs from that used on the Paris-Orleans line, as the third rail is of the same section as the track rail, and weighs 92 lbs. to the yard (46 kg. per meter). The third rail is of the bull-headed type, supported in chairs which rest on insulators of paraffined wood, which in turn are supported on ties of longer length

### Important Paper Changes Hands

Announcement is made in the current issue of the Engineering Record, of New York, of the sale of this paper by its publisher, Henry C. Meyer, to James H. McGraw, the president of the STREET RAILWAY JOURNAL, Electrical World and Engineer, and the American Electrician. The Engineering Record is one of the oldest and leading papers published in the engineering field, was founded by Mr. Meyer, and is about twenty-five years old. It is published weekly and is devoted to civil and industrial engineering. The announcement of the sale in the Engineering Record states that Mr. Meyer will continue to give the new publishers the

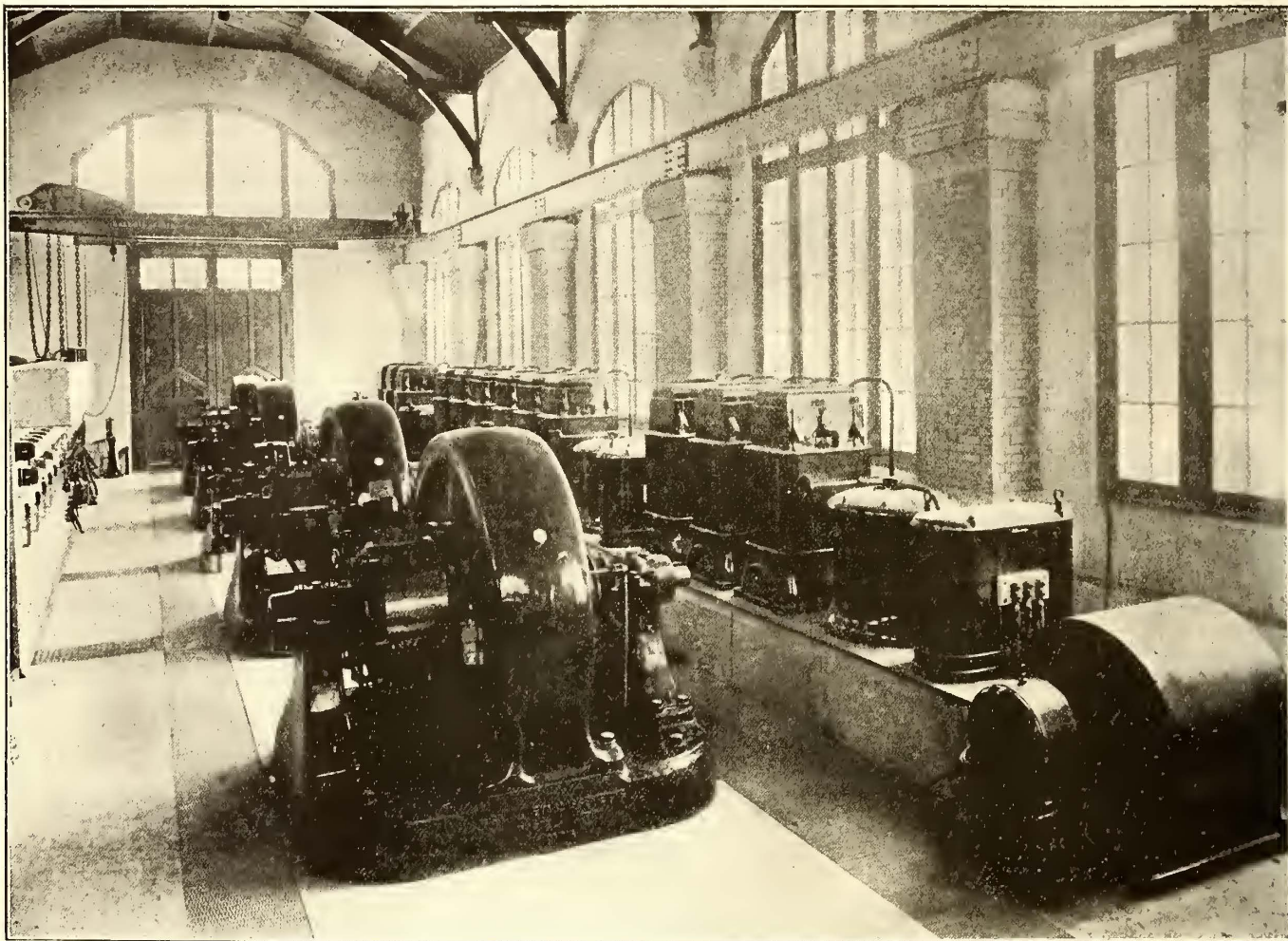


FIG. 9.—SUB-STATION, WESTERN RAILWAY OF FRANCE, FOR OPERATING PARIS-VERSAILLES LINE

than the standard. The third rail is divided into sections of  $\frac{5}{8}$  of a mile (1 km).

Power for the Paris-Versailles line is being supplied from a station at Moulineaux, along the line of route, at 5500 volts, 25 cycles, which is converted by rotaries into direct current at 550 volts. There are three main sub-stations, each of which contain four Thomson-Houston rotary converters of 300 kw each. The pressure is regulated on the alternating current side by a regulating transformer with a movable armature, permitting a variation of 15 per cent. The rotaries are started by direct current, supplied by a 40-kw generator, driven by an induction motor.

A view of one of the sub-stations of the company, of which there are three, one at the Champs de Mars, one at Meudon, and one at Viroflay, is shown in Fig. 9. The rotaries are placed in a row extending up and down the building between the transformers and the switchboard. The transformers are cooled by air blast, which is supplied by two blowers, each driven by an induction motor, one of which is shown in the lower right-hand corner of the engraving. As will easily be seen from the illustration, the air shaft extends the entire length of the building under the transformers, transformer regulators, etc., which are grouped in the following order: Reactance coil, induction regulator, group of three transformers, reactance coil for the second rotary, etc. The induction motors for starting the rotaries are not shown in the illustration.

benefit of his counsel and active co-operation in maintaining the high standing of the paper, and the same staff that has executed his directions in recent years will continue to conduct its affairs. The only change that is proposed is an increase in the value of the journal in its well established field, due to its affiliations with publications of similar standing in allied fields.

### Promotions from the Ranks

The Cincinnati Traction Company has had posted in each of the car houses a notice that promotions in the service will hereafter be made from the ranks. An eligible list has been established, and as soon as a position is vacant it is filled from the list. Division superintendents' clerks, conductors and motormen are requested to make written application for examination as to fitness. The line of succession is: Motormen and conductors to division superintendents' clerks, and clerks to division superintendent. The notice says that no changes are anticipated at present; the list is to be made simply to inform the company as to the fitness of its employees for promotions. This policy has been adopted to stimulate the men to better endeavor and to bring out the best in them by showing that their future in the service depends on their merits alone. Promotions were previously made by choice of the officials.



The Proposed Standard Code of Rules

BY W. W. WHEATLY

In the annual conventions of the national and State associations the managers of the electric railroads are brought together for the solution of problems connected with railway construction, maintenance and operation. The most important topic that has engaged their attention for many years is the preparation and development of a standard code of rules. Each separate railroad, it is true, has its own code of rules, but each one is different from the other. The associations interested in the making of a standard code, after looking over the field, have discovered a heterogeneous mass of regulations that have been jumbled and twisted by the efforts of dozens of managers and superintendents, working independently of each other since the first street railway was put into operation. The desire is now for uniform rules, and these rules are expected to recognize all that is good in the present practice on a majority of the roads. The preparation of a code of rules suitable for all roads is no holiday task. It requires a great deal of time, study and hard work.

It is no reflection upon the committees that presented to the national and State conventions last year, and again this year, the draft of a proposed standard code to say that the associations acted wisely when they returned the rules to the committees with instructions to reconsider and report progress at the next meeting. The writer is deeply impressed with the value of the original work done by these committees, and it is not intended as a criticism when the opinion is expressed that further changes in the proposed standard code are desirable before its presentation in completed form for adoption. The committees will do well to take more time and go over the rules carefully, in the light of the experience and knowledge acquired through the discussion upon their work in the recent convention and in the railway journals.

It is interesting as well as instructive to find that many of the principles now held to be sound in the management of electric street railways were formulated in the early days of steam railroads. Because such principles have stood the test of time and experience, and are essential to safety and efficiency in railway service they are likely to endure. In the preparation of a standard code for electric railroads much valuable time may be saved by observing and taking advantage of the work done in the same field by steam railroad men during the past twenty-five years. Being familiar with their work the writer is able to state that the standard code which they first adopted has been revised two or three times, with the result that certain rules, at one time thought to be essential, have been eliminated as superfluous, and other rules have been added to make the code more complete. It is now a model of its kind.

Two important objects are sought in the effort to provide a standard code of rules; one is a reform in the language, the grouping and the arrangement of the rules, and the other is a reform in the practice under the rules. The language should be a model of simplicity and precision, and should not be capable of more than one interpretation. Where words are used having more than one meaning, or where there is any doubt, there should be a definition to indicate the exact meaning. The same word or phrase used more than once in the code should invariably mean the same thing. The rules should be arranged in logical sequence, and the different rules belonging to one subject should be grouped together under a separate heading.

In developing a standard code for general use the practical difficulty is to make it cover all the different conditions of service on many roads. There are certain rules which apply to one group of roads but do not apply to others. There are, however, certain rules embodying principles which are of general application, and are essential to safe operation, and no road can afford to leave them out. Such rules will be recognized by all as the primary rules, and they should properly constitute the foundation work of the standard code. In developing the next or secondary rules the varying conditions of different roads will have to be recognized. The interurban roads with single track require special treatment, although their general safety requirements are the same as all other roads. There are some few roads operating at one time heavy city lines, light suburban lines and interurban single-track lines, and such roads would have need for the rules covering practically all conditions of service. When completed the code should provide a practical set of working rules, adapted to any urban or interurban electric railroad.

In the evolution of the electric railroads there is one particular feature which distinguishes it from the evolution of steam railroads. The electric roads began operation with double track, and by gradual process of development are now entering upon inter-

urban single-track operation. The steam roads began with single track, and within recent years have been progressing into double-track operation. Yet by far the greater part of the mileage of electric roads is double track, while that of steam roads is largely single track. It was quite natural that this difference in conditions should be reflected in the growth of their respective codes of rules. The electric roads began with rules adapted largely to double-track operation, and the steam roads began with rules adapted largely to single-track operation. In recent years each has been seeking to supply its deficiency.

It is not the object of the writer at this time to develop a complete code of rules, but rather to indicate the essential requirements of simplicity of language, orderly grouping, arrangement in logical sequence, and the addition of such rules as will cover the conditions of service on the single-track roads. Before going further it may be well to indicate some of the things that would better be left out of consideration as a part of the standard code. It is sufficiently difficult to get a large number of roads to agree upon the essentials, and therefore the non-essentials should be left to the option of each road to be added to the code, or issued in the form of special instruction if desired. The following items are given as illustrations of things to be omitted from the code, viz.:

1. Care of cars in the car house.
2. Care of injured persons, calling physicians, etc.
3. Reporting accidents, giving information concerning them, etc.
4. Amount of change (cash) for conductors to carry.
5. The collection and registration of fares or transfers.
6. The specific reports to be made by conductors, motormen and others.
7. Ejectments from cars.
8. The assignment of men for work and the handling of the seniority list.
9. Technical instruction or information concerning the electrical equipment.

If the association thinks it desirable to have uniformity of practice in such matters it may, with propriety, issue rules covering the same under the heading "Recommended Practice of the American Street Railway Association," to be printed separate from the code.

Before proceeding with the details of grouping and arrangement it may not be out of place to illustrate the simplicity of language which is desired. For this purpose a copy of the general notice and a few of the general rules are given below (1) in the language suggested by the committee of the American Street Railway Association, and (2) placed opposite for comparison the same things in the language adopted by the steam railroads in their standard code:

SUGGESTED BY COMMITTEE OF AMERICAN STREET RAILWAY ASSOCIATION

The rules herein set forth apply to and govern all lines operated by the \_\_\_\_\_ Railroad Company.

They shall take effect \_\_\_\_\_, and shall supersede all prior rules and instructions in whatsoever form issued which are inconsistent therewith.

In addition to these rules special instructions will be issued from time to time, as may be found necessary, and such instructions posted on the various bulletin boards; whether in conflict with these rules or not, which are given by proper authority, shall be fully observed while in force. Bulletin boards are located at the following points, and must be consulted daily by each employee of the transportation department:

.....  
 .....  
 .....

Every employee whose duty is in any way prescribed by these rules must always have a copy of them at hand while on duty, and must be familiar with every rule.

All employees are required to be polite and considerate in their dealings or intercourse with the public; the reputation and prosperity of the company depend upon the promptness with which its business is conducted, and the manner in which its patrons are treated by its employees.

ADOPTED BY STEAM RAILROADS

The rules herein set forth govern the railroads operated by the \_\_\_\_\_ Company. They take effect \_\_\_\_\_ superseding all previous rules and instructions inconsistent therewith.

Special instructions may be issued by proper authority.

Employees whose duties are prescribed by these rules must provide themselves with a copy.

The service demands the faithful, intelligent and courteous discharge of duty.

All employees will be regarded in line for promotion, advancement depending upon the faithful discharge of duty and capacity for increased responsibility.

Employees of any grade will be considered as accepting or continuing in employment subject to the dangers incident to this hazardous occupation.

To obtain promotion capacity must be shown for greater responsibility.

Employees in accepting employment assume its risks.

The proper grouping and arrangement of the rules under distinct headings is really one of the first important steps in the development of a standard code. Without it the rules may be jumbled and thrown together in the most haphazard manner. By proper grouping it is made easy for roads with varying conditions to pick out and apply such portions of the code as are fitted to their requirements. Below are shown, in opposite columns, the grouping (1), as recommended by the committee of the American Street Railway Association, and (2) the grouping which seems to be more desirable, the latter being modelled after the standard code of the steam roads:

RECOMMENDED BY COMMITTEE A. S. R. A.	PROPOSED NEW GROUPING
General Notice. General Rules.	Form of order putting rules into effect. General Notice. General Rules. Sub-headings: 1. Rules for Department. 2. Rules for Road Operation. Definitions. Rules for single track (including rules for movement by special order). Rules for double track (including rules for movement by special order). Signal rules. Diagrams of hand, flag and lamp signals. Diagrams of car and train signals and of block signals.
Rules for Inspectors, Receivers and Depot Masters.	To be omitted from standard code, leaving each road free to add them in its own way
General Rules for Conductors and Motormen.	Included in general rules under the sub-headings.
Special Rules for Conductors and Motormen.	To be omitted from standard code, leaving each road free to add them in its own way.

The object in adding the group known as "definitions" has already been partially explained. The necessity of making clear the exact meaning of certain terms or phrases will become more apparent when the rules for the operation of single track, including the signal rules, are being developed, or when the necessities of electric operation require the coupling together of several cars to be operated as one unit and known as a train. Certain roads are already calling their conductors and motormen "trainmen," and calling their car service "train service;" although it is not apparent by what process of reasoning a single car, without markers on the rear, can be looked upon as a "train." If the word "train" is to be used the authority for it should appear in the standard code, and there should be a definition of it so that all may know what constitutes a "train."

EXAMPLE	DEFINITIONS
Train.—A motor car or engine, with or without trailers, displaying markers.	
Regular Train.—A train represented on the timetable. It may consist of sections.	
Extra Train.—A train not represented on the timetable.	
Timetable.—The authority for the movement of regular trains, subject to the rules. It contains the classified schedules of trains, with special instructions relating thereto.	

The general rules, as previously stated, should be considered the primary rules, embodying the principles (1) of correct department of employees, and (2) the essentials for safety in the operation of the road. They should be sufficiently broad to be applied alike to urban or interurban roads, with single or double track. They should be so brief, simple and plain that the majority of the employees of all roads will, after a little time, become familiar with the language and almost able to repeat them from memory. Then when some emergency arises the application of the rules will become second nature. Following is an illustration of the primary or general rules applicable to all roads, arranged under sub-headings as suggested:

RULES FOR DEPARTMENT

The use of intoxicants by employees while on duty is prohibited. Their habitual use or the frequenting of places where they are sold is sufficient cause for dismissal.

The use of tobacco by employees when on duty on cars or in or about the depots (except where lounging rooms are provided) is prohibited.

The solicitation of advertisements or contributions for entertainments or similar purposes by or on behalf of any employee is prohibited.

RULES FOR ROAD OPERATION

Watches of conductors and motormen must be compared, before commencing each day's work, with a clock designated as a standard clock.

NOTE.—On long interurban runs it may be desirable to compare time with the standard clock before starting each trip.

Before starting each trip the proper signs and signals must be displayed. Conductor and motorman will each be responsible for his end of the car or train.

Cars or trains must be promptly stopped, and afford safe right of way to fire department vehicles, ambulances and emergency repair wagons.

When cars are being pushed by a motor car (except when shifting in the depots or yards) a flagman or signalman must take a conspicuous position on the front of the leading car, and signal the motorman in case of need.

The rules for the operation of single track, as well as for double track, are understood to be based upon and in harmony with the principles set forth in the primary rules, and should be considered as supplemental thereto. It should not be necessary to repeat any of the principles already embodied in the general rules, but to add thereto only such rules as apply specially to single or double-track operation. An illustration is given below (1) of rules applying specially to single track, and (2) directly opposite, for comparison, rules applying specially to double track:

RULES FOR SINGLE TRACK

All trains in the direction specified in the timetable are superior to trains of the same class in the opposite direction.

An inferior train must keep out of the way of a superior train.

A train must not leave its initial station on any division, or a junction, or pass from double to single track, until it has been ascertained whether all trains due, which are superior or of the same class, have arrived or left.

RULES FOR DOUBLE TRACK

When a train crosses over to, or obstructs the other track, unless otherwise provided, it must first be protected, as prescribed by Rule ——— in both directions on that track.

When a car or train is standing still, receiving or discharging passengers, any car or train in the opposite direction must make a full stop directly opposite the standing car or train.

When passengers are alighting, and a car or train is approaching in the opposite direction, conductors and motormen must caution them to look out for the car or train on the other track.

The signal rules, as indicated, should be placed under a separate heading and should prescribe the different kinds of signals used by authority of the code, whether of color or form, visible or audible. The following forms are suggested:

VISIBLE SIGNALS

COLOR	INDICATION
(a) Red	—Stop.
(b) White	—Proceed.
(c) Green	—Proceed with caution.

