

Street Railway Journal

VOL. XXIV.

NEW YORK, SATURDAY, JULY 30, 1904

No. 5.

PUBLISHED EVERY SATURDAY BY THE
McGRAW PUBLISHING COMPANY

MAIN OFFICE:

NEW YORK, ENGINEERING BUILDING, 114 LIBERTY STREET.

BRANCH OFFICES:

Chicago. Monadnock Block.

Philadelphia: 929 Chestnut Street.

Cleveland: Cuyahoga Building.

London: Hastings House, Norfolk Street, Strand.

Cable Address, "Stryjourn, New York"; "Stryjourn, London"—Lieber's Code used.

ST. LOUIS HEADQUARTERS:

Section 1, Electricity Building, Louisiana Purchase Exposition.

TERMS OF SUBSCRIPTION

In the United States, Hawaii, Puerto Rico, Philippines, Cuba, Canada and Mexico.

Street Railway Journal (52 issues)..... \$3.00 per annum
 Combination Rate, with Electric Railway Directory and
 Buyer's Manual (3 issues—February, August and November) \$4.00 per annum
 Both of the above, in connection with American Street Railway
 Investments (The "Red Book"—Published annually in May;
 regular price, \$5.00 per copy)..... \$6.50 per annum
 Single copies, Street Railway Journal, first issue of each month, 20 cents;
 other issues, 10 cents.

To All Countries Other Than Those Mentioned Above:

Street Railway Journal (52 issues), postage prepaid..... \$6.00
 25 shillings. 25 marks. 31 francs.
 Single copies, first issue of each month, 40 cents; other issues, 15 cents.
 Subscriptions payable in advance, by check or money order. Remittances
 for foreign subscriptions may be made through our European office.

Copyright, 1904, McGraw Publishing Co.

EDITORIAL NOTICE

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

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

Address all communications to

STREET RAILWAY JOURNAL,
 114 Liberty Street, New York.

Operating Electrical Exhibits at St. Louis

A great deal of credit is due to the Department of Electricity of the Louisiana Purchase Exposition, under the direction of Professor W. E. Goldsborough, for the character of the electric railway exhibits to be found there, as well as for the work of the electric railway test commission which is now being taken up. Although it has not been possible, in the case of the electric railway exhibits, to have them all operating exhibits to the extent that other exhibits in the Electricity Building are operating, this deficiency has been made up for

by the inauguration of the electric railway tests, where the actual performance of various types of electric railway apparatus can be determined. Under Professor Goldsborough's guidance the electric railway exhibits have been made something more than warehouse displays. A great deal of the electric railway apparatus exhibit will be placed in operation before the season is over on the electric railway test track. Much of the stationary apparatus in Electricity Building is connected up electrically to operate without load, and thus some idea of running conditions can be obtained. In showing the operation of new controlling devices, such an operation in place can be made of considerable value to the electric railway man, and even if not of value to him, it is of an educational value to the general public.

The Spread of Power Troubles

Although much attention has been given by electrical engineers in the past seven years to the design of power stations and transmission lines, which will prevent the spread of trouble due to a short circuit at one point, recent accidents do not seem to show that modern plants, with their immense capacities, are any more immune from trouble than were older and less skilfully designed plants where less power was concentrated on these transmission lines. The truth of the matter is that, while additional precautions are being taken to isolate feeders so that short circuits on one feeder will not break down adjacent ones, there is another tendency in power-plant operation which largely tends to counteract the advantages gained by such isolation. This tendency is to do away with automatic overload devices which will open a circuit upon excessive overload; or, if not to do away with them entirely, to set them so that they will open only at such a large overload that they are almost valueless for the purposes for which they were designed. There has been a decided tendency to do away with fuses because of the possibility of their opening at inopportune times, and the same complaint is heard of the automatic circuit breaker.

Managers of central station electric lighting systems are probably more prone to do away with all devices for opening automatically upon overload than are electric railway men, because momentary interruptions are less permissible in central-station lighting-work than in railway work. Nevertheless, when a system is being worked up to its full capacity, or perhaps frequently on overload, there is a strong temptation for those operating an electric railway system of any kind to set overload devices for excessively large loads or to plug them up entirely. The result of such practice is that troubles from circuit breakers operating when they should not are reduced to a minimum, and a station may operate for a long period without trouble. When, however, a heavy short circuit occurs near the power house or in the power house itself, the chances for a general wreck are almost appalling. A short circuit, which if promptly cut out will do little damage, may do an immense injury if the full capacity of the power house is turned into

it pending the time that power-house attendants can cut it out by hand. Taken altogether, it is a question whether the great price which is likely to be paid for the immunity from small troubles is justifiable. At least it is well for the operators of large railway stations to consider well both sides of the case. There are certain practical difficulties, whichever plan is chosen, but we are inclined to think, on the whole, that the tendency to "connect everything up solid" usually involves greater risks than operating conditions justify.