AUDIBLE SIGNALS

By Bell-Cord from Conductor to Motorman.	
SOUND	INDICATION
(a) 1—When car is moving, stop.	
(b) 2—When car is standing, start.	
(c) 3—When car is moving, stop at once.	
(d) 3—When car is standing, back the car.	

The hand-flag and lamp signals, the car and train signals, the block signals and the interlocking signals should each one be prescribed in due form, with their indications. These should be followed by the rules governing the use of the signals. The manner of using the signals should be illustrated by diagrams, especially the hand-flag and lamp signals and the car and train signals. All roads use signals of one kind or another on their cars or trains and along their lines. Each road should be able to find in the signal rules that which is suited to its particular requirements.

It should be emphasized that all unnecessary or non-essential matter ought to be omitted from the rules. A careful examination of the rules proposed by the committee at the Detroit convention of the American Street Railway Association will convince the reader that much work yet remains to be done before the proposed rules will pass muster. Rule 42 in the general rules for conductors and motormen is an illustration taken at random. It reads:

"Conductors and motormen must be neat and clean in appearance and wear the uniform and badge prescribed by the company—the badge must be kept in good condition and worn on the front of the cap, and the uniform must be clean and in good repair."

The obvious criticisms are: (1) That it is not necessary to twice

state the requirement of cleanliness; (2) it is unwise to attempt to dictate to all roads where the badge shall be worn; some may want it worn elsewhere than on the cap; (3) the badge and the uniform are intended to be worn only *on duty*, but the rule would seem to require that they be worn at all times; (4) the keeping of the badge in good condition should be understood. Would it not cover the matter in fewer words and with more force to make the rule read as follows:

Rule 42. Conductors and motormen on duty must wear the prescribed badge and uniform, and be neat in appearance.

Rule 9 of the general rules may be cited as another example. It reads:

"In the event of any of the company's apparatus, breakage of the overhead line, charging a pole in the public street, unsafe settlement of building or structures, etc., whereby imminent danger of personal injury is caused, the first employee discovering the fact must arrange to protect the danger point, advising the proper authorities, by the first available means, of the character and location of the trouble. He must not relinquish such responsibility until properly relieved."

The obvious criticisms are: (1) That the language is involved and ungrammatical; (2) the employec is told what he should do in three or four probable emergencies; why stop at three or four; why not tell him what to do in many other emergencies? (3) it should not be undertaken to make rules in a standard code to instruct the employec what to do in each and every emergency that arises. This rule and all others like it should be left out entirely. If any road thinks its employees require such instruction it may be given in special form.

Too much stress cannot be laid upon the point that the standard code should enunciate principles only and not attempt to go into all the minor details of operation.

### Arbitration of Chicago Union Traction Wages

In the STREET RAILWAY JOURNAL of June 14, 1902, a brief account was given of the events leading up to an agreement between the officers of the Chicago Union Traction Company and the Amalgamated Association of Street Railway Employees of America. The Amalgamated Association had been organizing a union among the employees of the Chicago Union Traction Company, and as some of the union men were dissatisfied and claimed that union men were being discriminated against by the management, an agreement was drawn up and signed by the officers of the company and the union, in which the Chicago Union Traction Company promised not to oppose the organization of its employees into the Amalgamated Association. The company further agreed to meet and treat with the committees of this organization on all questions and grievances, and in all cases of failure to agree it was provided in the contract that all questions should be settled by arbitration. In July the union men presented to the Chicago Union Traction Company a demand for an increase in wages of approximately 33 per cent. Conductors and motormen on the electric lines of the Chicago Union Traction Company, who had been getting 21 cents an hour, asked for 28 cents. Conductors and motormen of the Chicago Consolidated Traction Company had been getting 17 cents to 19 cents, and asked for 28 cents. Cable car conductors and gripmen, getting 21 cents to 23 cents, asked for 28 cents and 30 cents. In addition the men asked that all men employed on extra runs, trippers and trailers, should be paid for eight hours work. After several conferences President Roach made what was probably the most remarkable and liberal offer ever made, under such circumstances, in the history of electric railroading. This offer was as follows:

Sec. 1. Officers of the Union Traction Company will treat with the officers of the Union concerning all grievances of the men.

Sec. 2. Officers of the Union shall have power to adjust all differences between the company and the men. In case of a failure to agree all matters shall be arbitrated.

Sec. 3. Wages of gripmen shall be 24 cents an hour; conductors of grip and trail cars and combination grip cars, 24 cents an hour; motormen and conductors on electric lines and conductors on single trailer cars, 22 cents an hour.

Sec. 4. Gripmen, motormen and conductors are to be paid this rate on the understanding that no regular run is to be considered less than ten hours.

Sec. 5. Runs are to be not less than ten hours, nor more than eleven, hours a day.

Sec. 6. Trippers, trailers and extra runs are to be paid for at the rate of \$1.75 for a run of six hours or less. Such runs extending over six hours are to be figured as full days of ten hours.

Hours of trippers are to be between 5 and 10 a. m. and 3 and 7 p. m.

Sec. 7. All night-car crews are to receive the highest rate of pay now given any single-night crew. Night runs are not to exceed seven hours. (This means that night crews are to get \$2.40.)

Sec. 8. In case of delays over schedule time gripmen, motormen and conductors are to receive pay at the regular rate of wages.

Sec. 9. The company agrees to take up the question of wages, hours and conditions affecting the car house and shop employees just as soon as presented by the men in those departments.

Sec. 10. The company agrees immediately to disband and abolish the benevolent society known as Union No. 2, for the sake of harmony, and will recommend that all members of the benevolent association join the Union on the understanding that the Union will accept such members without prejudice. The company will also require that all new men entering its service shall join the Union after sixty days.

Sec. 11. This wage scale and agreement to remain in effect until Aug. 21, 1904.

In spite of this liberal offer, which was especially favorable to trippers, who are the most likely to be underpaid, the men voted not to accept the company's offer, but to submit the case to arbitration. There was a general feeling on the part of the public in Chicago, as well as other laboring men, that the employees were foolish in rejecting this offer, because of its extreme liberality, and by this vote the men undoubtedly lost much of the public sympathy they would otherwise have kept. The matter was then submitted to arbitration. Clarence Darrow was selected by the employees for the arbitration board, and Wallace Heckman by the company. Both are well-known attorneys. These two arbitrators selected as a third, William J. Onahan, president of the Home Savings Bank. Mr. Onahan was the organizer of the St. Patrick's Societies of Chicago, and has been prominent in Catholic affairs. In 1869 he was elected city collector, and in 1888 was chosen comptroller. Later he served on the library board. He is known as a lecturer and writer. After several weeks deliberation the arbitration board made its report and findings on November 6, as follows:

Nov. 3, 1902.

In the matter of the differences between the employees of the Union Traction and Consolidated Traction Street Railway Companies and said companies the Board of Arbitration makes the following finding:

1. The wages of motormen and conductors running electric cars on the Union Traction lines, and conductors of grip cars or trains shall be 24 cents per hour, except as hereinafter provided.

2. The wages of gripmen and conductors operating more than one car, including combination grip cars, on the Union Traction lines shall be 25 cents per hour.

3. The wages of the motormen and conductors of the Consolidated Traction Company shall be 23 cents per hour.

4. Employees who have served the company for less time than six months shall receive the same wages as are now paid, provided the company shall not discriminate so as to discharge old employees and take on new ones for the purpose of hiring at a lower rate.

5. Trippers shall receive \$1.75 per day, excepting such trippers as have not been in the employ of the company for a period of six months, and as to such trippers the rate shall be the same as now fixed.

6. Night men on the West Side shall receive 40 cents per hour; night men on the North Side shall receive \$2.50 per night for such men as now receive \$2.25, and \$2.65 per night for such men as now receive \$2.40. This scale of wages shall be in force and effect from Sept. 15, 1902, to May 31, 1904.

The Board has not been able in this limited time to fix the wages of car house men, and it suggests that both the companies and the organization furnish men to examine carefully the wages of men of each car house and attempt to adjust them, and, on their failure, the Board reserves the question of fixing the wages of the car house men, and such findings as to wages shall date from the 15th day of September, 1902.

The Board further finds that there was no substantial evidence before the commission that the street car companies had discriminated in any way against the members of the Amalgamated Association after the agreement, on the 31st day of May, 1902, but further finds that the existence of the so-called Benevolent Association, or Union No. 2, tends to create inharmonious and dissatisfaction among the men and affects the efficiency of the service, and for this reason recommends that it shall be abolished and the company released from the payment of any death, sickness or accident benefits on account of any contract with their employees or such society. The employees shall be required to sign such release before accepting this scale of wages.

This commission, for lack of time, reserves the question of reinstatement of the discharged men whose cases are pending before the commission.

W. J. ONAHAN,  
CLARENCE S. DARROW,  
WALLACE HECKMAN.

Thus the wage question on the lines of the Chicago Union Traction Company and the Chicago Consolidated Traction Company, which it controls, has been finally settled, for a year at least. The requests of the men on the Chicago City Railway for an increase of wages, it will be remembered, were settled by a board of arbitration in September, the wages agreed upon being 24 cents an hour, or the same as previously offered by the company before the matter went to arbitration.

Both the Republican and Democratic parties made use of advertising space in street cars in Central and Western Massachusetts previous to the last election for the first time in that section.

### Report of the Committee on Standards\*

BY N. H. HEFT, JOHN I. BEGGS, E. G. CONNETTE, E. A. NEWMAN  
AND R. T. LAFFIN

The committee on standards, appointed in pursuance of the action of the last annual meeting of the association, have given individually, at their homes, and collectively as a committee at meetings, considerable thought to the matters involved, and have carried on much correspondence in an earnest effort to obtain data which would enable them to present at this meeting of the association ideas that would be of advantage to the electric railways throughout the country.

It is unnecessary, however, to suggest that because of the great changes and vast improvements being made in the type, design and construction of motors that it is difficult to make any definite recommendation upon this point, as we feel that the next year or two may radically change the ideas of the manufacturers as well as the operating departments of the several roads with relation to the matter of motors.

With regard to the matter of rails and trucks we present more definite conclusions for your consideration.

At the first meeting of the committee the subjects to be considered by the committee were divided and assigned to the members as follows:

N. H. Heft (Meriden, Conn.)—Wheels, axles, axle brasses, journals, journal-boxes, brake-heads, brake-shoes, etc.

John I. Beggs (Milwaukee, Wis.)—Rails.

E. A. Newman (Portland, Me.)—Motors.

E. G. Connette (Syracuse, N. Y.)—Trucks.

R. T. Laffin (Worcester, Mass.)—Painting.

Will Christy (Akron, Ohio)—Car bodies for city and suburban service, including ventilation; also the question of the oval roof.

C. F. Holmes (Kansas City, Mo.)—Standard overhead construction for high-speed city and suburban roads, including trolley wheels.

#### RAILS

The committee having carefully considered this subject, and having consulted with experts, recommends that this association adopt as a standard for either a "T" or girder rail, the form of rail shown in Figs. 1 and 2; the height of the rails to be governed by the character of the pavement required in the municipalities, and the weight of the rail to be not less than 70 lbs. for the "T"-rail and not less than 90 lbs. for the girder rail per yard.

It will be observed by examining these illustrations that the head of the rail is made to conform to the angle of the tread of the car wheels, for the following reasons. First, to increase the contact area, thus increasing the tractive force; and second, causing a more uniform wear across the head of the rail and tread of the wheel.

The width of this head should be not less than 3 ins. With a rail-head of this form and dimensions, a car wheel having a 3-in. tread and flange of  $1\frac{1}{8}$  ins. in depth (which should be used on all suburban cars), can be operated without interfering with pavements, with safety, at a high rate of speed on suburban and interurban roads, and with less cost for maintenance than the present form, due to the increased surface contact between the wheel and rail and decreased wear on flange.

The committee is of the opinion that the "T"-rail is the most desirable and practicable rail for all purposes, and advises its use wherever the consent of the municipality can be obtained; and an earnest and persistent effort should be made on the part of all electric railways to obtain such consent.

In all places where a "T"-rail, as here described, cannot be used, your committee recommends a grooved girder rail of the form shown in Fig. 2. This form of rail, owing to the bearing being placed directly over the center line of web, gives a rail of greater stiffness, one with a head of 3 ins. in width, as well as a deeper and wider groove, and one which can be paved in the same manner as other girder rails.

In view of the rapid construction of suburban and interurban lines, which enter the cities over the tracks of city lines, the committee deems it advisable to recommend, in the renewal of special work where suburban or interurban cars are operated, and in all special work for new construction, that particular attention be given to the depth and width of the groove, as shown in Fig. 3, applicable to special work in connection with "T" or grooved girder rails.

#### MOTORS

Street railway motors are subjected to such varying conditions and uses as to render it almost impossible to outline what might

be considered a standard motor. Neither would it be practicable to standardize certain horse-power motors for certain weights of cars, as the conditions of operation are so varied that what might be perfectly satisfactory in one case would be unsatisfactory in another. Generally speaking, for city service motors of between 35 hp and 40 hp are most practicable. For ordinary suburban service motors of this capacity, with four motor equipments, would meet nearly all ordinary conditions and requirements. For high-speed service on long suburban and interurban roads motors of greater capacity are desirable and should be selected with special reference to the specific duty to be performed.

As there is a possibility of alternating-current motors being developed the committee feels, in view of the experiments now being made both in this country and abroad, that it is advisable to await the outcome of these experiments before any recommendation on this subject is made.

#### TRUCKS

Your committee is of the opinion that the time is inopportune for recommending any particular design of trucks for motor-car service, especially for single-truck cars, except such parts of trucks as wheels, axles, bearings and journal boxes.

For interurban service the committee recommends that the standard dimensions, as given in this report for wheels, axles, bearings and journal boxes be followed, and also that the M. C. B. practice in the construction of trucks for double-truck cars be adhered to as closely as possible.

#### AXLES, JOURNALS, JOURNAL BOXES

In view of the great demand on the part of the traveling public for a more frequent and rapid service, not only in large centers of population, but in suburban and interurban service, and in view of the increased weights of the equipment required to safely perform this service, your committee recommends the standard axle adopted by the M. C. B. Association, which is the result of developments and improvements covering a period of fifty years. This standard axle can be applied to all electric railroads, which are now performing practically the same service as steam railroads.

We recommend for adoption an axle of the size and form shown in Fig. 4 for all motor cars weighing under 15 tons, including in such weight trucks, motors and car bodies and full load; also the M. C. B. standard journal brasses, journal boxes, dust guards and key seats, as shown in Figs. 4, 5, 6 and 7.

For all cars weighing from 20 tons to 28 tons, including in such weight trucks, motors and car bodies and full load, the M. C. B. standard axle, also journal brasses, journal boxes, dust guards and key seats shown in Figs. 8, 9, 10 and 11.

For all cars weighing up to 30 tons, including in such weight trucks, motors and car bodies and full load, the M. C. B. standard axle, also journal brasses, journal boxes, dust guards and key seats shown in Figs. 12, 13, 14 and 15.

For all cars weighing up to 40 tons, including in such weight trucks, motors and car bodies and full load, the M. C. B. standard axle, also journal brasses, journal boxes, dust guards and key seats shown in Figs. 16, 17, 18 and 19.

For all cars weighing up to 50 tons, including in such weight trucks, motors and car bodies and full load, the M. C. B. standard axle, also journal brasses, journal boxes, dust guards and key seats shown in Figs. 20, 21 and 22.

#### CAR WHEELS FOR SUBURBAN AND INTERURBAN SERVICE

Your committee has taken up with operating managers the subject of car wheels for suburban and interurban service to centers of population over public streets, and finds that their views accord with those of your committee.

We recommend for adoption as standard a steel-tired wheel and a cast-chilled wheel, as shown in Figs. 23 and 24.

With a view to safety and economy we recommend for motor cars used in suburban and interurban service a steel-tired wheel of the dimensions shown:

For use with an axle as shown in Fig. 4, wheel to weigh 640 lbs.; in Fig. 8, wheel to weigh 695 lbs.; in Fig. 12, wheel to weigh 790 lbs.; in Fig. 16, wheel to weigh 840 lbs., and a cast-chilled wheel of the same dimensions: For use with an axle as shown in Fig. 4, wheel to weigh 440 lbs.; in Fig. 8, wheel to weigh 490 lbs.; in Fig. 12, wheel to weigh 590 lbs.; in Fig. 16, wheel to weigh 640 lbs.

Car wheels of the weights mentioned conform to the M. C. B. standards.

#### BRAKE-HEAD AND BRAKE-SHOE

Your committee recommends for adoption as a standard the brake-head and brake-shoe shown in Figs. 25 and 26.

\* Adopted by the American Street Railway Association, Detroit, Oct. 10, 1902.

NOTE.—The illustrations are presented in convenient form in the supplemental sheet which faces this page.



PAINTING

As a standard method of painting cars your committee would recommend the following: All grease and rust should be removed from the ironwork and the car body should be rubbed down to a smooth surface; then thoroughly paint the ironwork with pure red lead and raw linseed oil. Then the outside of car body should be painted as follows: First, pure lead and oil priming thoroughly rubbed in; second, one coat of flat lead, egg-shell gloss; third, white lead putty; fourth, three coats of flat lead; fifth, two coats of rough stuff; sixth, scour to smooth surface; seventh, two coats of ground color; eighth, special color to cover; ninth, ornament on flat color; tenth, two coats of best finishing varnish.

No coat is to be applied until the preceding coat is thoroughly dried.

The roof canvas should have three coats of lead and oil, and no glue size or patent filler should be allowed on the roof.

For the inside or standing finish, we would recommend that one coat of lead and oil and one coat of Prince's metallic be put on back of same before finish is put in place.

All standing or inside finish, if of open grain wood, such as ash, oak or mahogany, we would recommend to be thoroughly filled with Silix filler. If the wood is of open grain nature, such as cherry, maple or birch, we would recommend a good oil stain instead of the filler. Then thoroughly sandpaper, after which apply two thin coats of absolutely pure grain alcohol shellac, either bleached or orange, according to the wood. Then sandpaper and apply two coats of varnish. All inside work should be rubbed to a dead finish, and all outside or exposed work should be left in the gloss.

In car floors, the under or lining floor should have one good coat of oil before the upper or corrugated floor, which has received a coat of oil, is laid. When finished it should receive one coat of bleached shellac and one coat of good floor varnish.

RETURN CIRCUIT

The committee believes that one of the most important factors in the construction and operation of an electric railway is to provide for a standard return circuit in such manner as to give the least resistance and largest and most reliable carrying capacity, thus avoiding loss of power and increased cost of maintenance. We, therefore, recommend a supplementary return, in addition to the usual practice at the present time, in all congested sections, crossing all special work and in the vicinity of the power plants.

STANDARD OVERHEAD CONSTRUCTION AND CAR BODIES

Owing to the inability of the committee to obtain any report from the members to whom were assigned the subjects, "Standard Overhead Construction for High-Speed City and Suburban Service, Including Trolley Wheels," and "Car Bodies for City and Suburban Service, including Ventilation; also the question of the Oval Roof," we are unable to present any report embodying recommendations on these subjects.

CONCLUSION

We earnestly recommend that the incoming officers of the association be authorized and directed to appoint successors to the undersigned committee to carry on the work for which they were appointed, as we feel that the recommendations here made are only preliminary to much work that can be done in this direction.

Railroad Commissioners of Massachusetts Investigate Railways

The Railroad Commissioners of Massachusetts will be occupied during the two weeks beginning Monday, Nov. 10, with the further pursuit of the inquiry which they were directed by the Legislature of last winter to make into methods of dealing with the suburban railroad service, the application of electricity as a motive power upon railroads and street railway equipment. Members of the board will cover different fields of investigation, W. Bishop visiting St. Louis, Chicago, Detroit and Cleveland and other cities, and Clinton White going to Philadelphia, New York and other cities. Chairman James F. Johnson will join Mr. Bishop in Chicago, with the special view to the inspection of the Aurora, Elgin & Chicago Railway, equipped with electric power, returning in season to accomplish certain work upon the annual report of the board. Hearings by the board will be resumed Monday, Nov. 24.

Annual Report of the Montreal Street Railway Co.

The annual report of the Montreal Street Railway Company, submitted at the annual meeting of the company, held in Montreal on Nov. 5, shows the net earnings for the year just ended to have been \$911,052, as compared with \$795,413 last year. After providing for the percentage on earnings accrued to the city, and interest on bonds and loans, the company declared four quarterly dividends, amounting to \$600,000. In view of the company maintaining its own fire risk there has been placed to the credit of the fire insurance fund an additional sum of \$100,000, leaving a surplus of \$965, which has been transferred to the general surplus account of the company. As the operating report shows the company's earnings continue to increase in a satisfactory ratio, while the percentage of operating expenses to gross receipts shows a substantial decrease. The company issued during the year \$1,500,000 4½ per cent debenture bonds to pay off the loan incurred by the purchase of the Montreal Park & Island Railway. Several new extensions to the company's lines, amounting to 14 miles of new track, have been constructed and put in operation during the year, and the rolling stock has been increased by the addition of twenty-nine motor cars. During the year the company paid the city the following amounts: Tax on earnings and other taxes, \$127,258; on account of snow clearing, \$50,772. The operating report of the company follows:

	1902	1901
Gross receipts.....	\$2,046,208	\$1,900,680
Operating expenses.....	1,135,176	1,105,267
Earnings from operation.....	\$911,032	\$795,413
Passengers carried.....	49,947,467	46,741,660
Transfers .....	15,077,511	14,215,784

The general balance sheet of the company shows:

	ASSETS	
	1902	1901
Cost of road and equipment:		
Construction, etc. ....	\$3,539,822.91	\$3,239,814.03
Equipment, etc. ....	3,063,067.58	2,839,764.42
Real estate and buildings.	1,616,925.37	1,588,739.01
Montreal Park & Island Railway Company's stock and bonds .....	1,159,297.40	1,105,485.06
	\$9,379,113.26	\$8,773,802.52
CURRENT ASSETS		
Stores .....	\$76,085.61	\$76,619.60
Accounts receivable .....	57,277.12	61,789.49
Montreal Park & Island Railway Company.....	122,501.02	.....
Cash in bank and in hand.	95,382.58	325,957.98
Cash on deposit with city of Montreal .....	25,000.00	25,000.00
Cash (fire insurance fund)	100,000.00	.....
Balance new stock call unpaid .....	.....	57,193.75
	476,246.33	546,560.82
	\$9,855,359.59	\$9,320,363.34

	LIABILITIES	
	1902	1901
Capital stock .....	\$6,000,000.00	\$6,000,000.00
Bonds:		
5 % payable March, 1908.	292,000.00	292,000.00
4½ % payable Aug., 1922.	681,333.33	681,333.33
4½ % payable Nov., 1922.	1,500,000.00	.....
Mortgages .....	6,034.51	6,034.51
	\$8,479,367.84	\$6,979,367.84
CURRENT LIABILITIES		
Bank of Montreal loan....	.....	\$1,100,000.00
Accounts and wages payable .....	\$100,807.78	103,915.77
Accrued interest on bonds.	33,275.00	5,150.00
Accrued tax on earnings..	101,747.72	93,006.21
Employees' securities ....	8,489.60	7,626.60
Unclaimed dividends .....	1,956.57	1,956.57
Unredeemed tickets .....	20,400.80	18,333.23
Suspense account .....	62,490.23	63,608.08
Montreal Park & Island Railway Company .....	.....	9,267.41
Dividend payable Nov. 1, 1902 .....	150,000.00	139,200.00
	479,167.70	1,542,068.87
Contingent account .....	\$183,766.22	\$191,056.42
Fire insurance fund.....	204,221.92	.....
Surplus .....	508,835.91	607,870.21
	896,824.05	798,926.63
	\$9,855,359.59	\$9,320,363.34

## Car Roof Treatment

BY A MASTER PAINTER

The failure sufficiently to protect the roof of a street car by the proper treatment of the canvas which covers it, must be attended by a variety of disastrous results, whose far-reaching influence is not always apparent at first. That the importance of this work is not fully appreciated has frequently been demonstrated in a most deplorable manner, where whole head-linings have been seriously injured by the unnecessary introduction of water through the canvas, which, if properly treated when first applied, could have been made absolutely impervious even to dampness.

The energy displayed by a small quantity of water in forcing itself through a seemingly impenetrable surface is indeed remarkable. Every practical car builder has attempted to trace to its source and explain the mysterious appearance of this unwelcome visitor, which has necessitated the painting of the entire roof, and even then without the assurance of any material success.

Prevention has the advantage of cure in many respects, but in no case is the wisdom of precautionary measures more clearly apparent than in insuring a long life to the canvas of a car roof, whereby its porosity will be absolutely sealed against any moisture whatever. The inclination to regard one's ideas as authority is prevalent among painters to marked extent, and this has been the cause of so many different methods being employed in the details of car painting. Much attention has been directed to the subject of body roofs, and there are a variety of opinions in regard to proper methods of their treatment. Many of these methods will act as a protection when the paint is first applied, but after the car has been in service ten or twelve years, many successive coats of paint, united into one homogeneous body, are exposed to the merciless rays of a natural destroyer—the sun; and as this covering fails to retain sufficient elasticity to allow for the contraction and expansion of the car roof, cracks appear which gradually expand as the oil in the paint becomes decomposed. This allows water to penetrate to the canvas, which, if not properly treated in the beginning, will absorb it with disastrous results.

As the conditions leading up to the cracking of the paint in time are absolutely unavoidable, it is evident that it remains for the canvas to furnish the protective qualities to some extent, and unless it is properly applied and filled it will certainly be incapable of doing so.

During a long period of experimental activity the writer has been rewarded by discovering—accidentally and otherwise—a few practical methods of car painting, which include the subject in question. In the course of these experiments on this particular subject many different pastes were compounded with a variety of ingredients for the purpose of uniting the canvas to the boarding. Among these were white lead and oil—the first material that would naturally suggest itself to a painter. While there could be no question regarding the protective qualities of lead when used for this purpose, still, it was evident, that it had not the adhesive properties which are required for this important operation. The failure of the lead to join wood and canvas is caused evidently by the facility of oil to desert carbonate of lead upon the least provocation, and when placed between two absorbent bodies the result obviously will be that the intervening space will be occupied by an inert substance which has very little adhesive value. Yet, notwithstanding this fact, it is used to a considerable extent, presumably from a desire to let well enough alone—a chronic mental disease that is very prevalent among painters. This may be accepted as an explanation for the lack of progress in this department compared with other branches of car construction, and may also account for using such absurd mixtures for this purpose as glue, flour paste, and some others which are soluble in water, and of which the least said the better.

One method which I will describe here may possibly be of some benefit to those working along similar lines. The compound for fixing the canvas to the boards is prepared by uniting fine bolted whiting with japan, mixed to the consistency of a thick paste, to be applied with a brush. One of the principal points to be commended is that time does not seem to extract any of its tenacious virtues nor impair its remarkable elasticity. Forming as it does a sort of cement it firmly anchors itself into the pores of the wood, and at the same time penetrates into the canvas, forming virtually one body. Again, the nature of the combination and the consistency to which it is mixed prevent its oozing through the cracks in the boarding of the bonnets. This is a very inconvenient feature of the "lead and oil" method, and the stains thus made are difficult to erase when the inside of the bonnets is to be finished in natural color.

Before applying the canvas the boarding should be thoroughly cleaned of all shavings and sawdust, and the canvas cut and fitted, as it is of vital importance that the operation should be performed

as rapidly as possible. The paste should be applied to the boarding as thick as a brush will allow, care being exercised in spreading it out evenly and quickly. Then after the canvas has been laid on it should be smoothed out and fastened, and allowed to dry forty-eight hours before proceeding with the filling.

The importance of the first coat, or, perhaps, the term "filling" would better describe it, cannot be too forcibly emphasized, when it is remembered that as the canvas that covers an electric car is daily walked upon by men engaged in oiling and repairing the trolley apparatus, an ordinary coat of oil paint, applied directly to the canvas, would act only as a superficial foundation for subsequent coats, and this foundation being insecurely anchored into soft, spongy material, would have a tendency to let go upon the slightest contact with the heel of a boot. An abrasion of this description would leave a weakness, which ultimately is bound to expose the canvas. So, in view of this fact the paint must be induced to penetrate deeper into the fabric, and this can be done by reducing the oil paint with turpentine in the proportion of one quart of turpentine to one gallon of ordinary mixed lead, oil and dryer, which, if used freely under the brush, will penetrate through the canvas to the paste-cement below, thereby uniting the whole into one solid body, sufficient in itself, if called upon later in its life, by reason of accident or undue exposure of the other coats of paint, to withstand successfully any water that might reach it. This filling, which could be applied with good results forty-eight hours after the canvas had been placed, ought to stand and dry until the car is ready for the first coat of color, and thus give it ample time thoroughly to harden.

The second coat of paint is in reality the first "anchor coat." Penetrating as it does into a vast number of infinitesimal cells, formed by the coagulation of the paint and canvas, it gradually secures itself permanently into these cells, as the oil in the paint becomes oxygenated. This paint should be mixed like the filling, with the exception that a pint of turpentine should be added instead of a quart. This coat should be allowed to dry until the car is finally varnished, when it will be ready for its last and protective coat, which is prepared with lead, oil and as small an amount of drier that will conform with the existing conditions in regard to time allowance. It should be thoroughly "brushed out," thereby avoiding the danger of wrinkling, which will result if applied in an uneven manner. Where this condition exists, however, the failure of the paint to adhere properly to the preceding coat must be expected and regarded as a matter of course.

A majority of modern street cars have for the ceiling in their interiors what is termed three-ply woods, finished natural, which is composed of very thin boards pressed together and fastened with glue. The grain of the two outside pieces runs parallel with each other, while the grain of the inside one is arranged so as to be at right angles with that of the other boards. The peculiarity of this construction, together with its position, when placed in the car exposes it to certain ruin if the protecting point on the outside of the top fails to exclude water. A leak of any extent will admit enough water in a short time to impregnate the first layer of this head-lining that it meets, which will cause it to swell and part from the middle one. This in turn will part from the last, which is the most important, being often expensively decorated and finished, and as the wood becomes saturated with water the result will be that a bulge will appear, which will necessitate the removal of the section of lining in which the injury appears as it is beyond repairing. This condition is produced without warning, as the mischief is done when the first indication is apparent. Even if the bulge is pressed back when thoroughly dried the union of the water and wood creates a stain which is absolutely impossible to obliterate.

Too much stress cannot be laid upon this danger. All other accidents and damages in street car painting can, in a measure, be rectified and put into presentable shape, but the danger of water, silently and surreptitiously entering a car through unprotected canvas cannot be too fully realized when the chances of numerous injuries are revealed, whose origin might be traced directly to it. Decomposed wood around joints, interrupted electric connections, defaced interior and exterior finish are a few that might be mentioned which are mostly to be feared. Yet these may all be avoided if the treatment of the canvas is properly conducted in the beginning.

## Report of the Cape Electric Tramways

The annual meeting of this company was held in London Nov. 12. The company owns all the stock of three street railways in Cape Town and in Port Elizabeth, South Africa, and its report shows a net balance as a result of the last year's operation of £81,498. Sixteen per cent in dividends were paid last year on the capital stock.

### Annual Convention of the Electric Storage Battery Company

The annual convention of the Electric Storage Battery Company was held in Philadelphia, on Oct. 13-16, the sessions being held at the Colonnade Hotel. On Monday, the thirteenth, the managers of the sales offices throughout the United States met at the factory and a tour through the works was made. A luncheon was served at the factory, after which the staff of the Battery Company and the visiting managers of the sales department adjourned to the Colonnade Hotel, and after an address of welcome by the president, Herbert Lloyd, papers were read by Charles Blizard, manager of the sales department; Walter G. Henderson, secretary and treasurer, and A. B. Stoughton, general counsel of the company. In the evening a reception was held by the president at his residence, which was attended by the visiting members and officers of the company.

At the Tuesday session papers were read by engineers of the staff. On Tuesday evening a theater party was given at the Chestnut Street Theater.

On Wednesday papers were read by the different members of the staff. On Wednesday evening a banquet was given at the Germantown Cricket Club, Manheim, Philadelphia.

The banquet hall was almost completely filled by one large oval table, the surface of which was hidden beneath a mass of choicest cut flowers and beds of ferns. Three electric signs, reading "The E. S. B. Co.," "1888"—"1902," were placed on the walls, and a menu card having for its cover a small fac-simile of the company's price list, together with an embossed card bearing the Manheim Cricket Club's design and the guest's name, was at each plate. Between the several courses songs were rendered and marvelous telegraphic despatches from Siam, Afghanistan, Turkey and the Sandwich Islands were received on a special wire. Brief addresses by the president, vice-president, secretary and manager of the sales department were made.

Meetings continued on Thursday until noon, when the convention ended.

These annual conventions of the staff of the Electric Storage Battery Company are not only most thoroughly enjoyable in bringing together the different sales managers and the corps of engineers stationed throughout the United States, but have been found to be most thoroughly instructive, and it is a feature that is looked forward to annually with growing interest, bringing in touch, as it does, the representatives and enabling them to discuss the numerous problems which are met with in their work in different localities.

No small measure of the successful growth of the Electric Storage Battery Company can be attributed to the loyalty and earnestness of the staff of the company in their several fields of work and their devotion to the company's interests.

A graceful tribute of personal appreciation by his corps was made to Charles Blizard, manager of the sales department, in the presentation to him of a handsome watch.

### London Railway Problems

There have been no practical developments in the London railway situation, but many plans have been proposed, some of which are receiving serious consideration. It is reported that the Parliamentary committee which has been considering the question of making provision for the construction of municipal tube railways will submit a report to the London County Council, recommending that the most effective method of dealing with the question would be to invite the assistance of the government to provide municipal tubes. The report suggests that the London County Council approach the president of the Board of Trade and urge the appointment of a commission, which shall be empowered to hold a complete inquiry on the subject and consider proposals for the construction and secure authorization for such tubes as are deemed necessary for the public benefit. The report also advises the County Council to ask the president of the Board of Trade to use his influence to obtain the suspension of any London tube bills that may have been introduced in Parliament, as the Council considers that the discussion of such measures will be detrimental to the interests of London until a full inquiry is held.

Commenting on the announcement that the London County Council is once more considering seriously the "tube" question, and that it will introduce a bill in Parliament on the subject next session, the London Electrician says: "The County Council's views on the subject of the tube railways before Parliament next session will doubtless have weight, but it is highly improbable that, in view of the number of trading undertakings the Council has now on its hands, Parliament would sanction a London

County Council tube railway. We trust, therefore, that the London County Council will rather try and assist Parliament in its deliberations as to the relative merits of the various schemes submitted to it, instead of opposing company undertakings indiscriminately, as some of its members advocate." The same journal considers it a significant fact that the House of Commons cheered when Mr. Ashton said: "Why should London wait simply because the County Council, some few years hence, might be enabled by a different House of Commons, under different circumstances, to make tube railways?"

Another plan that has been exploited during the last week provides for five large railways having terminals in London, the Great Western, the Great Eastern, the London & Southwestern, the London, Brighton & South Coast, and the London & Southeastern, jointly constructing an underground line to link their respective terminals by a circular route, which might be intersected by cross underground lines and connected with others radiating to the suburbs.

The plans involve large expenditure, but if they should mature they will have a most important influence on the existing projects. Meanwhile the Central London Railway, the owner of the existing underground line, has decided to apply again to Parliament for permission to extend the system in the direction of the proposed scheme of 1901, which Parliament rejected. It is understood that an announcement is impending in Parliament foreshadowing an arrangement by which the London County Council will get important powers in locating the underground lines.

Prime Minister Balfour announced in the House of Commons Nov. 11 that the government was considering the appointment of a commission which shall be empowered to hold a complete inquiry into the subject of underground railways. The appointment of such a commission, according to the view of the solicitor of Messrs. Speyer and Yerkes and chairman of the District Railway, will involve the hanging up of Mr. Morgan's and other schemes yet unsanctioned for two or three years, as a commission is not likely to report in less than that time. Meanwhile the Yerkes and Speyer schemes will go ahead. The matter was also discussed at a meeting of the London County Council. John Burns declared that the tube system was already obsolete, and that the solution of traffic congestion lay in electric surface lines connected with congested points by shallow underground tracks. It is declared that the present indications point to the eventual establishment of central control of all the lines, which will have an important influence in the pending schemes.

### Important Suburban System for St. Louis

James D. Houseman, general manager of the St. Louis, St. Charles & Western Railway Company, has obtained a franchise in Clayton to build cross-country railroads and to consolidate them with the other electric railway lines in St. Louis County. The roads included in the proposed consolidation are the Suburban Florissant line, 17 miles long; the St. Louis, St. Charles & Western, 17 miles; the Midland, 14 miles; the Clayton division of the St. Louis Transit Company, 8 miles, and the new cross-county railroads, which are to be about 14 miles long. The Webster, Kirkwood and Meramec Highlands divisions of the St. Louis & Suburban Railway are not included in this estimate, although these lines may be taken in later. The St. Louis County Railway Company, which has a franchise to build a railroad along the Olive Street road from the city limits to Creve Coeur Lake, and the St. Louis, Kirkwood & Manchester Railway Company, which has a franchise to build a road from Forest Park to Kirkwood and Manchester, along the Manchester road, will also be asked to join the consolidation.