The Public as a Spoiled Child

The tendency of the general public in some sections of the country to play the spoiled child at the prospect of being denied its own way was well illustrated a few days ago at a hearing held by the Massachusetts Railroad Commission. Certain citizens of Woburn and Lexington appeared before the board in remonstrance against the charging of a 10-cent fare between Woburn Center and Lexington Center by the Lexington & Boston Street Railway Company. It seems that the company has not been embarrassed by an excess of profits lately, and therefore felt justified in raising the tariff between these two points from 5 to 10 cents, the distance between the two towns being about 5 miles. In order to be just to its regular patrons, however, the company recently made the same proposition to the citizens of Lexington and Woburn as it had made to the residents of Bedford and Billerica, a short time previously—namely, to issue a non-transferable twenty-ride ticket book, costing \$1, from center to center. The commission had approved this course, and had decided to try the experiment between the two latter towns, regulating the fares later, if necessary, on the basis of the experience obtained.

"Eminent counsel" for Lexington and Woburn argued vehemently that there are a number of patrons of the road who are too poor to take advantage of the twenty-trip book, and that as the books are non-transferable between different persons in a family, the poorer households cannot afford to buy separate books for all the children, aunts, uncles and cousins of the domestic hearthstone. The discourse concluded with a threat by the mayor of Woburn to rip up the tracks of the road unless the company conceded to the demands of the citizens and granted the unrestricted 5-cent fare between the two towns desired.

Doubtless there is something to be said against the inconvenience which is inseparable from the company's proposition, but the main fact remains that a means has been offered by the company in good faith whereby a 5-cent fare is in force between the two communities. It is difficult to see wherein any wage-earner who spends 60 cents a week in riding to and from his work daily is going to be impoverished by paying fare once in ten days instead of every day; and it is also apparent that the principles of good economy in the running expenses of families of very limited means do not justify a large amount of going about when the extraction of \$1 from the exchequer leaves a balance inadequate to the supply of a few days' food, clothing and shelter. There often seems to be a woeful lacking in appreciation of the facts that a road must pay its expenses in the long run if it is to give any service at all, and that fares cannot possibly be as cheap in suburban or sparsely settled communities as in the populous districts of large cities. The traffic simply prohibits it, as many a road has found to its sorrow. It is no very gross misconception of the transportation facilities of to-day and yesterday to emphasize the alacrity with which our forefathers would produce a dime for a 5-mile ride in twenty minutes or so, unless they were willing to economize

by having recourse to the stalwart legs with which they were provided—if one may trust the drawings which illustrate the Colonial and even later periods of our history.

As for the dog-in-the-manger attitude in regard to a possible tearing up of the tracks, it would be too puerile to deserve comment were it not for the fact that it is a symptom of a disease which has lately scarred the fair face of this land from Colorado to the Atlantic Ocean. Respect for law, and not violence, is demanded in these trying times of social unrest, and it ill becomes the representatives of government—national, State or municipal—to countenance measures more characteristic of ignorant mobs than of civilized communities. It is gratifying that the commission sees the matter in a broader light than did the remonstrants at the hearing.

Reserve Equipment

A recent editorial in these columns calling attention to the inadequate repair shop facilities found on many street railway systems has brought out the comment from one of our readers that in the past few years of prosperity it has frequently been not so much a question of repair shop facilities as of being able to take a large enough per cent of the rolling stock out of service to maintain the rolling stock in good condition. It is, of course, true that idle cars are earning no money, and that the smaller the per cent of idle investment in rolling stock the better. But there is a point where attempts to keep down the idle investment by keeping cars on the road when they should be in the repair shop, is sure to result in loss. The reserve equipment should be sufficient so that defective equipments can be given that "stitch in time" which "saves nine." We have personal knowledge of at least one large street railway system where for the past two years there has constantly been an incipient war between the transportation and master mechanic's departments, owing to the desire of the former to keep every car in service and the desire of the master mechanic to get cars off the road long enough to give them the attention they should have, in order to keep them from breaking down in service. It is perhaps a good thing for the mechanical department of a road not to have a superabundance of reserve equipments. A large reserve, in addition to representing a large investment, also tends to laxity in repair methods. The necessity of repairing equipments in such a way that they will "stay out" on the road the longest possible time is brought home to the master mechanic of a road where there is a small reserve in a way that it can not possibly occur where there is a large reserve.

In connection with the reserve equipments it is to be noted that the present tendency to use long, double-truck cars in city service necessitates a greater investment for reserve cars than in former days, for the simple reason that the car units are larger. However, we have as a counterbalance to this the fact that the large car, with four motors and double trucks, is composed of various interchangeable parts, so that if a large enough reserve supply of some of these parts is kept in stock there is no need of maintaining a large number of complete reserve cars. For example, it is an easy matter to substitute one truck for another on a double-truck car, and in case the defect is confined to one or two motors on a truck, this is a very quick way of remedying the trouble and getting the car body back on the road in active service. With proper repair shop facilities for quickly making substitutions of this kind, the idle investment in complete equipment can be made very small, the reserve being carried rather in the shape of repair parts than in complete equipments.