J. D. Houseman, who is promoting the consolidation, states that he is representing only himself in the deal. He said recently that he was not authorized to speak for the Suburban and Transit management, but felt justified in thinking that his proposition would receive favorable consideration.

Mr. Houseman promised the judges of the County Court that he would organize a company immediately to accept the franchise, and would give the county 2 per cent of its gross earnings for ten years. The other roads will not be purchased outright but will be leased, and the directory of the new company made up of representatives of each company.

The cross-country roads will be used as feeders. The first to be built will be to Ferguson, from the junction of the Lucas & Hunt and Natural Bridge roads. The St. Louis County Railway tracks now run to that point from Wellston. These tracks have already been leased by the St. Louis, St. Charles & Western, and the new branch will really be an extension. The route will be over a private right of way. The next line will be a branch from



the main line of the St. Louis, St. Charles & Western Railway to Kinloch Park. The branch will begin near the Marvin Camp Grounds, on the St. Charles rock road. It will be built to intersect the Suburban Florissant line at Kinloch. Another branch will be built south from the Marvin Camp Grounds to intersect the Midland tracks near the Woodson road. This line will be extended to connect with the proposed tracks on the Olive Street road. Another branch will be built to run to Clayton. If the Suburban-Kirkwood lines cannot be secured and the Transit-Clayton division can, the tracks of the latter will be extended from the present terminus at the Log Cabin Club on the Clayton road to Kirkwood. This would enable one line to go from Kirkwood to Florissant, or vice versa, through the county seat in an almost direct line, and would obviate the necessity of going first to St. Louis. The Ferguson Avenue division of the Transit Company in St. Louis County will complete the chain. The route runs from the Midland tracks west of Delmar Garden to the St. Vincent's Asylum for the Insane. This has always been known as a jerk-water branch, but it will be valuable to the new company, as it will give it a line to the World's Fair grounds.

### The Massachusetts Railroad Commissioners' Hearing of the Southboro Petition

The efficacy of the informal method of the Railroad Commissioners of Massachusetts of getting at the points in a given case were shown once or twice in the important hearing occasioned by opposition from Southboro to locations for the Boston & Worcester Street Railway, which is to extend from Worcester to Boston. The company was before the board for approval of a location through Southboro, largely over its private right of way, but involving three crossings of town highways. The company wants to cross overhead; the Selectmen (who imposed such conditions on a location previously granted) by themselves that the railway company would not accept it) thought the railway should cross underneath, although the overhead crossing involved grades of about 2½ per cent, and the underneath crossing grades of about 6 per cent. William A. Butler, for the railway, had put on several witnesses by whom he wished to show that the sentiment of Southboro people was against an underneath crossing. When he asked them what they considered the town sentiment to be, the board was about to let the questions go on, when C. F. Choate, Jr., for the Selectmen, objected strenuously, on the ground that the replies would be merely hearsay evidence. Chairman Jackson, of the board, then said that although such evidence would hardly pass under a strict procedure, the board had been accustomed to allow it, with the understanding that its members would place no more than the proper value on it. "But," said he, "the board has never been accustomed to allow this kind of evidence against an objection that was pushed." He went on to say that hearings would be interminable if testimony should be taken as strictly in accordance with the rules of legal procedure as in the regular courts. Mr. Choate did not push his objection at first, but for the later witnesses he again objected, urging that each side should bring in representative men to testify, if it was desired to show what the public sentiment was. The point was not regarded as of enough importance to go into very exhaustively, and the line of testimony was dropped.

Another instance showing how time is saved by the informal method was near the opening, when the railway company's lawyer was trying to bring out at length the difference in form and expense and safety to the public of the crossings proposed by the opposing parties. It would have been a long matter if allowed to continue to the end; but before it had proceeded far Chairman Jackson cut it short by announcing that the question was so largely one of an engineering nature that the board would feel it necessary to have its own expert, Mr. Turner, look into the matter and make an independent report, after which the board would go out and take a view of the crossings and hear any suggestions which either party might care to make, on the ground. The effect of this statement thus early is to be judged by the way in which it was received by the opposing lawyers. Mr. Butler said: "I think the statement of the chairman may shorten this hearing to a material extent, and am very glad to hear that the board is to look over the ground for itself."

Mr. Choate, for the Selectmen, said: "I shall be very glad to have the board take the action suggested."

Although Southboro is opposing the Boston & Worcester Street Railway in a measure because the line runs north of the villages, which are the town centers of population, the only question actually up is as to the safest and best way of crossing the three highways mentioned, the so-called Parkerville, Cordaville and Center Roads. They come under the law requiring the

Railroad Commission to approve locations of street railways as to their safety for operation. The railway asks the board to grant it the entire location in Southboro under the so-called "missing link law," allowing the board to grant to a railway which has secured locations on each side of a town where a location is refused, a location in that town over the heads of the local authorities.

An interesting point in the hearing last week was the statement by one of the railway company's agents that the company had discussed the double-tracking of the line eventually, and the transportation of milk, fruit and farm products to the large cities at its termini as a part of its business. The agent said that the company had planned to carry no heavy freight, but that it expected to carry parcels and packages of light merchandise and express matter if there was a demand for it.

### Official Report on Connecticut Roads

An electrical engineering expert, who made an inspection of the electric railways in Connecticut in company with the Railroad Commissioner, by whom he was employed, has made his report to the commission. He says, in part:

"The railways as a whole are in an efficient condition for public service as at the time of last inspection, and show a continued tendency toward improvement, by the use of more substantial materials in constructions and renewals.

"The extension into interurban territory of railways constructed originally as a local enterprise and operated as single track with turnouts, with heavy cars run at high speeds, has produced a condition which must soon, if it does not now, require these lines to be operated by a simple, efficient and visible signal, located at each turnout, and not liable to be easily deranged.

"I have observed also during the inspection, that with one exception, the railways have a very crude method of notifying their motormen and conductors of the running of two or more cars on the same time. This information should be conveyed to the motormen and conductors, waiting on turnouts, by a conspicuous signal carried by each car, except the rear one, the rear car not carrying a signal would indicate that it was the last car running on the same time."

### Ground Broken for Brooklyn Tunnel

Ground was broken Nov. 8 for the extension of the rapid transit tunnel system from the City Hall in Manhattan to Flatbush Avenue in Brooklyn. The ceremony marked the beginning of actual work, and by the time night fell considerable excavating had been accomplished. In front of the Chesebrough Building, 17 State Street, the first opening for the new tunnel was made by Calvin W. Hendrick, engineer of sewers for the Rapid Transit Commission. Immediately afterward Francis D. Fisher, engineer for the Degon-McLean Construction Company, which holds the sub-contract for the first section of the extension, set laborers at work. The first work that confronts the sub-contractors will be the removal and reconstruction of several trunk sewers under State Street. This will take three months. In the meantime work will be continued south from the City Hall, and preparations will be made for boring under the East River and for the construction of the tunnel from the Flatbush Avenue terminal to the water front.

### Poor's Manual for 1902

Poor's Manual of Railroads for 1902 has just been published, and, as usual, gives a large amount of very interesting data in regard to railway enterprises. An important feature of this manual is the tabulation of statistics of various years, which, in most cases, are carried back to 1889, and in some instances still farther. An analysis of the passenger earnings for the entire country, for instance, shows a minimum in average receipts per passenger, per passenger per mile, per passenger train mile, and per mile of road, extending from 1894 to 1898, and an increase in all items since that date. The same table also shows the significant fact that the average distance travelled per passenger has almost constantly increased since 1895, being at its maximum, in the thirteen years under consideration, in 1901. To what extent consolidations have affected this figure it is impossible to state, as the method of calculating the number of passengers carried is not given, but the competition of electric roads must also have exercised an influence on increasing this average. The grand average earnings per mile of road for 1901 are given as \$8,270 gross and \$2,668 net, the average interest paid on bonded debt as 4.24 per cent, and average dividend on total share capital 2.62 per cent.

### Cincinnati Suburban Lines Consolidated

Following closely the announcement that a traffic agreement had been entered into between the Cincinnati Traction Company—the Widener-Elkins syndicate—and the Pomeroy-Mandelbaum syndicate comes the announcement of the consolidation of the Interurban Rapid Railway, Suburban Railway, the Cincinnati & Eastern Railway, all of which are building suburban lines to extend from Cincinnati, and the Interurban Terminal Company, now building a terminal station at Cincinnati to provide the three roads with ample terminal facilities within the city. The consolidation was effected at a meeting of the stockholders of the several companies, held Nov. 3. The consolidated company, known as the Interurban Railway & Terminal Company, is capitalized at \$2,500,000. There is on this basis a reserve in stock of about \$700,000, which is to be taken up by shareholders, as the money is needed to complete the various roads and the interurban depot. Thus far each share of stock issued to the shareholders represents its face value expended in building the properties. It is found that the Cincinnati & Eastern will cost fully \$150,000 more than was at first anticipated. The reason of this is that a double track has been laid to Coney Island and the rolling stock increase from six to eighteen cars.

The agreement of consolidation provides for a \$2,500,000 bond issue of 1500 \$1,000 denomination and 2000 of \$500 denomination. Bonds to the value of outstanding bonds, with additional bonds covering accrued interest, are to be issued to bondholders in the companies. Bonds in the sum of \$205,200 are set aside to acquire terminal facilities in Cincinnati, and \$150,000 in bonds are to cover all expenses of the consolidation, including counsel fees. The sum of \$250,000 in bonds is to be reserved to the treasury of the new company, to be used for extensions and improvements. Additional bonds are authorized to pay for construction work.

For every share of stock held by the stockholders in the various interurban companies they are to receive an equal amount of the new consolidated shares. The capitalization of the old companies was: Rapid Railway, \$700,000; Suburban, \$600,000; Cincinnati & Eastern, \$500,000; Terminal Company, \$150,000, making a total of \$1,950,000. There has been thus far expended on the new Sycamore Interurban depot \$55,000. This amount was taken up by the stockholders, who are more or less interested in all the properties affected by the deal.

The combined mileage of these interurban lines is 96 miles, being as follows: Cincinnati & Eastern, which will be in operation in a few days, 28 miles, between Cincinnati and New Richmond, Ohio; Suburban, which will not be ready until next February, to Bethel and Batavia, 32 miles; Rapid Transit, about completed to Mason, a distance of 22 miles, and will be completed through to Lebanon by next March, a distance of 36 miles from this city. The terminal depot is expected to be ready by Jan. 1.

The officers of the Interurban Railway & Terminal Company are: G. R. Scrugham, president; Lee H. Brooks, first vice-president; Ellis G. Kinkead, secretary, vice-president and general counsel; John M. Kennedy, treasurer; William E. Hutton, secretary. The above also, together with the following: Charles H. Davis, Guy W. Mallon and George H. Worthington, compose the board of directors.

### Heavy Damages Claimed from Yonkers Railway

Eight actions for damages, aggregating \$90,000, have been commenced against the Yonkers Railroad Company, in behalf of persons who claim to have been seriously injured in the accident caused by the collision between a trolley car and automobile at Yonkers, Oct. 26. Papers in seven more suits are being prepared, it is said, and the total amount of damages claimed in the fifteen actions will aggregate \$150,000. The chauffeur in charge of the automobile has already been convicted of reckless driving, and has been sentenced to six months' imprisonment. The responsibility for the disaster was fixed at the time of this conviction, but an appeal has been taken, and the present movement against the railway company; it is believed, is for the purpose of shifting the blame upon the corporation. The claim is made that the cars were operated at a dangerous rate of speed, and that the track was defective at the point where the accident occurred.

It is announced that settlement has been made, out of court, of the suit brought against the Union and Consolidated Traction Companies by Sutro Brothers, bankers, of New York, to set aside the mortgage covering an issue of \$6,750,000 in bonds by the Union Traction Company for securing possession of the Consolidated Traction Company. The terms of the settlement are not made public.

### Large Brass and Motor Bearing Works

The Brady Brass Company, of Jersey City, has been known for a long time in the steam railroad field, where the company has achieved a high reputation as a manufacturer of journal bearings, and in fact bearings for machinery of every description. Some time ago the company decided, in view of the extensive development of electric railway work, to establish an electrical department for the manufacture of armature bearings, axle bearings and trolley wheels. The success achieved by the company in this department has been so great that it is thought some particulars of the works would be of interest.

They are located on Tenth Street, in Jersey City. The ground floor of the building is devoted to the moulding and casting of the metal and the cleaning and finishing department, while the second floor is given up to the offices of the company, storage rooms, laboratory and an auxiliary machine shop. The works are laid out so that the progress of the metal through the shops in the process of manufacture from the raw material to the finished bearing is continuous. Passing in by the main entrance, the visitor first sees the large storage rooms devoted to the copper, tin, zinc, aluminum and other materials used in the works. Directly to the left are three furnaces, two for Babbitt metal, with a capacity of 10,000 lbs. a day, and one for battery zincs, with a capacity of 800 zincs a day. The engine and boiler room occupy the center of the works. Directly adjoining them are twelve brass furnaces, having a total capacity of 20,000 lbs. a day. All of these furnaces, it should be stated, were especially constructed for the works under the personal supervision of President Daniel M. Brady, who has had many years experience in this class of work, and who is generally admitted to be one of the leading experts in brass and bronze business in the country. A pneumatic hoist carries the molten metal from the furnaces to the casting room, where the metal is cast into the different shapes required. Adjoining the casting room, which is also equipped with the pneumatic hoist, are the machine tools for finishing the bearings, the chipping hammers for cutting the oil grooves, etc. This portion of the plant is especially complete, as perfect work in this department is recognized as a necessity for obtaining good results in service. The boring machines used are capable of boring journal bearings for 2½ in. to a 5½-in. journal.

The Brady Brass Company was the originator of the well-known "Cyprus bronze" for railway journal bearings. This material is a scientifically prepared alloy of copper, tin and lead, treated by a special process while in the furnace, which renders it perfectly fluid in the molten state, and gives it a remarkably fine-grained fracture. This material has a number of features which especially adapt it for the manufacture of bearings, such as a strength in compression equal to 50,000 lbs. per square inch under a compression of 10 per cent; a coefficient of friction of 0.5, as compared with some of the best bearing metals taken as 1.00, and no tendency to crystallize. It is not claimed that Cyprus bronze is a self-lubricating metal or that it is frictionless, but that it requires less oil than ordinary bronzes and that it practically eliminates the question of hot boxes. This metal has been used on railroads for truck journal bearings for many years, and according to Mr. Brady is now being employed on 20,000 street railway cars throughout the world.

Cyprus bronze has also been found extremely valuable for trolley wheels, and a recent visit to the works showed a large number of these wheels ready for shipment to many parts of the country. The standard wheel has a diameter of 4 ins., and a weight of 2½ lbs.

For armature bearings the company recommends cast-iron shell babbit bearings and solid bronze for main motor axle bearings, according to the preferences of the consumers. The former bearings are made of a fine quality of grey iron, lined with the genuine babbitt metal, and in all sizes to fit the different types of standard electric motors on the market. The bronze used for the main motor axle bearings is of a special composition, which the company has found, after many years' trials, to be well adapted for this particular purpose, and these also are finished in all sizes.

It will be impossible in this article to take up all the different branches of the work of this company, which include the manufacture of other types of bronze, such as phosphor and manganese bronze, brass, babbitt metals, solder, battery zincs, etc. A reference will be made, however, to the shipping facilities of the company, which could hardly be excelled. Situated as it is in Jersey City, it is at the terminus of all of the trunk lines which enter that city, and in this way material can be forwarded easily to every part of the world.

The postal officials of Washington are considering a plan to equip all of the cars of the Washington Traction & Electric Company with letter-boxes.

## Report of the Manhattan Railway Company

The annual meeting of the stockholders of the Manhattan Elevated Railway Company, of New York, was held on Wednesday, Nov. 12. In the absence of President Gould, Vice-President Skitt read the following report:

"The statement of operations for past year, showing an increase of over 29,000,000 in the number of passengers carried and a decrease in the operating ratio, is an encouraging indication that the results which were predicted when the stockholders decided to equip the system with electricity will be more than realized, particularly as only one-half of the line had been under full operation since Sept. 15 last, and that the high cost of fuel has materially increased expenses.

"Since the last annual meeting substantial progress has been made with the new equipment. The Second Avenue and Third Avenue lines have been completed, with 608 cars in operation. The Sixth Avenue and Eighth Avenue lines, on which eighty cars are now running, should be finished not later than April 1, 1903.

"The electric apparatus, method of generating and transmitting power, and the equipment of cars, has proved highly satisfactory, having met our expectations and generally exceeding them.

"Among other improvements the new extensions and station in Bronx Park, the stations and elevators at 110th Street, new yards and shop facilities are being pushed as fast as material can be secured, and another year should see their completion."

The directors were re-elected.

The report for the year ended Sept. 30, which was presented at the meeting, shows:

	1902	1901
Gross receipts.....	\$11,067,746	\$9,620,564
Operating expenses.....	5,545,395	5,328,649
Earnings from operation.....	\$5,522,351	\$4,291,915
Receipts from other sources.....	515,800	835,308
Gross income.....	\$6,038,151	\$5,127,223
Interest and taxes.....	2,712,089	2,683,132
Net earnings.....	\$3,326,062	\$2,444,091
Dividends (4 per cent).....	1,920,000	1,920,000
Surplus .....	\$1,406,062	524,091
Previous surplus.....	4,966,356	4,442,265
Total surplus.....	\$6,372,418	\$4,966,356
Operating per cent (exclusive all tax).....	50.10	55.38
Operating per cent (inclusive all tax).....	58.25	64.46
Passengers carried.....	223,427,283	194,152,316

## Funeral of the Late Prof. S. H. Short

The funeral of the late Professor Short was held in New York, on Nov. 11. Services were conducted in the afternoon at the Church of the Messiah by the Rev. Minot J. Savage, the pastor, after which the remains were taken to Woodlawn Cemetery, and deposited in the receiving vault. The pall-bearers were Judge William B. Saunders and Howard H. Burgess, of Cleveland; Benjamin Graham, H. McL. Harding, Ralph W. Pope, T. C. Martin and James H. McGraw, of New York.

## Special Franchise Tax Arguments

The Appellate Division of the Supreme Court has decided to hear arguments, on Dec. 2, in the special franchise tax litigation growing out of the appeals by New York city corporations from the decision of Referee Robert Earl declaring the law to be workable and enforceable. The arguments will take two or three days, it is believed, and a decision is not expected inside of several months.

The United Railways & Electric Company, of Baltimore, is putting into service some of the new double-truck winter cars. One hundred and ten were ordered. They are of about the same size as the large cars used on some of the lines during the summer. The seats, however, are longitudinal. The ventilators are similar to those used on steam railroad coaches and arranged so as to prevent draft. The cars have electric bells, with a button in each post, by which passengers can give a signal to stop.