Light Roads for Summer Traffic

A surprisingly large number of the smaller electric roads of the country depend in no small measure on their summer traffic to hold up the year's receipts. Year by year "æstivation," as Dr. Holmes cheerfully called it, becomes more and more the fixed habit of urban folk, and the resulting demand for transportation in country districts becomes more and more acute. The easier it is to reach pleasant country places the fuller grows the tide of summer visitors. At the present time many people of very moderate means spend the summer in the country, and the regions accessible to them depend on the facilities for transportation. The railways of the country give but indifferent access to the scores of villages that are ready for visitors, and therefore there is a wide field for electric roads. But the summer traffic is a matter of only two or three months, and the investment required for an electric road built on standard lines is too heavy to stand the strain of nine or ten months of light traffic. And right here we want to put in a plea for the adoption of methods to results. There are scores of routes which would just fail to pay with ordinary construction, and which could be made to pay if the initial investment were kept down. It is a problem for shrewd engineering and the adoption of new methods. We would hardly dare to say how cheaply a light road could be built at a pinch, but the figure would surprise even some experts in the business. Given a line running into the summer visitors' country, and connecting it with the railway, or some minor center of population, and a truly remarkable amount of traffic can be built up. We are not considering here the suburban or interurban road, but the line that is its own reason for being.

In this connection the use of the new alternating-current railway motors at once suggests itself. They have for such use obvious merits which they do not have in equal measure for suburban service. Where traffic must be exchanged with direct-current systems the alternating motor has its convenience yet to prove, but operating on its own account its merits come to the front. In particular, the feeding system, which in relatively long lines is a source of heavy expense, becomes of small moment, and a pretty long line can be worked over the trolley wire alone. Supporting this by a bracket construction, the overhead system falls to a very modest figure, and long distances can be readily covered. The alternating motor, too, can be economically regulated without need of a double-motor equipment and series parallel control, so that the cost of car equipment can be kept down. Bearing in mind the nature of the traffic and the need for keeping down the investment, the track work can also be kept down in cost. Power in a small road is always likely to be relatively costly, but here again the alternating system would come to the rescue. Current could be readily obtained from any road in the vicinity which operated a transmission system, or from a neighboring lighting system, via a frequency changer and a short transmission line. The main point is that attention at a power station or a converter sub-station could in many cases be eliminated, leaving simply the operation of the cars to the electrical department. There are not a few interurban lines which could with advantage build branches and feeders on such a system, working them from the general power station, and thus keeping the local expense down to a minimum figure.

Of course there is always the feeling that a light equipment may prove inadequate, but it is a fact that a surprisingly large

amount of traffic can be picked up on a light road, and when this amount grows so as to exceed the facilities, a change can be profitably made. But in the class of work we are considering, the period of moderate traffic is likely to be rather long, save in exceptional instances. The point is to so build and operate that this moderate traffic may be made to pay. At present there are plenty of roads that do not pay, simply because the traffic they can pick up is too small, considering the investment. They must wait for the country to grow up along the line, and the waiting is often tedious. If, however, locations are picked out deliberately with reference to summer travel, plus the very moderate receipts of the rest of the year, it seems possible to organize roads that would keep their noses above water all the time and grow to be thoroughly successful. This is a matter for local enterprise rather than for general promotion. Every electric railway man knows that a project of small dimensions is relatively difficult to float, quite irrespective of its merits. Light roads of the kind we are considering can best be built either by systems already operating in the vicinity or by the enlistment of local capital. In the latter case there is usually very little difficulty in securing rights of way and other local concessions that are of real value. Every such road should have a freight and express franchise, and the local mail contract if possible. It is hardly possible to knock about the country during the summer without seeing opportunities for just this kind of work, and the wonder is that more of them have not been grasped already. The advent of alternating motors will make it much easier to build and operate light roads with profit, and ought to stir the business into activity. We have been watching the alternating motor situation with much interest, for this as well as for other reasons. The next year will see the system tried upon its merits, but this much is certain, that the motors of moderate power will be easier to work out than the big fellows, and for the work considered large motors are not needed.

Dust Guards for Rotaries

Designers of electrical machinery have always been guided in improving upon early types of apparatus by the experience which their products have undergone in practice. This is particularly true in the case of rotary converters, which have been brought to a high state of reliability, efficiency, freedom from sparking and hunting by a decade of operation in sub and generating stations. The electrical difficulties have been taken pretty well in hand by the engineers of the manufacturing companies.

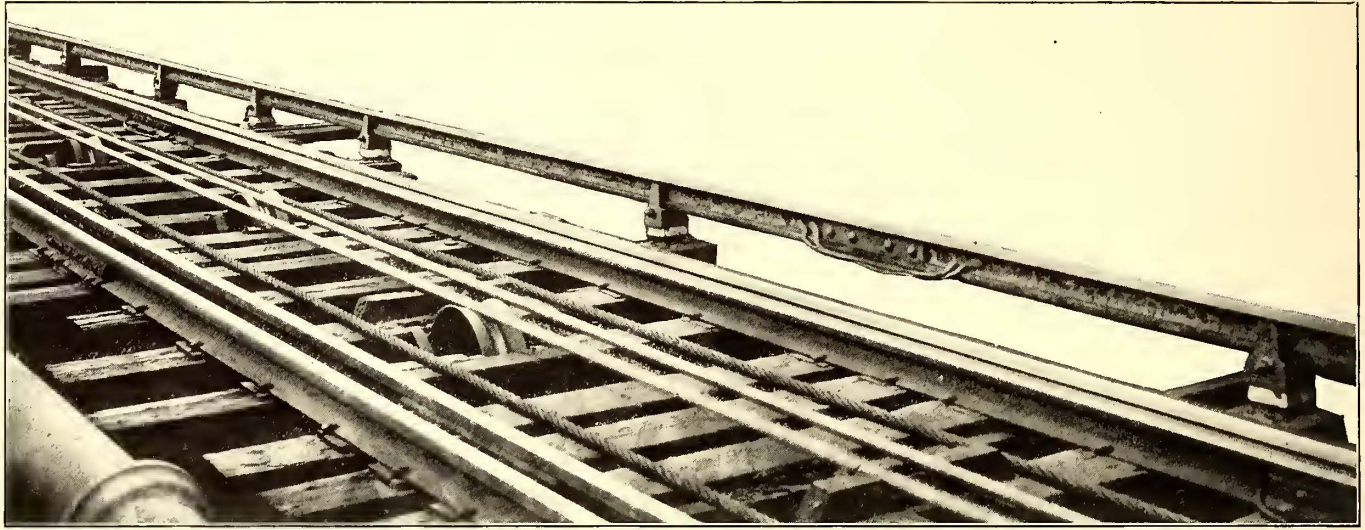
The recent experience of a Western street railway company, however, shows that more consideration should be given to the old problem of mechanical friction. A 500-kw machine installed in a sub-station of the road in question gathered dust enough to require its bearings to be scraped four times in the last four months, so badly were the wearing surfaces cut by dust and grit which lodged in the journals. The sub-station was located between a large building and an open yard, and the shaft of the machine affected was in direct line with the windows and door. The remedy of the railway company was the simple expedient of tying cloths over the end of the shaft, but the difficulty is certainly serious enough to warrant the provision by the designers of some permanent dust guard which will eliminate the necessity of fitting up machines with the night-cap affair born of the present emergency.

INVERTED THIRD RAIL UPON THE BROOKLYN BRIDGE

An innovation in electric third-rail arrangement has recently been introduced upon the "Brooklyn Bridge," the old bridge between the cities of New York and Brooklyn, by the Brooklyn Rapid Transit Company, for the operation of all its elevated trains through to New York. It involves what is prob-

ably the first use, on a large scale at least, of the T-rail in an inverted position for use as a third-rail propulsion current conductor. It may be stated that this idea of using the T-rail inverted has before been suggested, as its use in this position would offer many advantages by making possible greater available contact area between the shoe and the third rail. But for reasons of difficulty of supporting the rail in this inverted position, undoubtedly, this idea has never heretofore been put into practice.

The sectional drawing, or diagram, showing the location of the third rail relative to the nearest running rails of the two



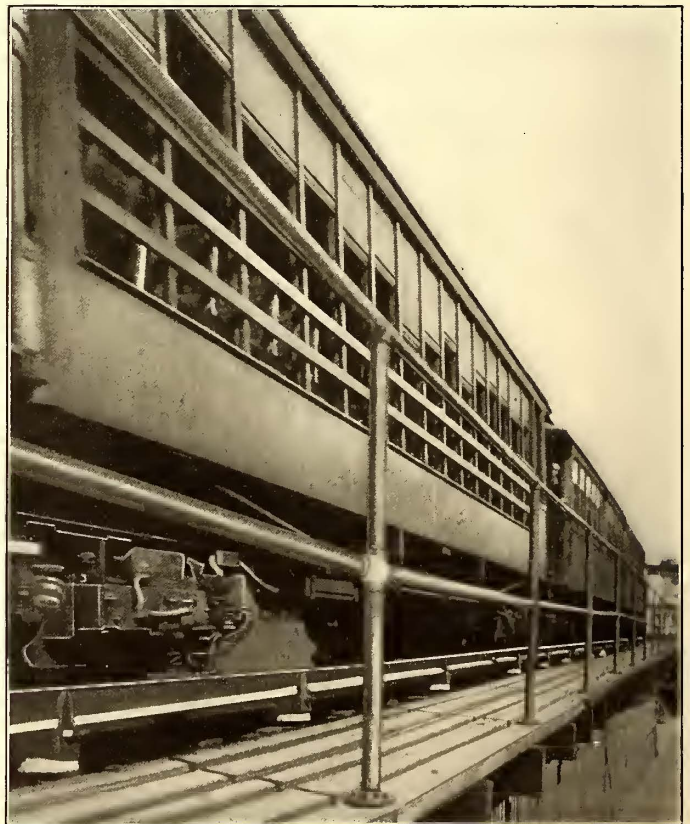
TYPICAL VIEW OF THE NEW INVERTED THIRD RAIL CONSTRUCTION UPON THE NEW YORK AND BROOKLYN BRIDGE. BROOKLYN RAPID TRANSIT COMPANY