## Topics of the Week

Nearly 1,500,000 more fares were collected by the St. Louis Transit Company in October, 1902, than in October, 1901, showing the city's increased activity. The Transit Company's monthly report puts the total earnings of October, 1902, at \$604,403, as against \$551,510 for October, 1901, a gain of \$71,893.

Manchester's municipal electric cars, as well as those of Liverpool, are also likely to enter into competition with general goods carriers, and plans are at present under consideration for running express cars on the railways during the night to the towns with which the Manchester and Liverpool systems are respectively linked.

Recognition for faithful services in the form of pecuniary reward is promised the employees of the New London Street Railway Company, which has already distributed among its employees a share of the profits on last year's business. A gift of \$10 is made to each old employee, and of \$5 to each new one. The policy of the company is highly appreciated by the employees, and it is expected to promote cordial relations and secure higher efficiency throughout the system.

It is said that as a result of the controversy between Yerkes and Morgan for control of the underground roads of London the government will now appoint an expert commission to look into the matter, which will be treated as a whole by adopting a general scheme to which whoever undertakes the enterprise will be bound down by Parliament. Mr. Yerkes, if the published interviews with him are to be believed, welcomes the establishing of some public body to control the general "tube" system, but objects to intrusting that duty to the London County Council.

An unusual traffic arrangement has been perfected between the Erie Railway (steam) and the Dayton, Springfield & Urbana Railway (electric). The main line of the Erie passes through Durbin, several miles from Springfield, Ohio. The steam road is planning to build a spur line into the city, but until it is completed the steam company will operate a special car into the city over the electric railway. A new car is being built for the purpose. It will be a regular steam passenger coach, so far as size and accommodations are concerned, but it will be equipped as an electric car. It will connect with all Erie trains.

The discussion of the 3-cent fare proposition at Cleveland has called forth an expression of opinion by W. D. Mahon, president of the Amalgamated Association of Street Railway Employees of America, which may have some interest for other communities when the same topic is under consideration. President Mahon spoke on the attitude of his organization, saying: "Three-cent fare is a political question. We oppose it as a business policy. We don't want 3-cent fare. Figures from New York State show that that State carries more passengers than any other State in the Union, and it also shows that the average cost of carrying passengers is over 3½ cents a passenger. We want wages and conditions that we would not get if we had 3-cent fare."

In the STREET RAILWAY JOURNAL for March 22, 1902, attention was called to the relatively large amount of new construction work planned in Maine by new companies and companies then operating lines, and such information as was at hand at that time was given concerning these new projects. According to the official returns of the Railroad Commissioners of the State, just made public, plans are now under way for the construction of over 200 miles of new line during 1903, the most important system planned being those to connect Augusta and Rockland, Augusta and Waterville, and York, Oxford and Cumberland Counties. Figures have been compiled relative to the business of the eighteen electric railways now in operation in the State. In the last five years the mileage has increased from 143 to 347. The reports of all the roads show that a total of 25,480,000 passengers were carried during the year ending June 30, 1902. The gross earnings for that time were \$1,449,043, an increase of \$678,000 in five years. The net earnings were \$413,849, or about 4 per cent on the cost of construction.

The extreme to which labor leaders carry their high-handed practices is shown in the causeless and senseless attack by the presidents of trade unions and labor councils of New Orleans on Mayor Capdevielle of that city, who by his fairness of action and fearlessness of purpose has proved

himself to be a man of exceptional fitness for the position which he occupies. The attack on the Mayor was provoked because he refused to countenance wild and foolish schemes ranging from the confiscating of the property of the New Orleans Railway Company to using \$6,000,000 of the water and sewerage funds of the city to purchase the property of the company as a means of settling the strike. As the New Orleans Picayune fittingly says: "The Mayor acted the part of a public benefactor, and for this has the most shameful abuse been heaped on him. This, however, is the fate of all benefactors. They are sure to suffer at the hands of those they seek to benefit. The Divine Master of all of them suffered the worst."

An interesting question was settled in the police court at St. Louis recently when an irate citizen was charged with disorderly conduct by the conductor of a street car, who had failed to stop his car for a passenger who wanted to alight until the latter retaliated by ringing up cash fares. The passenger who was desirous of alighting at Cass Avenue and Jefferson Avenue, according to his testimony on the witness stand, pressed the button to notify the conductor to stop the car at that point, but although the conductor heard the bell he failed to have the car stopped. Becoming angered at the treatment accorded him the passenger then pulled the register of the car, thinking, he claimed, that he was pulling the bell cord. In doing so he rang up several fares, which so angered the conductor that he summoned the police officer, who arrested the passenger. The police justice, in dismissing the suit, said: "I think you were justifiable in ringing the register cord, or any other citizen would have been under the circumstances. The testimony of various passengers on the car that you first pushed the button for the conductor to stop, and that your request was ignored by him, causes me to believe that you were in the right in the difficulty. You are discharged."

### Proposed Electric Railway for Melbourne

The Australian government is considering a plan proposed by the engineer-in-chief for railways in Australia for the construction in Melbourne of a system of electric roads to take the place of the present cable and horse system. The existing lines consist of about 44 miles of cable and 4 miles of horse railways, and have been in operation now for nearly fifteen years. Under the scheme proposed there will be 50 miles of line when the substitution of electric traction is completed, and extensions of the system will be made from time to time. On account of its comparative cheapness it is recommended that the railway department adopt the overhead trolley system. The cost, including all equipments and substantial construction of track, is estimated at between £7,000 for the lightest traffic lines to £12,000 for the more heavy and important lines per mile of single line. In preparing his scheme of electric tramways, Mr. Rennick, the engineer, has had due regard to the effect they would have on the suburban lines of railways in Melbourne, and his conclusion is that the best method of working an electric suburban system would be to operate them in conjunction with the suburban railways, which, to keep up with the progress of the times, must be converted from steam to electric traction in the near future. He, therefore, recommends that any road to be constructed from this time on shall be dealt with as part of a general electric suburban railway and tramway scheme.

### Brooklyn Tunnel Awards

It is announced that the Rapid Transit Construction Company, successful bidder for the Brooklyn extension of the city's subway system, has awarded sub-contracts for two sections of the extension.

The first section, extending down Broadway, Manhattan, from Ann Street to the center of Bridge Street, will be built by the Degnon-McLean Contracting Company, of New York, which is the holder of sub-contracts for three sections of the Manhattan-Bronx subway.

The third section of the Brooklyn extension has been turned over to Cranford & McNamee, Brooklyn contractors. The limits of the section are as follows: From a point near Clinton Street, Brooklyn, along Joralemon Street, Fulton Street and Flatbush Avenue to the intersection of Flatbush Avenue and Atlantic Avenue. At the last-named crossing is to be the terminal of the extension.

These two awards of sub-contracts leave only Section 3 of the extension to be given out. This is the river section, and it is said that bids for it will be opened and the award made next week.

### New York to Philadelphia by Trolley Accomplished

The opening of the Trenton & New Brunswick Railroad, placed in operation Nov. 9, makes possible a trip from New York to Philadelphia by trolley. Bound Brook is reached from New York via Newark, Elizabeth, Plainfield and Dunellen, and thence from Bound Brook to New Brunswick via the Middlesex & Somerset Traction Company's line, to Milltown, to Interstate Fair Grounds, Trenton, via Trenton & New Brunswick Railroad; to State and Clinton Streets, Trenton, to Broad and Stanton Streets, via Trenton Street Railway; Stanton Street, Trenton, to Burlington, via Camden & Trenton Railway; ferry to Bristol; Philadelphia, Bristol & Trenton Railway to Red Lion Inn, thence over the Philadelphia Rapid Transit lines to the center of Philadelphia.

### Bascule Bridge Again Saves a Car

The efficacy of the bascule type of bridge for preventing terrible drawbridge disasters was again demonstrated in Chicago the morning of Oct. 30, when a train on the Metropolitan West Side Elevated Railway attempted to cross the river with the draw open, with results that caused a shaking up of the passengers. But for the insurmountable obstacle offered by the bascule of the bridge the train must have gone into the river. The bridge is of the Scherzer rolling lift type. This is the second time this bridge has saved a train from going into the river.

### An Extensive Interurban System for Texas

Fort Worth is to be the center of a great electric interurban system, to be built by the Northern Texas Traction Company, the lines to extend to Dallas, Cleburne, Weatherford and Denton, making a total mileage of over 125 miles. It is said that the company has already decided on building from Fort Worth to Weatherford, 31 miles; Denton, 35 miles, and Cleburne, 28 miles. The preliminaries incident to construction, it is learned, are to be taken up at once. The total expenditure for the construction and equipment of these lines is estimated at about \$3,000,000.

## COMMUNICATION

### Tractive Effort and Draw-Bar Pull

Nov. 12, 1902.

EDITORS STREET RAILWAY JOURNAL:

We are selecting the equipment for a new road, and in the proposals received from the manufacturing companies and in the specifications of the engineers frequent reference is made to the "tractive effort" and "draw-bar pull," but there seems to be a confusion of these terms. Will you kindly explain their meaning and the distinction that should be made in their use?

MANAGER.

Briefly, tractive effort is the pull exerted at the rim of the driving wheels, whereas, the draw-bar pull is the pull which a locomotive is capable of exerting at its draw-bar. A locomotive can exert a tractive effort under favorable conditions of 22.5 per cent of its weight without slipping the wheels. The draw-bar pull varies with the grade. The steeper the grade the greater will be the tractive effort required to move the locomotive itself, and, consequently, the less will be the draw-bar pull. The draw-bar pull required to move a given train is figured as being equal to the train resistance per ton multiplied by the weight of the train in tons. There are many conditions to be taken into consideration in determining special cases. For instance, the full load running draw-bar pull is based on the one-hour horse-power rating of the motors, whereas the starting or maximum draw-bar pull is the pull the locomotive can exert at the draw-bar momentarily or for short intervals, and is generally limited by the slipping point of the wheels. The maximum starting draw-bar pull on a level track bears a fixed relation to the weight of the locomotive, and is estimated at one-fifth of the weight. The relation of the full-load draw-bar pull on a level to the total weight of a locomotive varies from about one-sixth in the largest class of locomotives to one-eighth in the smaller sizes. This variation is explained by the fact that it is not practicable to construct the smaller classes of the minimum weight necessary.

It will, therefore, be readily understood that in ordinary street railway practice where single cars are used the tractive effort is an important factor, and that on elevated railways and in suburban and interurban service where trains are run or electric locomotives employed, the draw-bar pull must also be considered.

## Street Railway Patents

UNITED STATES PATENTS ISSUED NOV. 4, 1902

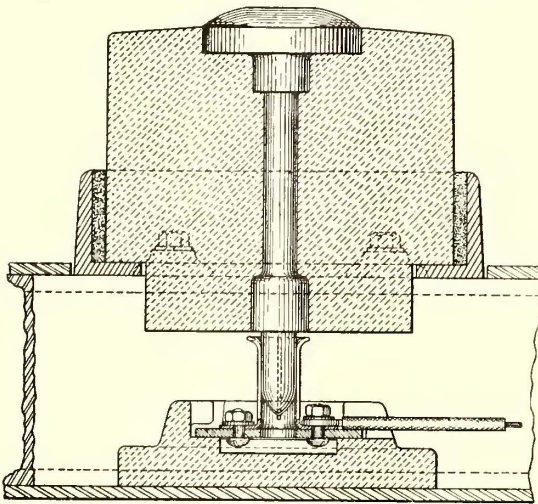
[This department is conducted by W. A. Rosenbaum, patent attorney, Room No. 1203-7 Nassau-Beekman Building, New York.]

712,539. Trolley; N. Hublinger, Berberon, Ohio. App. filed July 3, 1902. The wheel is mounted on a vertical axis so that it will yield when passing curves.

712,654. Brake Beam and Attachment; G. B. F. Cooper, Detroit, Mich. App. filed April 24, 1902. A segmental I-brake beam combined with a fulcrum, which is comprised of two parts, each having interlocking members adapted to be swaged over the beam.

712,768. Beam for Car Trucks and Cars; S. A. Crone, New York, N. Y. App. filed May 16, 1902. Consists of an I-beam having a section thereof, intermediate its ends, slit on lines parallel with the flanges, the web comprising this slitted portion being bent downward, both flanges along said portion being bent upward and laterally from each other.

712,779. Street Railway Switch; W. R. Dunham, Jr., Providence, R. I. App. filed June 30, 1902. A rod connects the switch tongue to a sliding frame located in a box by the side of the track, said sliding frame being engaged by a crank having an operating slot in its end, in which the switch bar is inserted to move the switch tongue.



PATENT NO. 713,015

712,845. Electric Switch Actuator; J. Y. Porter, Detroit, Mich. App. filed Aug. 14, 1901. The tongue of the switch is shifted by a current of electricity, which passes through a coil arranged as a current of electricity, the core of which reciprocates under the influence of the current and is connected to mechanism which alternately pushes and pulls the linkage which is connected with a tongue, and which actuates the tongue.

712,981. Supporting Device for Electric Motors; B. R. Van Kirk, Philadelphia, Pa. App. filed July 18, 1902. The combination of two motors and a supporting shaft for each, with a link connecting the frames of the motors and extending from a point on one motor above its shaft to a point on the other below its shaft, whereby the tendency of one motor to rotate as a whole around its shaft is made to oppose the similar tendency of the second motor.

712,994. Method of Operating Electric Brakes; F. E. Case, Schenectady, N. Y. App. filed June 30, 1897. Electrically actuated brake-shoes provided with means whereby any one can be released whenever the speed of rotation of its axle is substantially less than that of another axle.

713,015. Surface Contact Structure; W. B. Potter, Schenectady, N. Y. App. filed Oct. 11, 1897. The contact button can be lifted out of its solid support and easily replaced, there being a conducting socket into which the lower end fits.

## ENGINEERING SOCIETY

THE ENGINEERS' CLUB OF PHILADELPHIA.—The twenty-fifth anniversary of the Engineers' Club of Philadelphia will be celebrated by a banquet at the Union League, on the evening of Saturday, Dec. 6, at 6:30 o'clock. A business meeting of the club will be held on Saturday, Nov. 15. At this meeting John E. Codman will present a paper entitled "Philadelphia High-Pressure Fire Service."

## PERSONAL MENTION

MR. HENRY A. EVERETT and his family are now in New York, where they will remain for about a month.

MR. JOHN H. SWINERTON, formerly president and manager of the Staten Island Electric Railway Company, of Staten Island, N. Y., has sailed for Europe for a prolonged visit.

MR. C. S. POWELL, manager of the Cleveland office of the Westinghouse Company, who very recently returned from Europe, where he had been in the interests of his company, will sail again for England early next month.

MR. R. K. HOWARD, formerly superintendent of the Knoxville Traction Company, of Knoxville, Tenn., has been appointed general superintendent of the Dayton, Springfield & Urbana Railway, with headquarters at Springfield, Ohio.

MR. C. BROOKE JOHNSON, formerly vice-president of the Norfolk Railway & Light Company, will take charge of some construction work for the Railways & Light Company, of America, which is controlled by the Middendorf-Williams syndicate, whose offices are in Richmond, Va.

MR. E. E. STODDARD, representing Charles C. Moore & Co., engineers of San Francisco, is making an Eastern business trip. Mr. Stoddard's firm has installed some of the largest and most important electric railway power stations on the Pacific Coast, and represents a number of prominent eastern manufacturers of steam appliances.

MR. JILSON J. COLEMAN has resigned as president of the New Jersey & Pennsylvania Traction Company, of Trenton, N. J., and Mr. J. A. Barry, who has been connected with the Johnson interests for some time, has been elected to succeed Mr. Coleman.

MR. E. H. BEACHAM, of New York, recently connected with Messrs. Sanderson & Porter, in the construction of the new street railway and electric lighting plant for the Peekskill Lighting & Railroad Company, has accepted an engineering position with the the Levering & Garrigues Company, of New York, engineers and contractors for bridges, buildings and general structural iron work. Mr. Beacham secured his early training in the shops of the Thomson-Houston Company, at Lynn, and for the last twelve years has been engaged in construction work in both the street railway and electric lighting fields.

MR. W. H. STOCKS, who has been master mechanic of the Chicago, Rock Island & Pacific Railroad for several years, has resigned from that company to accept an appointment as representative of the Gold Car Heating & Lighting Company, of New York, Chicago and London. Mr. Stocks has been associated with the mechanical departments of the Minneapolis & St. Louis Railway, Great Northern Railway and Chicago, Rock Island & Pacific Railway for twenty-five years, during which time he has held the position of foreman, general foreman and master mechanic of the roads mentioned.

MR. FRANK J. SPRAGUE, who has been enjoying a trip abroad, has been "interviewed" by the London reporters and made to say some very funny things about the transportation situation in the English capital. The conclusion which he has reached, from a study of the problem, is probably correctly reported, for in that he says that the general adoption of electricity by English railways is coming much more quickly than most people realize. This will introduce a new condition of life, and one which will make for the health and happiness of the millions who earn their living in the big cities of the United Kingdom.

MR. ALBION E. LANG, for many years at the head of the street railway and lighting interests of Toledo, has retired from business, and his position of president of the Toledo Railways & Light Company will be filled by Mr. Henry A. Everett, of Cleveland, who was elected to the office at a recent meeting of stockholders. Mr. Lang has been head of the traction interests of Toledo since 1881. He effected the consolidation of several lines in 1885, and in 1888 became president of the consolidated system. Mr. Lang will take an extended European trip. Mr. Everett will assume charge at once, but as he will retain his headquarters in Cleveland, the active management will fall on Mr. L. E. Beilstein, vice-president and general manager of the company. Mr. Lang does not retire from the receivership of the Lake Shore Electric Railway Company, since it is probable that the receivership will be terminated in the near future.

## LEGAL DEPARTMENT

CONDUCTED BY WILBUR LARREMORE OF THE NEW YORK BAR

## Liability for Negligence Under Modern Conditions

About a year ago there was a discussion by some of the newspapers upon the question of the proper test of liability for negligence of common carriers of passengers under modern conditions. One of the leading New York papers took the following ground, and its views elicited a certain amount of approval elsewhere:

It is within the history of the law to say that new rulings, and possibly new statutes, are demanded to meet the conditions which result from the creation and operation of new public conveniences. The public demands rapid transit, and what is satisfactorily rapid to-day may be deemed intolerably tedious a few years hence. Population naturally becomes more and more dense along lines of travel, and to meet the public requirement we must have rapid transit on the surface as well as underground and in the air. A code of laws which imposes heavy penalties upon corporations for doing what they must do to meet the public needs, as well as they can be expected to do it, is more favorable to the class of lawyers popularly known as "ambulance chasers" than to anyone else; and the time would not seem to be far distant when the impossibility of operating railroads without casualties in the way in which the public wants them operated will necessitate a material change in the legal point of view as to the proper limitations of liability for damages which result largely from the neglect on the part of the public to take reasonable and proper precautions for its own safety. What was substantial justice as between individuals and corporations when the maximum speed of street vehicles was such that it took an hour to go from the City Hall to Fifty-Ninth Street becomes injustice when it is necessary to cover this distance in half that time.