ably the first use, on a large scale at least, of the T-rail in an inverted position for use as a third-rail propulsion current conductor. It may be stated that this idea of using the T-rail inverted has before been suggested, as its use in this position would offer many advantages by making possible greater available contact area between the shoe and the third rail. But for reasons of difficulty of supporting the rail in this inverted position, undoubtedly, this idea has never heretofore been put into practice.

This change is due to the peculiar conditions met in the operation of the electric trains over the bridge between New York and Brooklyn. Very difficult and abnormal conditions have been introduced by the enormous growth of the traffic to and from Brooklyn via this route. As is probably well known, trains are operated across the bridge upon two lines of track in each direction, which tracks are arranged in gauntlet. The gauntlet arrangement was installed several years ago in order to facilitate the handling of the trains under the extreme service of 55 seconds headways; this arrangement avoided the inconvenience of switching at either end. When electric traction was installed upon the bridge a few years ago, it was desired to use a common third rail for both of the gauntlet tracks to avoid the complication of the two third rails. This was accomplished by making the contact shoes upon the cars wide enough to afford contact with the rail when on either track. At that time, however, the contact shoes were made 10 ins. wide, which easily allowed for the variation of $5\frac{3}{4}$ ins. between the center lines of the two tracks, giving good contacts when cars were upon either track.

Recently, however, it has been found desirable to operate elevated trains from the various elevated lines of the Brooklyn Rapid Transit Company over the bridge to the New York terminal. The limiting conditions upon these elevated structures prohibited a width of shoe greater than 8 ins., which made it impossible to use one of the gauntlet tracks on account of the shoes not making sufficient contact with the existing third rail. Accordingly an additional third rail on the other side, or a wider single rail in place of the former one, became necessary. The problem was solved by rebuilding the third rail, involving the installation of a 70-lb. A. S. C. E. standard T-rail in its

gauntlet tracks, clearly indicates the advantages gained from this new arrangement of conductor-rail. The former position of the third rail is shown in dotted lines, from which it may be seen that only the edge of the contact shoe would normally

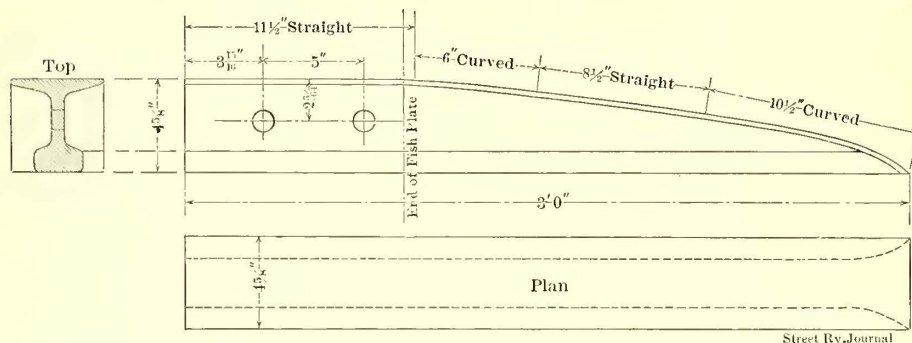


VIEW SHOWING CONTACT OF SHOES OF A PASSING TRAIN WITH INVERTED CONDUCTOR RAIL

be in contact with the rail; from this it is evident that a slight jolting of the car to one side might easily move the shoe entirely off the rail. With the new arrangement, using the inverted rail, which is here shown in full lines, the minimum width of contact of the shoe with the third rail of $3\frac{1}{2}$ ins. will

rail, being forged at the end opposite the fish-plate connection to the shape shown. The change of section begins at a point $11\frac{1}{2}$ ins. from the fish-plate end, being forged down to the inclined shape shown for bringing the shoe up upon the rail gradually.