Such views are not unexpected on the part of one viewing the situation only casually.

Undoubtedly, the average man in the stress to "get there" will avail himself of any appliance which is offered with a plausible assurance of safety. On the other hand there is the constant temptation on the part of inventors and carriers to utilize more expeditious and convenient appliances for "getting him there," although at the risk of accident. The passenger cannot and should not be held responsible for an investigation of the methods of transportation; the carrier who assumes to put appliances and methods into operation very obviously should be held so responsible. The questions of negligence and contributory negligence are always, in a measure, dependent upon the facts and circumstances of a particular case. The trial court and the appellate court of first instance are charged with the duty of revising verdicts upon the ground of excessive damages. The writer deems the present general condition of the law of negligence not only just as between carrier and passenger, but, indeed, indispensable for the protection of the individual and the public. If the demand for the best facilities for "hustling" were accorded preponderating weight in determining whether carriers had or had not been negligent, their obligation to exercise due care would soon be very substantially abrogated.

The courts very naturally observe a conservative policy in dealing with accidents that happen through the operation of new conditions or the employment of new appliances. Two recent cases in the New York Supreme Court by the contrast in their results are illustrative of the judicial attitude. In *Whitaker vs. S. I. M. R. Co.*, before the Appellate Division of the Supreme Court, Second Division, in May, 1902 (72 App. Div., 468), it appeared that the plaintiff was riding in an open trolley car, her little son being on a seat just in front of her. She had notified the conductor, and expected the car to stop at a certain point, and just before the car reached there she arose, and placed her arm around the child, as she said, to better protect him from falling out when the car stopped. The car did not stop, and in going around a curve just beyond plaintiff was thrown out and injured. It was held that the question of contributory negligence should have been left to the jury. The Court said in part:

It certainly was not negligence, as matter of law, for the mother, about to leave the car, to stand up for that purpose, and to hold her infant child. The learned trial justice stated that the court has to take judicial notice of the fact that it is not easier to hold a child standing up in a rapidly moving car than sitting down firmly on the seat. It may be assumed that the question with the plaintiff at the time was not one of ease, but one of safety. The case, as has been seen, presented other features besides the fact that she was standing, and which tended to make the question of her care and prudence, under the circumstances, peculiarly one for the consideration and determina-

tion of practical men. She had some reason to expect that the car would stop at its customary stopping place, and no good reason appears why it did not. In preparing to alight, it was natural that she should follow what she says was her best judgment with a view to the protection of her child from possible injury; and, whatever conclusion as to her conduct a jury may reach, it is certainly beyond the scope of judicial vision to see negligence in the instinctive promptings of maternal solicitude.

In *Merrill vs. Metropolitan St. Ry. Co.*, decided by the Appellate Division of the New York Supreme Court, First Department, in June, 1902 (73 App. Div., 401), it was held that the mere fact that while a street car is rounding a curve a passenger is injured by reason of another passenger being thrown upon her is insufficient, in the absence of excessive speed or of the application of more power than necessary to round the curve, to justify a recovery against the company for the injuries thus received.

It was further held that where the complaint in an action against a street railroad company for injuries to a passenger, caused by another passenger being thrown upon her while the car was rounding a curve, contained no allegations that the roadbed was out of order or improperly constructed, or that the car was not a proper one or not properly equipped, and there was no evidence that the conductor did not warn the passengers of the approach of the curve, the refusal to admit testimony of peculiar motions of the car in going around the curve at other times was not error.

It was also decided that in an action against a street railroad company for injuries to a passenger caused by another passenger being thrown upon her while the car was rounding a curve, wherein there was no evidence that the conductor did not notify the passengers of the approach to the curve, there was no error in excluding evidence that it was customary to give such notice.

The Court furthermore took the position that in an action against a street railroad company, for injuries to a passenger caused by another passenger, who was about to enter the car, being thrown upon her while the car was rounding a curve, the fact that the passenger who was so thrown upon plaintiff was talking to the conductor just before the accident was immaterial.

The decision in the last named case was by a bare majority of the Court, two of the judges dissenting. This decision, therefore, in connection with the one previously cited, illustrates the conservative tendency of the courts in administering the rules of liability of a common carrier. It is a matter of common knowledge that the street trolley railroad companies are subjected to embarrassment through the inability to round curves at a normal or low rate of speed. The two judicial decisions cited would seem to administer the law with a sufficient comprehension of the physical situation involved. The position that the common carrier is bound to provide safe appliances for transit and to be watchful in their operation is not abrogated; at the same time the rule of liability is not extended beyond the fair bounds of common sense and justice.

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LIABILITY FOR NEGLIGENCE

ALABAMA.—Street Railroads—Injury to Passenger—Safe Landing Place—Duty to Provide—Damages—Hospital Fees—Pleading—Complaint—Harmless Error—Evidence.

1. The refusal of the court to strike out immaterial and irrelevant averments in the complaint does not constitute reversible error, unless it affirmatively appears that such refusal was prejudicial.

2. In an action against a street railway company for injuries received by a passenger on alighting from a car, a complaint alleging the failure of the defendant to provide a safe place for alighting is not demurrable in not averring what constitutes a safe place, nor in giving a minute description of the place where the stop was made and of the alleged injuries.

3. A plea attempting to set up contributory negligence by alleging that "when the car stopped, the lights from the car shone for 10 ft. or 12 ft. on either side of the track, and that plaintiff could have seen the alleged lumber and debris before he stepped thereon, by the exercise of ordinary and reasonable care on his part," was defective in not alleging that the plaintiff failed to exercise ordinary and reasonable care or that he saw the lumber.

4. A plea assuming that it was the duty of a passenger to inquire of a street railway company or its agent as to whether the place of stopping is a reasonably safe place for him to alight was properly overruled.

5. Plaintiff became a passenger on defendant's street railway on

NOTE.—Communications relating to this department should be addressed to Mr. Larremore, 32 Nassau Street, New York City.

a dark night, and on alighting from the car at his destination tripped on taking his first step over a pile of lumber left at the place by the defendant the day previous while repairing a bridge. Held, that the defendant was liable in failing to provide a reasonably safe place for the landing of its passengers.

6. Hospital fees for the expense of a nurse and a ward in the hospital are proper elements of damage in a personal injury action.

7. A deposition taken by one of two commissioners to whom the commission was jointly issued is invalid in the absence of a waiver of the presence of the other commissioner.

8. Evidence of the jurors as to the manner of arriving at the verdict is not admissible on a motion or a new trial.—(Montgomery St. Ry. vs. Mason, 32 Southern Rep., 261.)

ALABAMA.—Waters and Water Courses—Overflowing Lake—Outlets—Unprecedented Rainfall—Burden of Proof.

1. In an action for injuries alleged as the result of an overflow from a lake controlled by defendant, and not having a proper outlet provided, it was not error to refuse to instruct that if the water came from the lake, because of an unprecedented rainfall, defendant was not liable; there being evidence that if the outlets had been maintained in proper condition the injury would not have occurred.

2. The burden was on plaintiff to show that the lake was controlled by defendant.—(Birmingham Ry. & Electric Co. vs. Dorse, 32 Southern Rep., 493.)

CALIFORNIA.—Passenger on Street Railroad—Action for Injuries—Instruction—New Trial—Review—Conflicting Evidence.

1. Where, in an action by a passenger against a street railroad company for personal injuries alleged to be due to defendant's negligence, it was conceded that plaintiff was not at fault, and there was substantial evidence, though conflicting, to show that the injury was incurred through the negligence of a motorman, an instruction that, under the case and proofs, no presumption of negligence arose against defendant from the mere fact that an accident had occurred, violated the constitutional provision forbidding a charge "with respect to matters of fact."

2. Where the action of the trial court in granting a new trial is based on a substantial conflict in the evidence, it will not be disturbed.—(Sullivan vs. Market St. Ry. Co. (S. F. 2154.) 69 Pacific Rep. 143.)

CONNECTICUT.—Negligence—Pleading—Demurrer.

1. Parts less than the whole of a complaint stating but a single cause of action, though in several paragraphs, are rarely, if ever, demurrable on the ground of insufficiency, in the proper sense of the word, as distinguished from immateriality or irrelevancy.

2. Where plaintiff predicates the actionable negligence on which he relies on a course of conduct in the progress of which are several acts, all closely connected together, and leading up to and culminating in the accident, the allegation as to each act, that it was improperly and negligently done, does not make each act a separate cause of action, which must be sufficient in itself.

3. Allegation in a complaint, as to acts otherwise not wrongful, that they were done negligently, is not a conclusion of law, but a proper statement of fact.—(Hill vs. Fairhaven & W. R. Co., 52 Atlantic Rep., 725.)

DELAWARE.—Street Railroad—Crossing Accident—Negligence—Speed of Car—Failure to Give Signals—Rights to Street—Contributory Negligence—Damages—Burden of Proof.

1. Plaintiff in a street car crossing accident case has the burden of showing defendant's negligence by a preponderance of the evidence.

2. A street car company has a right superior to other travelers to the use of the portion of the street included within its track.

3. A street car company must operate its cars at a reasonable rate of speed, and slow up, and stop, if necessary, when danger is imminent, and may, by the exercise of ordinary care, be seen or known in time to prevent an accident.

4. A street car, on approaching a crossing, must give proper warning.

5. The degree of care required in operating a street car in order to prevent accidents to persons on the streets increases with the increase of danger.

6. A person approaching a street car crossing with which he is familiar is bound to avail himself of his knowledge of the locality to prevent an accident to himself; and if he attempts to cross the track when his view is not obstructed, and fails to look for an approaching car, he is guilty of negligence.

7. A person injured in a street railroad crossing accident through the negligence of the company is entitled to damages which will compensate him for his injuries, including loss of time and wages, past and future suffering, and loss of earning power resulting from any permanent injury.—(Adams vs. Wilmington & N. Electric Ry. Co., 52 Atlantic Rep. 264.)

DELAWARE.—Street Railroads—Crossing Accident—Negligence—Speed of Car—Failure to Give Signals—Rights to Street—Contributory Negligence—Imputed Negligence—Negligence of Driver—Burden of Proof.

1. Plaintiff in a street car crossing accident case has the burden of showing defendant's negligence.

2. A street car company has a superior right to the use of the portion of the street included within its track.

3. A street car company must operate its cars at a reasonable rate of speed, and slow up and stop, if necessary, when danger is imminent.

4. A street car on approaching a crossing must give proper warning.

5. The degree of care required in operating a street car, in order to prevent accidents to persons on the streets, increases with the danger.

6. A person approaching a street car crossing with which he is familiar is negligent if he attempts to cross, when his view is not obstructed, and fails to look for an approaching car.

7. The negligence of the driver of a vehicle in colliding with a street car can not be imputed to a person riding in the vehicle by invitation of the driver, and having no control over the latter.

8. A gratuitous passenger riding in the vehicle of another must use due care to avoid being injured by a collision with a street car, even though not chargeable with the driver's negligence.—(Farley et al. vs. Wilmington & N. Electric Ry. Co. (No. 28.) Farley vs. Same, 52 Atlantic Rep., 543.)

GEORGIA.—Contract—Consideration—Compromise.

1. Where a disputed claim, depending upon a legal question, is settled and adjusted by the parties, and a contract between them is accordingly made, whereby one promises to pay to the other a sum of money, the promisor is bound thereby, though such question be really free from doubt, and, properly resolved, would have absolved him from all liability.

2. There was no error in admitting evidence.—(City Electric Ry. Co. vs. Floyd County, 42 S. E. Rep., 45.)

ILLINOIS.—Street Railways—Injury to Passengers—Evidence—Sufficiency—Appeal—Questions Reviewable.

1. Where, in an action by a passenger against a street railway company for injuries, it appeared that the car was so crowded that he had to stand in the aisle, and hold onto one of the straps, and that the car stopped suddenly, throwing a number of passengers against him with great force, causing the injuries, the declaration was sufficiently supported to make the question one of fact for the jury, and hence not reviewable after affirmance by the appellate court.

2. The question whether the case made by such evidence should be submitted to the jury was sufficiently doubtful as to justify an appeal by defendant without incurring the statutory penalty for delay.

3. The question whether the damages awarded are excessive is one of fact, and not reviewable by the supreme court after affirmance by the appellate court.—(Chicago City Ry. Co. vs. Morse, 64 N. E. Rep. 304.)

INDIANA.—Street Railway Conductor—Turning Car on Turntable—Overexertion—Assumption of Risk.

A street railway conductor was required, as part of his duty, to assist the motorman in turning the car on a turntable at the end of the line. The turntable got out of repair, so that the turning was hindered by the rails scraping against the sides of the turntable pit. The conductor was aware of this condition the day before the accident, and on the day in question had assisted in turning the car three times, but had been assisted in so doing by passengers. In attempting to turn the car with only the motorman's assistance, he overexerted and strained himself. Held, that he was under no obligation to do this, and, in so doing, assumed the risk.—(Roberts vs. Indianapolis St. Ry. Co., 64 N. E. Rep. 217.)

INDIANA.—Master and Servant—Personal Injuries—New Employment—Hazard Pleading.

A complaint alleged that plaintiff was employed by defendant to work in its barn and care for its mules, and for no other service, and that without cautioning him defendant directed him to assist in moving some iron frogs; that the work was dangerous, as defendant knew, to one unskilled; and that plaintiff was ignorant of the danger, and without his fault or negligence, while attempting to assist in such work, he "was pulled over," his hand caught, etc. Held, that it did not appear that the work was hazardous, and, as no facts showing danger were alleged, or anything showing that the work was negligently done, no cause of action was stated.—(Citizens' St. Ry. Co. vs. Brown, 64 N. E. Rep. 98.)

INDIANA.—Street Railways—Negligence—Complaint—License—Withdrawal—Evidence.

1. In an action against a street railway company, a complaint alleging that it was the custom of defendant to permit boys to board the cars to sell papers when signaled to by a passenger;

that plaintiff, a newsboy of 12 years, was signaled to by a passenger who wished a paper, and stepped on the car, but before plaintiff reached the passenger the car started, and when going at great speed the conductor ordered plaintiff off, and approached him with such threatening language as to frighten him, and cause him to fall off, receiving severe injury—states a cause of action.

2. Where it has been the custom of a street car company to permit newsboys to board its cars to sell papers to passengers, it is not negligence to revoke such license, and order such boys off the cars when standing still, or moving so slowly that they can get off with safety.—(Indianapolis St. Ry. Co. vs. Hockett, 64 N. E. Rep., 633.)

INDIANA.—Action Against Street Railroad—Complaint—Sufficiency on Appeal—Negligence—General Verdict and Answers to Interrogatories.

1. A complaint questioned for the first time on appeal will be held sufficient if it states facts sufficient to bar another action.

2. A general verdict for plaintiff in an action against a street railway company for injury received by walking into a rope stretched across the street by defendant while repairing a broken feed wire is not overcome by answers of the jury to interrogatories, though one of them is that the method used by defendant in fixing its broken wire was reasonably prudent, others being that the method was such as to have probably caused the injury to careful persons, that it could have better given warning of the rope by a guard and danger signal, that the light from the headlight of a car was not sufficient to reveal the presence of the rope to every one, and that plaintiff did not see it and could not have seen it by the exercise of ordinary care.

3. An instruction that when a person is about to cross a street he is required to exercise ordinary and reasonable care to observe any obstructions or danger in the street, and to look out for passing vehicles or such permanent obstructions as would ordinarily be expected therein, but not to anticipate and guard against obstructions which are unusual and not ordinarily to be observed in the exercise of reasonable and ordinary care in passing along or crossing a street, does not relieve a traveler from observing anything but vehicles and permanent obstructions.

4. An instruction that in estimating plaintiff's damages the jury may consider the nature and extent of her injuries, whether they were temporary or permanent, also any physical or mental pain or suffering, and, from all the facts shown by the evidence, may give her such damages as will fully compensate her for the injuries she has sustained, not exceeding the amount claimed, fairly informs the jury as to the facts they may consider.—(Indianapolis St. Ry. Co. vs. Walton, 64 N. E. Rep., 630.)

LOUISIANA.—Street Railroads—Injury to Person on Track.

1. Where urchins have been stealing rides by hanging on to the rear end of a gravel train on the street of a city, the employee in charge of the train, who has in vain tried to make them desist by warnings and threats, is entirely justified in catching hold of one of them and lecturing him.

2. If the employee's lecture has been temperate, and he has not rough-used the boy, but has merely held him, and no longer than was necessary for the purpose of the lecture, he or his employer is not responsible if the boy (a child eight years, lacking three months, old), on being turned loose, runs blindly in a direction converging with that of a coming car, and collides with the car and is injured.—(Palmisano et ux. vs. New Orleans City R. Co., 32 Southern Rep., 364.)

MARYLAND.—Street Railways—Negligence—Persons Near Track—Evidence.

1. Where plaintiff was employed in filling in a trench in a street, the side of the trench next to a street car track being about 3 ft. from the track, and he was injured by being struck by the body of the conductor of a street car, the conductor being on the side footboard of a car and engaged in collecting fares, there was no negligence on the part of the street railway.—(United Railway & Electric Company of Baltimore City vs. Fletcher, 52 Atlantic Rep., 608.)

MICHIGAN.—Street Sprinkling—Compensation.

No intention to curtail the free use of water for public purposes, including street sprinkling, as allowed by Pub. Acts 1853, p. 182, which, by section 8, provides for the water board erecting jets and fire hydrants, is indicated by Act No. 359, 3 Loc. Laws 1873, p. 123, which merely requires the water board to provide fire hydrants when required by the council or fire commissioners.—(Board of Water Commissioners of City of Detroit vs. Detroit Citizens' St. Ry. Co., 91 N. W. Rep., 171.)

MICHIGAN.—Street Railways—Collision with Traveler—Negligence of Motorman.

While plaintiff was driving along the street her buggy was struck by a car coming up from behind. One witness testified that, when she turned toward the track to avoid a buggy stand-

ing by the side of the road, the car was about 250 ft. away. Plaintiff offered to show that the car could be stopped within 100 ft. Another witness, on cross-examination, stated that she was struck almost instantly after turning in, and a third that she was pretty well past the other buggy when struck. Held, that the question whether plaintiff was in position to have been seen by the motorman a sufficient time to have enabled him to stop the car should have been left to the jury.—(Boettcher vs. Detroit Citizens' St. Ry. Co., 91 N. W. Rep., 125.)

NEW JERSEY.—Street Railroads—Injury to Passengers—Instructions.

1. In the case of a plaintiff two years and nine months old, who was thrown down by the starting of a street car, which she had boarded, before she had time to be seated, and while she was, for the moment, out of the reach of her attendant, who was also boarding the car, it is not error for the court to refuse to charge the jury "that the starting of a car before a passenger is seated is not negligence."

2. When the trial judge has stated to the jury in concrete terms the legal principles applicable to the case, it is not error for him to refuse to charge the abstract principles.—(Herbich vs. North Jersey St. Ry. Co., 52 Atlantic Rep., 357.)

NEW JERSEY.—Street Railroad—Injury to Passenger—Evidence—Res Ipsa Loquitur.

1. A mere fall from a street car, without any evidence to show how the fall was occasioned, raises no presumption of negligence on the part of the operators of the car.

2. The doctrine of res ipsa loquitur is applicable only when the thing shown speaks of the negligence of the defendant, not merely of the happening of the accident.—(Paynter vs. Bridgeton & M. Traction Co., 52 Atlantic Rep., 367.)

NEW JERSEY.—Street Railways—Passengers—Personal Injuries—Contributory Negligence—Proximate Cause.

1. Plaintiff, while riding on defendant's street car, signaled the conductor to stop the car, and the speed decreased, and plaintiff got on the running board at the side of the car, when the conductor signaled to go ahead and the speed was increased. Plaintiff turned to again signal the conductor, and, leaning outward, his head struck a wagon overtaken by the car. Held, that a non-suit was proper, as plaintiff was guilty of contributory negligence.

2. The accident was not the natural result of the conductor's negligence, and defendant was not liable.—(Flynn vs. Consolidated Traction Co., 52 Atlantic Rep., 369.)

NEW JERSEY.—Bill of Particulars—Right to Demand.

In an action by an attorney to recover for professional services, where defendants denied the employment and rendition of services, and pleaded limitations, they were entitled to particulars specifying: (1) Whether the agreement was verbal or in writing, and, if in writing, a copy thereof, and, if oral, the terms and names of the persons claimed to have acted as agents of the defendants; (2) an itemized statement of the services rendered; (3) the name or names of the person or persons at whose instance the services were rendered, and a copy of the request for such services if in writing, and, if oral, the terms thereof, together with the time and place of making the same.—(Dempsey vs. Bergen County Traction Co. et al., 77 N. Y. Supp., 456.)

NEW JERSEY.—Street Railroads—Injury to Prospective Passenger—Contributory Negligence.

1. Deceased and her sister went to defendant street railway company's track, in front of their residence to take a car. Deceased returned for a wrap, and her sister signaled an approaching car to stop. As deceased returned, the sister called to her not to cross ahead of the car, which was but 1½ car lengths away. It was night, and the car was brightly lighted and making considerable noise. Deceased attempted to cross ahead of the car, tripped over the first rail, fell, and was run over. Held, guilty of contributory negligence as a matter of law.—(Gilliland vs. Middlesex & S. Traction Co., 52 Atlantic Rep., 693.)

NEW YORK.—Street Railroads—Injury to Person on Track—Instructions—Unexpected Peril.

Where, in an action against a street railroad company for the killing of a person crossing its track, the court instructed that, if deceased "were suddenly placed in a situation of unexpected peril, the jury were at liberty to say that he need not have exercised the same nice discrimination as if he were not in such peril," though defendant was entitled to an instruction, if it had asked it, that the motorman was not called upon any more than deceased to exercise the same discrimination as though no danger had unexpectedly arisen, an instruction that, if the jury found that both deceased and the motorman were in the same position of unexpected peril, they must find for defendant, was properly refused.—(Hock vs. New York & Q. C. Ry. Co., 77 N. Y. Supp., 200.)



NEW YORK.—Trial—Election of Ground of Recovery—Acts Constituting Election—Operation and Effect.

In an action for injuries in consequence of the wheel of plaintiff's wagon having slipped into the slot between the tracks of a cable railroad, the plaintiff was asked by defendant, at the close of plaintiff's case, except as to formal proof of a certain measurement, to state whether he claimed to recover on the ground of defendant's negligence, or its maintaining a nuisance. His counsel stated that a recovery was sought on the ground of negligence, whereupon several motions were made by defendant, one being for dismissal for failure to prove negligence. An adjournment was taken, and on the adjourned day, after some formal proof had been taken, defendant renewed its motions. Held, that it was then too late for plaintiff to shift his ground, and recover on the ground of maintaining a nuisance.—(Bowsky vs. Metropolitan St. Ry. Co., 74 N. Y. Supp., 863.)

NEW YORK.—Attorneys—Authority—Stipulations Respecting Depositions—Street Railways—Injury to Passenger—Contributory Negligence—Evidence—Sufficiency.

1. An attorney for the defendant in an action against a street railway company for personal injuries had authority to stipulate that plaintiff's deposition should be taken in advance of the trial, and that, in the event of his death before trial, it should be read on the trial of another action brought against the defendant by his personal representatives.

2. In an action against a street railway company for the wrongful death of a passenger, decedent's deposition tended to establish that he signified his intention to get off; that the conductor rang the bell, and the motorman thereupon stopped the car; and that it was suddenly started while he was getting off, causing his injury. Two disinterested witnesses corroborated his testimony. Several witnesses for defendant testified that the car had not stopped. Others testified that decedent, immediately after he was injured, stated that he attempted to get off while the car was in motion, in order to get a train, and that it was not the fault of defendant's servants. Held, that a verdict for decedent's administratrix would not be disturbed.—(Ludeman vs. Third Ave. R. Co., 76 N. Y., Supp. 128.)

NEW YORK.—Street Railways—Collision—Contributory Negligence—Negligence.

1. One is not negligent in attempting to drive across a street railway track at a street crossing when an approaching car is 75 ft. distant.

2. The motorman of a street car has the duty of approaching a crossing with the car under control—the more so where his view of the crossing is obstructed by another car; and he cannot give such obstruction as an excuse for his rapid approach.—(Schoener vs. Metropolitan St. Ry. Co., 76 N. Y., Supp. 157.)

NEW YORK.—Misconduct of Counsel—Improper Argument—Ground for Reversal—Cure of Error—Exceptions—Necessity.

1. Conduct of plaintiff's counsel in an action against a street railway company for personal injuries, in persistently insisting that the conductor had taken the names of numerous passengers who were not produced as witnesses, and whose names the company refused to disclose to him on application, and in denouncing the company as a corporation, and in asserting that the trial was conducted on defendant's part at an unnecessary personal expense to the members of the jury as taxpayers, was reversible error, where there was no evidence whatever that the conductor or any one else took the name of a single passenger not produced by the company as a witness on the trial.

2. The misconduct of plaintiff's counsel was not cured by an instruction, given at plaintiff's instance, that "in case either counsel, in summing up, stated facts that were not proven upon the trial, or in case either counsel gave a recollection of the facts which disagree with the recollection of the jury, the jury may disregard these statements, and take their own recollection of the facts."

3. No exception is necessary to justify the reversal of an order denying a new trial, if in furtherance of justice.—(Stewart vs. Metropolitan St. Ry. Co., 76 N. Y., Supp. 540.)

NEW YORK.—Street Car Companies—Persons Crossing Tracks—Liability for Electric Shocks—Negligence—Question for Jury.

A person who, while crossing a street car track, stepped on a rail and received an electric shock, was entitled to recover for his resulting injuries, in the absence of any explanation from the company, where it was clearly established that the shock would have been impossible if the track was in good order, and, further, that close to the place where he was walking was a joint where two rails met, which, if not properly welded, would permit a shock, and there was some evidence that the rails at the time were not laid so as to allow in the usual manner for expansion and contraction, and that such manner of laying rails was calculated to result in imperfect joints,

2. Where a person crossing a street car track stepped on a rail and received an electric shock, and his evidence at the trial made a prima facie case in his favor, testimony by an employee of the company, whose duty it was to keep the tracks in order, that they were in order at the time and place of the accident, did not show the company to be free from negligence, as matter of law.—(Braham vs. Nassau Electric R. Co., 76 N. Y., Supp. 578.)

NEW YORK.—Appeal from Non-Suit—Presumptions—Statements of Witness—Recollection—Street Railroads—Injury to Passenger—Negligence—Contributory Negligence.

1. On an appeal from a judgment of non-suit the plaintiff is entitled to the most favorable inferences deducible from the evidence, and all disputed facts are to be treated as found in her favor.

2. When a witness, a trolley car conductor, on being asked if he did not go to one who had been injured by falling from his car, and say that the accident was due to his fault, and that he should have stopped the car, testified that he did not remember making such statements, and could not swear whether he so stated or not, the jury was justified in concluding that, if he could not deny making them, he might have made them, and therefore they might be true.

3. Plaintiff was injured by falling from defendant's open trolley car. When she got on she told the conductor that she wished to get off at a certain point, where it was customary for the cars to stop without signal. As the car approached the point, the plaintiff, with her little son, got up, but the car, instead of stopping, as she supposed it would, ran past and around a curve just beyond, at a rate of speed which both the motorman and the conductor testified was dangerous under the circumstances. The rapid motion of the car around the curve caused plaintiff to be thrown out. The motorman knew that the plaintiff was occupying a position which made it dangerous to run the car at such a speed, and the conductor saw her get up in anticipation of alighting. Plaintiff's husband testified that the conductor admitted to him that the accident was due to his fault. The conductor testified that he did not remember making such statements, but would not swear either way. Held, that the question of defendant's negligence should have been submitted to the jury.

4. Plaintiff was riding in an open trolley car, her little son being on a seat just in front of her. She had notified the conductor and expected the car to stop at a certain point, and just before the car reached there she arose, and placed her arm around the child, as she said, to better protect him from falling out when the car stopped. The car did not stop, and in going around a curve just beyond plaintiff was thrown out and injured. Held, that the question of contributory negligence should have been left to the jury.—(Whitaker vs. Staten Island Midland R. Co., 76 N. Y., Supp. 548.)

Accident—Contributory Negligence.

NEW YORK.—Death of Fireman—Street Railway Collision—Contributory Negligence—Negligence—Damages—Widow's Pension—Evidence—Prospects of Deceased—Salaries of Higher Positions.

1. Where a fireman, riding on a hook and ladder truck to a fire, sees, when the truck is about half-way across the tracks of a street railroad, that there will be a collision between the truck and a car, and jumps, but is killed by the truck being precipitated on him, the jury is warranted in finding no contributory negligence.

2. Where, in an action for the death of a fireman, owing to a collision, at the intersection of streets, between a hook and ladder truck and a street car, there was evidence that if the car had been under control, or the motorman had been keeping a proper lookout, the accident would not have happened, and that the truck should have been allowed to pass first, a verdict for plaintiff should not be disturbed.

3. In assessing damages for the death of one employed in a city fire department, the jury should not consider the pension his widow is receiving from the city.

4. In an action for the death of one employed in a city fire department, it appearing that deceased had risen four grades in the service, and was strong and of steady habits, evidence showing the different grades of advancement above the position held by deceased was admissible, it being proper for the jury to consider the prospects of his being advanced and earning a greater salary.

5. Advancement in the department being based on competitive examinations, and advanced positions requiring other qualifications than those required by deceased's position, it was error to admit evidence as to the salaries of higher positions in the department.—(Geary vs. Metropolitan St. Ry. Co., 77 N. Y., Supp., 54.)

NEW YORK.—Action for Death—Parties—Damages—Evidence — Admissibility — Damages — Instructions — Damages — Amount—Admissibility of Evidence—Mortuary Tables.

1. Where a passenger was killed in a collision between a street car and a brewery wagon, caused by the concurrent negligence of both, a joint action could be maintained against the street railroad company and the brewery company, notwithstanding the different degrees of care owed deceased by the two defendants.

2. In an action for death, plaintiff introduced evidence of deceased's habits in regard to his family life, the attention bestowed by him on his family, and the interest he took in their social entertainment; that he was a "home body"—spending much time at home; and that he took great interest in the education of his children. The court instructed that the word "pecuniary," as used in the statute prescribing the damages recoverable in an action for death, excluded injuries to the affections and sentiments arising from the death of relations, and also losses arising from the deprivation of society and companionship of relatives, but that infant children might sustain a loss from the death of their parent of a different kind—such as loss of nurture, and of intellectual, moral, and physical training, and of parental instruction. Held that, as limited by the instruction, there was no error in the admission of the testimony.

3. In an action for death, the court instructed that, in measuring the pecuniary loss to deceased's wife and children, the jury could consider the loss of monetary support which deceased would have given, and the amount, if any, which he might have added to his inheritable estate, provided that they found that such increase would have actually occurred from sources other than profits from capital invested, and that the widow and children would have been alive to inherit it, but that the jury must consider deceased's age, his losses and earnings, if any, his expectancy of life, prospective activity, expense of his own living, and all the circumstances surrounding it; that they were not to speculate on the subject, but must base their finding on the reasonable probability of his earnings, based on the evidence. Held, that there was no error in refusing to charge that the jury must consider the possibility of deceased's becoming poor, and his children being compelled to support him in his old age.

4. In an action for death, it appeared that deceased was sixty-two years old, in robust health, and had a life expectancy, according to mortuary tables, of thirteen years; that he had been a successful business man, having risen from a clerk to a partner in a large department store, and had accumulated considerable property, and expended for his own and family's support about \$5,000 a year. Held, that a verdict of \$25,000 was not excessive.

5. In an action for death, mortuary tables are admissible as evidence of the life expectancy of deceased.—(Sternfels vs. Metropolitan St. Ry. Co. et al., 77 N. Y. Supp., 309.)

NEW YORK.—Wrongful Death—Damages—Evidence—Admissibility—Exclusion—Prejudicial Error—Presumption.

1. On the issue as to the damages in an action for the wrongful death of a cab driver, evidence as to whether he, at times, came in intoxicated at the end of a day's drive was improperly excluded.

2. In an action for the wrongful death of a cab driver, where the jury awarded a verdict of \$10,000, a rejection of material evidence on the issue of damages must be presumed to have been prejudicial.—(McIlwaine vs. Metropolitan St. Ry. Co., 77 N. Y. Supp., 426.)

NEW YORK.—Appeal—Condemnation Proceedings—Award of Commissioners.

Where commissioners of appraisal in condemnation proceedings viewed the premises, and the estimates of witnesses as to value differed materially, the award will not be disturbed, although it might be more satisfactory if smaller, where it does not appear that the commissioners proceeded on an erroneous principle, or were influenced by passion or prejudice, or overlooked or disregarded the evidence, and for that reason injustice has been done.—(Manhattan Ry. Co. vs. Comstock et al., 77 N. Y. Supp., 416.)

NEW YORK.—Street Railway—Personal Injuries—Negligence—Contributory Negligence.

1. In an action against a street railway for personal injuries the evidence showed that plaintiff, after alighting from a car at a frequented crossing, went behind it, and in attempting to cross the street was struck by a car coming in the opposite direction. The car was coming faster than usual, and no effort was made to stop it until after the accident. No gong was sounded, or warning of any kind given. Held sufficient to sustain a finding that the motorman was negligent.

2. Plaintiff, on alighting from a car, passed behind it, and, after looking up without seeing another car in sight, attempted to cross the other track, and was struck by a car coming in the

opposite direction. Her vision in that direction was obscured by the car behind which she had passed. Her companion preceded her by about 6 ft., and, without hastening, crossed in safety. No gong was sounded or warning given by the approaching car. Held, that plaintiff was not negligent.—(Pelletreau vs. Metropolitan St. Ry. Co., 77 N. Y. Supp., 386.)

NEW YORK.—Street Railroads—Crossing Accident—Negligence of Gripman—Evidence—Admissibility.

1. Evidence that a cable car approached a street crossing at a high rate of speed without sounding a gong, though a woman struck by the car was approaching the track, and that the car went about 45 ft. after the accident, was sufficient evidence of the gripman's negligence to sustain a recovery.

2. A witness for defendant in a street car crossing accident case, who testifies that the injured person was warned by shouts of the approach of the car, can not testify whether the accident would have occurred if the injured person had stopped when so warned, as such question is for the jury.—(Cosgrove vs. Metropolitan St. Ry. Co., 77 N. Y. Supp., 624.)

NEW YORK.—Street Railways—Personal Injury—Child on Track.

In an action for personal injuries to a child by being struck by a street car while she was running across the street, the court properly refused to charge that "the motorman was not obliged to apply his brake before he observed that the child was in danger," as the instruction eliminated any question of negligence on the motorman's part in failing to discover the danger sooner than he did.—(Colabel vs. Metropolitan St. Ry. Co., 77 N. Y. Supp., 584.)

TENNESSEE.—Trial—Instructions—Presentation of Theory of Case.

Where there is conflict in the evidence on a material issue, submission thereof without any instruction as to defendant's theory of the case as based on that issue is reversible error.—(Memphis St. Ry. Co. vs. Newman, 69 S. W. Rep., 269.)

TENNESSEE.—Street Railroads—Collision at Crossing—Action for Injuries—Defenses—Contributory Negligence—Instructions—Control of Car at Crossings.

1. An action against a street railroad company for injuries received by plaintiff in a collision between his wagon and defendant's car at a street crossing can not be maintained if plaintiff's own negligence proximately contributed to his injuries.

2. In an action for injuries received in a collision between a wagon and a street car at a street crossing, the court instructed that it was the duty of defendant's motorman, on approaching the crossing, to have his car under such reasonable control as to be able to avoid colliding with persons using the crossing; that it was his duty to be on the lookout, and to have seen what any ordinarily careful motorman would have seen, but that, if no one was near enough to make a collision probable, he had the right to assume that persons approaching would use ordinary care to avoid a collision; that no mistake in regard to these assumptions would be negligence; and that, if the motorman complied with the law as charged, he was not guilty of negligence, unless he was running his car at an excessive rate of speed, so that he could not stop when danger became apparent. Held not erroneous, as placing on defendant the responsibility of an insurer.—(Memphis St. Ry. Co. vs. Wilson, 69 S. W. Rep., 265.)

TENNESSEE.—Street Railways—Passengers—Injuries—Collision with Vehicle—Degree of Care—Instructions.