It is to be noted that since going into operation the inverted arrangement of rail has given the best of satisfaction and works perfectly. An advantage of no little importance has re-



DETAILS OF CONSTRUCTION OF THE NOSE FOR USE AT SECTION BREAKS AND AT ENDS OF THE THIRD-RAIL CONDUCTOR

sulted from the new departure in that a much greater contact area is provided between the shoe and the rail in all positions. With the rail in its former position the rounding shape of the head seriously cut down the available area of contact with the shoe, but with this new arrangement the contact surface of the rail presented to the shoe is perfectly flat, affording a maximum contact surface with shoe. This change of arrangement of the third rail has been worked out by the electrical department of the Brooklyn Heights Railroad Company under the direction of C. E. Roehl and C. B. Martin, electrical engineers. Credit for this information is due to Mr. Martin, who is responsible for the design of this important change.

IMPROVEMENTS AT THE BROADWAY REPAIR SHOPS IN DENVER

The Denver City Tramway Company has recently given the fire risk considerable attention, with the result that a new set of rules and a more complete organization of employees has gone into effect at its South Broadway repair and car shops. These shops, which have been described in previous issues of the *STREET RAILWAY JOURNAL*, constitute the repairing headquarters of the company, and are divided into a depot and car storage yard, woodworking shop and armature room, pit room, machine shop, store room, boiler room, car house, tie yard and track construction shop. The variety of work which is carried out in a limited area introduces an additional fire hazard, and three hose companies have been organized to combat the flames in the event of a conflagration starting.

Each of the hose companies operates a small hose wagon ordinarily kept in a small shed, in different portions of the premises, and upon receiving an alarm of fire, proceed at full speed to that part of the grounds indicated by the signals. These signals are blown upon a steam whistle at the boiler shop as soon as a fire is discovered, and its whereabouts communicated to the employees at the boiler room. In each department of the repair shop are two men whose duty it is to give the alarm at the nearest city fire signal-box, and two men who handle fire extinguishers. A definite schedule is laid down for each one of the hose companies to follow upon the sounding of an alarm from the different portions of the shop and yards, and the department firemen are placed in charge of the different companies.

An interesting feature of the premises is the setting apart of

a club room by the company for the use of a trainmen's organization called the "South Side Tramway Athletic Club." Each of the different divisions of the company has a club of this kind. At the Broadway quarters are provided various games, magazines, technical journals, two billiard tables, a piano, gymnastic apparatus and a fine bath, with artesian water. The dues are 25 cents a month, and there are about sixty-five members, who make use of the club privileges during periods of layover between runs, upon evenings, etc. Theatrical performances have also been given by the men in these quarters.

Armature and field coils are built up and formed, insulated and applied to the car motors in the armature room. All the machinery is driven by an old railway motor through line shafting and belting. A convenient device for tightening wire as it passes from the spool to the coil forms is made from old trolley wheels arranged in parallel rows, around which the wire is obliged to pass before going to the lathes. There is just enough friction to hold the wire tight without any danger of breaking it. The field coils and armature coils are

manufactured entirely new by this shop, and the latter are taped by a special machine driven from the line shaft. The armature shop is equipped with pneumatic hoisting apparatus, which runs its entire length upon an overhead track.

In the woodworking shop an old Edison bipolar motor drives a circular saw, turning lathe, buzz planer, band saw, twist drill and grindstone. To guard against fire and dust, the motor is located behind a wooden screen about 4 ft. square, which effectually protects it from sawdust—a decided contrast to a steam railroad shop recently described in these columns. The blacksmith shop is equipped with a power hammer driven by an electric motor through shafting, in addition to a steam hammer. In the machine shop all the tools are driven by an Edison bipolar 550-volt motor. At first sight one would think economy would be best served by sub-dividing the motive power, as there are several lathes, drills, planers, a screw machine, boring machine, air compressor and forge blower all driven from line shafting operated from this one motor; but when one realizes that most of the machinery is in constant use, the wisdom of driving it from a single power unit is more apparent. Large hogsheads marked, "Water for Fire Purposes Only," are placed at frequent and handy points throughout the shops, and there is a plentiful supply of fire extinguishers. Cars are washed on tracks set into a concrete floor. The boilers of an old power plant furnish steam for heating purposes, the engine room having been turned into a sub-station containing two 500-kw rotary converters. A notable feature of the car storage yard is the absence of overhead covering, which was not considered necessary in the dry Colorado climate, where the sun shines 304 days per year.

Although the Denver shops are not new in appearance, they show the marks of progressive operation in every department, and are specially interesting because of their compactness.

Quite a number of railway companies sell current for lighting and other purposes, but many, through neglect of proper advertising methods, fail to get all the revenue possible. The Roanoke (Va.) Railway & Electric Company, of which John W. Hancock is general manager, fully realizes the value of thoroughly exploiting auxiliary sources of revenue, as is shown by a perusal of its advertising circulars, which set forth in a very attractive manner the superiority of electricity for lighting and miscellaneous work. The company also conducts a fast freight service between Roanoke and Salem, making two round trips a day.