In an action by a passenger against a street car company for injuries sustained by a collision with a dray at a cross street, the court instructed that the drayman and motorman had equal rights, and each owed the duty to approach the crossing at a speed enabling him to stop if necessary to avoid collision; that, if either failed to do so, he was guilty of negligence, and if it caused the injury plaintiff must look to such negligent party; that if the car, running at a high speed, ran into the dray as it was attempting to cross and was almost across the track, and whirled it around, so that the shafts were thrust into the car, injuring plaintiff, defendant was liable though the drayman was negligent; but if the dray dashed into the rear of the car, and the shafts protruded and injured plaintiff, then the drayman was liable, and verdict should be for the defendant. Held that, while portions of the charge might be construed as requiring the motorman to have his car under absolute control, as a whole it was not erroneous as requiring too high a degree of care of defendant.—(Memphis St. Ry. Co. vs. Norris, 69 S. W. Rep., 325.)

TEXAS.—Street Railway Companies—Duty to Passengers.

It is the duty of a street railway company to exercise the highest degree of care in operating its cars to prevent injury to passengers, and failure of its servants in that respect is its negligence.—(Citizens' Ry. Co. vs. Craig, 69 S. W. Rep., 239.)

## FINANCIAL INTELLIGENCE

### THE MARKETS

WALL STREET, NOV. 12, 1902.

#### The Money Market

One or two very important developments have occurred in the money market during the past week. The Secretary of the Treasury has discontinued the deposits of internal revenue in the national bank fund, and has said that no more State and municipal bonds will be received in lieu of United States bonds as security for government deposits. Secondly, the leading New York banks, acting apparently under an agreement, have fixed 6 per cent as the minimum at which time loans will be made for the present. The meaning of this latter step has been construed, with good reason, to be a warning to speculators in stocks that they need expect no consideration for any plans for fresh borrowing. It is part of the general policy, of which many evidences have recently appeared, to force a contraction of speculative liabilities, and put bank resources in a sounder position. Withdrawal of the Treasury relief offers presumably reflects the belief of the officials at Washington that the extraordinary remedies applied during the last month and a half are no longer needed. Still the immediate effect is to greatly increase the strain upon the local market. The Treasury becomes once again a heavy creditor against the banks, and as money is still flowing out in quantity to the interior, we are likely to see for several weeks a considerable decrease in the banks' cash holdings. This will be offset, so far as the next Saturday bank statement is concerned, by the natural results of extensive speculative liquidation on the Stock Exchange. The problem of gold exports remains in statu quo. Demand sterling, which rose to 4.87¼ at the close of last week, has eased off, as the money market has given signs of hardening. It is an interesting question, but one which is by no means easy to answer, whether local bankers are not as much concerned with checking an outflow of gold as with reducing the inflated loan account at home. Their purpose may be to accomplish the gradual settlement of foreign obligations by use of domestic credits forcibly released, rather than by shipments of gold, which would only trench still further upon the much-talked-of scant margin of cash reserve. Summing up the best judgment of the situation is that money rates will continue to be held at their present comparatively stiff level until the end of the year.

#### The Stock Market

The period of violent decline and enormous liquidation which has occupied the Stock Exchange this week, is generally referred to the conditions which have been outlined in the money market. The banking community have evidently decided to make a clean job of it, and to force the big speculative syndicates, which have been borrowing immense sums in their various deals, to disgorge enough of their holdings to put the loan accounts in a sound condition again. This process has had an extremely disastrous effect upon the active share list. The circumstances demanding urgent liquidation, those securities having the readiest market, are naturally the ones that have been first pressed for sale. On such occasions, of course, no account has been taken of actual values. Securities have been thrown over simply for what they would bring, and the standard shares of recognized merit have suffered fully as much as the rest. Judged by all the teachings of experience such a reaction is bound to be overdone. The market will right itself eventually in all probability on a higher level of prices than the present. But it takes time for the investment demand to digest such a tremendous outpouring of speculative holdings as has been witnessed during the past week. The majority of the dividend-paying stocks are now selling at figures where the rate of return is attractive to the investment interest. Inasmuch as there is no sign of any falling off in earning capacity or in the general business of the country, it is plain that for those who use their own funds for the purpose, the market offers many tempting opportunities. For the speculator on margin, however, the path is as yet by no means clear, simply because there are no accurate means of gauging whether the forced contraction of speculative credits has yet reached its limit. The best judges of the situation are inclined to think that even with further liquidation the decline cannot go much further.

The local traction group has not felt the shock of the general decline to the extent that other departments have. Both Brooklyn Rapid Transit and Metropolitan have touched the lowest prices of the season, but pressure even on them has been considerably lighter than elsewhere. On the other hand, Manhattan has distinguished itself by a remarkable display of resistance to the gen-

eral selling movement. The buying in this stock has been steady enough to absorb all offerings, at comparatively slight recessions, and there is little doubt that it comes from people who have received their inspiration from sources close to the management of the property. Those who are in a position to know what is going on talk in glowing terms of the present earnings of the company.

#### Chicago

Liquidation and lower prices have been the rule in Chicago during the last week. Union Traction common is off to 15, and there is no market for the preferred above 46. City Railway shares have fallen to 210, from 212½ a week ago. Metropolitan common is down more than a point to 39, while the preferred broke sharply from 88 to 86. Lake Street has been very weak at 9½, Northwestern common at 34, the preferred at 81, South Side at 106, while West Chicago Street Railway, selling ex-dividend, dropped from 90½ to 89. These declines have not, on the whole, had any reference to actual property conditions. Unfavorable comment is heard about the increase in Union Traction's operating expenses, owing to the recent advance in wages and the adverse transfer decision. It is said, however, that the increased cost of operation on these accounts is not equal to the increase in present gross earnings over those of a year ago. Meanwhile earnings of the elevated lines continue to make the same excellent comparisons that they have during the last few months. Those of the Northwestern are 17 per cent larger, so far this month, than in the corresponding period last year, and in the case of the Metropolitan the increase amounts to 20 per cent. An important plan is reported to be under way by which the South Side Elevated will acquire an outlet to the Stock Yards. The matter is now before the Mayor for approval.

#### Philadelphia

The leading Philadelphia stocks have been depressed in sympathy with the general speculative demoralization of the last week, but their losses, as compared with other stocks, are only trifling. Rapid Transit, after holding up around 18 for most of the time, broke sharply on Monday and Tuesday, closing on the latter day at 16 bid. Union Traction meanwhile dropped a point to 46. But the liquidation in both stocks was not at all heavy. American Railways was exceptionally firm, and moved directly against the rest of the market, rising from 53½ to a new record price of 54½. It looks very much as if all offerings of this stock were being absorbed by people who know the inside conditions of the company. There is no doubt but that earnings of all the constituent properties are steadily increasing, and the market advance is simply reflecting the opinion that this fact in time means higher dividends on American Railways stock. Bond sales for the week include Indianapolis 4s at 86¾, Consolidated New Jersey 5s at 110½, Electric-People's Traction 4s at 98¾, and People's Passenger 4s at 105.

#### Other Traction Securities

The general speculative depression has been felt in the Boston traction market, more in curtailing the volume of business than in causing liquidation. Massachusetts Electric common has yielded the most of any, selling down 2 points to 36¼. The preferred has held steady around 96, Boston Elevated around 153, and West End common around 93½. In Baltimore the United Railway issues are weaker, the common stock dropping fractionally to 13¾, and the income bonds to 68. Nashville Railway 5 per cent certificates have held exceptionally strong at 77¾, although the shares of the same company continued heavy around 4. Other Baltimore transactions include United Railways 4s at 95, Anacostia and Potomac 5s at 104, and Charleston Consolidated 5s at 93½. On the New York curb New Orleans common dropped, on sales of about 800 shares, from 16¼ to 15½, and the preferred from 53 to 51. Other sales for the week comprised American Elevated at 7½ and ¾, New Orleans 4½s at 85, San Francisco subscription from 47½ to 48¼, and United Railways of St. Louis 4s at 84¾. Practically nothing doing in traction stocks on the Cleveland exchange last week; or any other stocks for that matter. Sales numbered only 460 shares. Aurora, Elgin & Chicago common sold down from 37¾ to 36¾ on 100 shares. A lot of 100 Cincinnati, Dayton & Toledo sold at 40, a decline of ¾ from last sales. Western Ohio receipts sold at 29½, a fractional decline. Monday matters brightened somewhat. The formal announcement that the Cincinnati "community of interests" plan has been signed up to the good advantage of the Miami Erie Canal sent that stock up ½ point. Three lots sold at 33, and then came news of New York's tumbling market, which brought the offer down to 30 and the bid to 25. A small lot of

Syracuse Rapid Transit sold at 32, the first of this sold in some weeks. Lake Shore Electric was considerably weaker, only 12 being bid and 15½ asked for the common. On Monday the guaranteed stock of the Cincinnati & Hamilton Traction Company was placed on the market, the preferred being quoted at 112½, while the common was sold from 35½ to 39, closed the day at 37½. The preferred stock draws 5 per cent dividend, and the common for two years draws no dividend, and after that advances one-half of one per cent annually, until it reaches 4 per cent. Dividends on the stocks are guaranteed by the Cincinnati Traction Company. The road is a combination of the old Mill Creek Valley system.

**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	
	Nov. 3	Nov. 10
American Railways Company	53	53½
Aurora, Elgin & Chicago	38	a37
Boston Elevated	152	152½
Brooklyn R. T.	62¾	59
Chicago City	212	210
Chicago Union Tr. (common)	16½	15
Chicago Union Tr. (preferred)	47	a49
Cleveland Electric	85½	85
Columbus (common)	55¾	57
Columbus (preferred)	105½	106
Consolidated Traction of N. J.	69¾	68½
Consolidated Traction of N. J. 5s.	110½	110¼
Detroit United	87	86½
Electric People's Traction (Philadelphia) 4s.	98¾	98¼
Elgin, Aurora & Southern	a59	a60
Indianapolis Street Railway 4s.	88	86¾
Lake Shore Electric	13½	12½
Lake Street Elevated	9¼	9¼
Manhattan Railway	136¾	133
Massachusetts Elec. Cos. (common)	37½	36¼
Massachusetts Elec. Cos. (preferred)	95½	96
Metropolitan Elevated, Chicago (common)	40	38
Metropolitan Elevated, Chicago	88½	85½
Metropolitan Street	140½	136
New Orleans Railways (common)	—	15¼
New Orleans Railways (preferred)	—	50
North American	123¾	120
Northern Ohio Traction (common)	a66	—
Northern Ohio Traction (preferred)	93½	93½
North Jersey	—	32¾
Northwestern Elevated, Chicago (common)	34¾	34
Philadelphia Rapid Transit	18	17½
Philadelphia Traction	98	98
St. Louis Transit (common)	28½	28
South Side Elevated (Chicago)	108	106
Syracuse Rapid Transit	32	31½
Syracuse Rapid Transit (preferred)	a78	76
Third Avenue	126	125
Toledo Railway & Light	a40	a38
Twin City, Minneapolis (common)	118	113
United Railways, St. Louis (preferred)	—	—
United Railways, St. Louis, 4s.	—	84¾
Union Traction (Philadelphia)	47¾	46½
Western Ohio Railway	27	28½

a Asked.

**Iron and Steel**

The iron situation continues to hang on the question whether supply is not beginning to overtop demand. As yet, however, it is only in some of the higher forms of the industry that reaction has really appeared. Tin plate, wire and nails, and sheets are the principal products affected. Elsewhere in all the lower and middle grades, including pig iron and steel billets, and in many of the higher grades, including steel rails and structural material, the conditions are unchanged from what they have been for a long while past, namely, production is running well behind consumption, and the output is sold a good ways ahead. Quotations are as follows: Bessemer pig iron, \$21.75 and \$22.00; steel billets, \$30.00 and \$31.50; steel rails, \$28.00.

**Metals**

Quotations for the leading metals are as follows: Copper, 11½ and 11¾ cents; tin, 26¼ cents; lead, 4⅞ cents, and spelter, \$5.30 and \$5.40.



CHICAGO, ILL.—The stockholders of the Metropolitan West Side Elevated Railway met Nov. 5 and voted to amend the charter of the company so as to permit the building of the new downtown terminal spur and depot for which real estate was purchased some months ago. The cost of the improvement will be paid for out of an issue of \$2,500,000 extension bonds bearing 4 per cent, which were underwritten some time ago. Real estate purchased for the

improvement purposes cost \$850,000. Work on the building of the new station will commence soon after Jan. 1. The new terminal will be for the purpose of affording downtown terminal facilities in addition to the Union loop, as the capacity of the loop is beginning to be taxed by the large number of trains put upon it by the Metropolitan and the South Side companies.

DAVENPORT IA.—An amendment to the articles of incorporation of the Tri-City Railway Company has been filed with the Secretary of State of Iowa increasing the capital stock from \$1,200,000 to \$1,500,000. The increase in the stock is to be used in improvements and in extending the lines of the company.

BOSTON, MASS.—The Railroad Commissioners, as petitioned, have authorized the Boston & Worcester Street Railway Company to issue at par 7500 shares of original stock, giving the company \$150,000 to pay, in part, floating indebtedness incurred in construction and equipment of its lines and in the acquisition of real and personal property.

BOSTON, MASS.—The Railroad Commissioners have approved an issue of \$750,000 in capital by the Boston & Worcester Street Railway Company, the originally fixed capital of the company, to be sold to subscribers at par, that amount being reasonably necessary for paying in part floating indebtedness properly incurred in the construction and equipment of the road.

DANVERS, MASS.—The Middleton & Danvers Street Railway Company has petitioned the Railroad Commissioners for approval of an issue of \$32,000 original stock.

BROOKLYN, N. Y.—The directors of Brooklyn Union Elevated have declared a regular dividend of 1½ per cent and ½ per cent extra on preferred stock, payable Dec. 31 to stockholders of record Dec. 23. The last regular dividend declared on the preferred stock was 1 per cent. Hereafter the dividend will be declared semi-annually.

NEW YORK, N. Y.—Application has been made to the New York Stock Exchange by the Twin City Rapid Transit Company to list \$1,501,000 additional common stock.

NEW YORK, N. Y.—The annual meeting of the stockholders of the Metropolitan Street Railway Company will be held on Monday, Dec. 1, 1902, at 621 Broadway. A special meeting of the stockholders will also be held for the purpose of voting upon a proposition to adopt a by-law of the company prescribing a period of ten days prior to meetings of the stockholders of the company during which no transfers of stock on the books of the company may be made, and also for the purpose of voting upon a proposition to alter the certificate of incorporation of the company by an amended certificate, providing that the directors shall be classified into three classes of three directors each, holding office respectively for one, two and three years, so that three directors shall be elected annually, and to amend the by-laws accordingly; and also for the purpose of transacting such other business as may lawfully come before the meeting. The notice calling the annual meeting is signed by W. L. Elkins, the new president.

AKRON, OHIO.—The gross earnings of the Northern Ohio Traction Company for October were \$54,822, a gain of \$12,062 over the same month last year.

TOLEDO, OHIO.—The passenger receipts of the Toledo Railways & Light Company for October were \$86,839, a gain of \$7,240 over the some month of last year. This is a daily gain of \$233.

CLEVELAND, OHIO.—The stockholders of the Toledo & Western Railway will meet Nov. 29 to ratify the action of the directors, who have decided to assume the bonded indebtedness of the Toledo, Fayette & Western Railway, which was organized a short time ago to build an extension of the Toledo & Western Railway from Fayette to Alvordton and Pioneer, a distance of 14 miles. The Toledo, Fayette & Western Railway Company owns a 60-ft. private right of way over the route. It is expected that next year the line will be further extended to connect with lines in Indiana.

CLEVELAND, OHIO.—About 29,000 shares out of 35,000 shares of the Northern Ohio Traction Company have been deposited with a trustee, insuring the reorganization of the company as the Northern Ohio Railways & Light Company under terms outlined recently in the STREET RAILWAY JOURNAL. No change in the officers is contemplated.

CLEVELAND, OHIO.—The gross earnings of the Cleveland Electric Railway Company have increased \$158,000 thus far this year, and it is estimated that the earnings for the year will be \$200,000 more than last year.

CLEVELAND, OHIO.—The Cleveland, Elyria & Western Railway Company is considering the advisability of increasing its capital stock from \$1,600,000 to \$2,000,000. It appears that the construction of the Norwalk extension cost more money than originally estimated. It is probable that each stockholder will be permitted to subscribe to the extent of 25 per cent of his holdings, at \$50. At the present time the stock is held at about \$80, although a small sale was made recently at \$70.

CLEVELAND, OHIO.—The syndicate of banks which proposes to assist in the refinancing of the Lake Shore Electric Railway Company held several meetings last week to formulate a plan to remove the obstacles which at present prevents the immediate removal of the receiver. Several plans for raising the money necessary to pay off pressing claims which amount to between \$400,000 and \$600,000 have been suggested. One plan provides for the issuing of \$1,000,000 preferred stock to be sold present stockholders at \$60, the new stock to be a first preferred. Another plan contemplates increasing the present preferred stock by \$1,200,000, instead of making a first and second preferred stock. It is officially denied that any plan for assessing the stock from \$6 to \$10 per share is contemplated. It is now proposed to call a special meeting of the stockholders to settle the matter.

PHILADELPHIA, PA.—The American Railways Company has declared a quarterly dividend of 1½ per cent. This increases the dividend basis from 5 per cent to 6 per cent. The dividend is payable Dec. 15 to stock of record Nov. 29. The surplus of the company now amounts, approximately, to \$30,000, or about 10 per cent of the capital without allowing for quarterly dividend of 1½ per cent just declared. The gross earnings for the three months ending Sept. 30 were \$353,193, an increase over the same quarter of the preceding year of \$90,251.

TABLE OF OPERATING STATISTICS

Notice.—These statistics will be carefully revised from month to month, upon information received from the companies direct, or from official sources. The table should be used in connection with our Financial Supplement "American Street Railway Investments," which contains the annual operating reports to the ends of the various financial years. Similar statistics in regard to roads not reporting are solicited by the editors. \* Including taxes. † Deficit. ‡ Comparison is made with 1900 because in 1901 the earnings were abnormal on account of the Pan-American Exposition. § All capital stock owned by Detroit United Ry.

Table with columns for COMPANY, Period, Total Gross Earnings, Operating Expenses, Net Earnings, Deductions From Income, Net Income, Amount Available for Dividends, and corresponding columns for the second set of companies. Rows include companies like AKRON, O., ALBANY, N. Y., BINGHAMTON, N. Y., BOSTON, MASS., BROOKLYN, N. Y., BUFFALO, N. Y., CHARLESTON, S. C., CHICAGO, ILL., CLEVELAND, O., COVINGTON, KY., DETROIT, MICH., DULUTH, MINN., ELGIN, ILL., FINDLAY, O., HAMILTON, O., LONDON, ONT., MILWAUKEE, WIS., MINNEAPOLIS, MINN., MONTREAL, CAN., NEW YORK CITY, PHILADELPHIA, PA., ROCHESTER, N. Y., SYRACUSE, N. Y., TOLEDO, O., and YOUNGSTOWN, O.