CHANGES IN THE BALTIMORE & OHIO LOCOMOTIVE PICK-UP DEVICE

The sectional third-rail system installed on the B. & O. belt line and described at length by W. D. Young in the *STREET RAILWAY JOURNAL* of March 14, 1903, has recently been slightly changed by the installation of an improved pick-up compressor on the cab. The readers of the previous article will remember that the system employed is that of the Hopkinson switch, using a high-voltage pick-up bobbin and a series hold-up bobbin. For picking up the switch there must, therefore, be a source of high potential on the cab, and one independent of the power house. In fact, one of the features of the B. & O. system is the fact that a source of high potential has been obtained in a reliable manner without the addition of any large quantity of auxiliary apparatus. This is accomplished by using an electric motor air compressor, either in its normal function as an air compressor for the brakes or as an air motor. In this service it takes air from the tanks and drives its motor as a dynamo, thereby supplying the necessary pick-up current, and also the lights for the cabs at such times when the rail section upon which the shoes are resting is dead. This compressor, which

engine position will be assumed by the latter when the air is supplied to the apparatus. As soon as the magnet has received energy from both its shunt and series coil, the sliding valve shifts so as to vent the cylinder, C, and the spring shifts the valve shaft to compressor position.

The operation is as follows: Assume the engine to be resting on a third rail, which is disconnected from the power house or dead; that the tanks are full of air, and that the compressor also is at rest. Air is admitted to the compressor, and the magnet, E, being de-energized, the valve is at once shifted to engine position, the machine starts as an armature and rapidly builds its dynamo up to voltage. The circuit connecting the compressor to the electric line is then closed. As the air pressure reduces, due to the demands of the compressor upon the tank, the pump governor closes its circuit also. This completes a circuit of the compressor from third rail to ground, and raises the potential of the third rail to 550 volts and immediately picks up the sectional track switch. As soon as this occurs, current from the third rail enters the compressor system and proceeds to drive the machine as a motor. The magnet, with its additional excitation, now readjusts its sliding valve, and the valve shaft now moves to compressor position, and the machine now

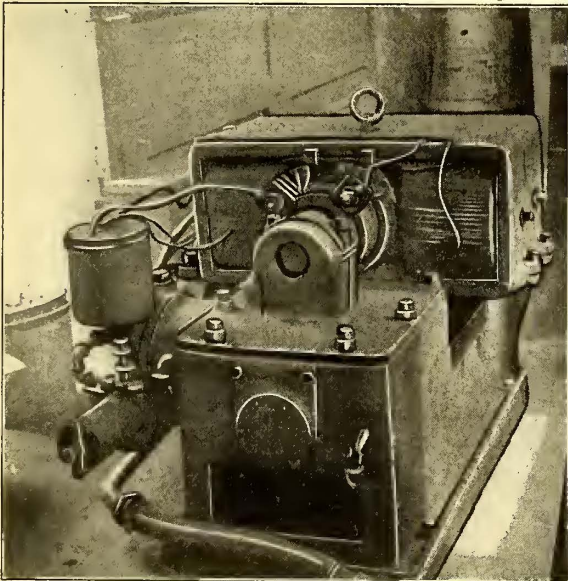


FIG. 1.—ELECTRIC MOTOR AIR COMPRESSOR

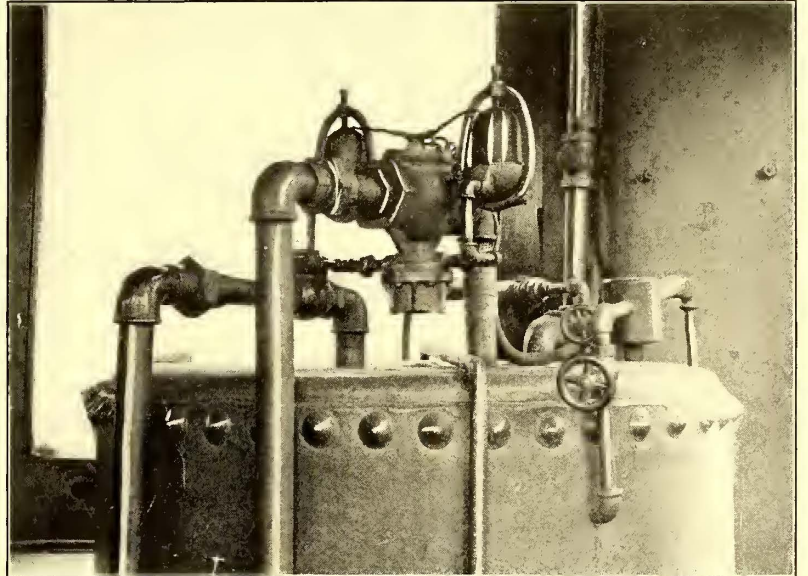


FIG. 2.—COMPRESSOR TANK AND PIPING

has recently been redesigned, is of the Christensen type, and was built by the National Electric Company. It is illustrated in Fig. 1.

It is a geared machine, carrying a motor on the top, the compressor proper being below. The latter has three cylinders, so that there will be no dead center in starting, as an engine, and it is equipped with poppets in the ordinary way, the engine portion of the equipment being provided for in the shape of a revolving valve, which is driven by spur gearing from the main compressor shaft in the same direction and at the same speed. This valve shaft can be moved to the right or left, and in one position admits and exhausts air in engine time, and in the other is out of commission. The valve shaft is provided with a spline, which slides back and forth through an appropriate key in the driving gear. The motion of the valve shaft is controlled by an air cylinder, shown at the right of the figure and in Fig. 3. Air is admitted or exhausted from this cylinder by means of a sliding valve, D, controlled by an electro-magnet, E, also shown at the right, and above in the photograph, Fig. 1. This magnet is wound with two coils, a shunt and a series coil, the shunt coil being in series with the shunt field of the magnet and a series coil in series with the armature. When the magnet is de-energized, the sliding valve adjusts the air ports and admits air to C, moving the piston, P, and the valve shaft, R, so that

compresses air. This it continues to do until the tanks have been pumped up to 90 lbs., or to whatever pressure the pump governor is set. At this instant, the pneumatic governor flies open, the sliding valve drops, and the machine becomes an engine and runs as such for a brief period until the cycle of operation is repeated. If the locomotive is running, the sectional track-switch will, of course, not drop, for it is held up by the locomotive current in the series coil, but this will make no difference in the behavior of the compressor, whether it be on a permanently live or on a sectional rail.

When the locomotive is drifting over sections, it is highly important that current shall always be available to the motorman; therefore, the sectional switch must be kept up, and for this purpose the compressor current is sufficient. If for any reason the switch should happen to drop, due to jar, it will instantly pick up again, because the compressor keeps the rail at a voltage equivalent to that of the line.

In order to control the compressor from the motorman's stand, it is necessary that he have complete control of both the air supply and the electric supply. The latter is easily provided for by means of a switch at his station. The air supply, however, is controlled electro-pneumatically. An automatic air valve is placed on the tank. This air valve is shown in Fig. 2. On the right and left of this air valve are two bobbins,

which open needle valves which control a piston which operates a main valve. The needle valves are controlled by a dry battery, operated by two buttons at the motorman's stand, one of which will open and the other close the main valve. If the motor is resting on a dead section, and the motorman desires to start, he presses the starting button. This admits air to the compressor and operates it as an engine. He then closes his compressor circuit, and his switch presently picks up coincidentally with the closing of the pump governor. He is then free to start and stop his locomotive as he pleases, whether the section that he is on be controlled by a sectional switch or not. Having finished his trip and desiring to stop permanently, he brings his locomotive to rest in the ordinary way, opens the compressor circuit and presses the closing button on the air-valve system. This brings the compressor to rest, having cut off both of its sources of energy, and leaves him with air in the tank for starting purposes again.

The value of the apparatus will be appreciated when it is seen that it is a rugged machine of large capacity, which is capable of picking up the switch in spite of any leak which may

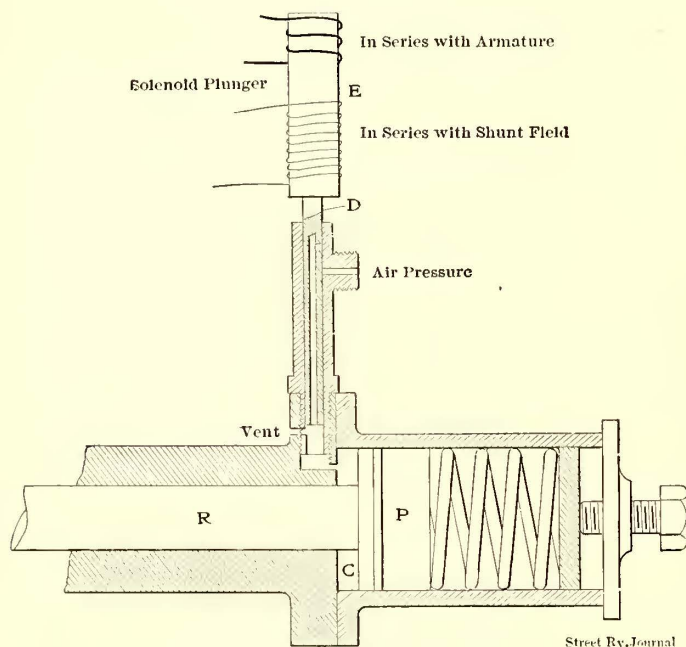


FIG. 3.—ELECTRIC CONTROLLING MECHANISM OF AIR COMPRESSOR

be upon the rail. The compressor shown in the figure will deliver for an instant as high as 30 amps. at 550 volts.

When a sectional rail leaks to an extent exceeding 15 amps., it begins to give ample notice of its condition, and is so troublesome in any event that it should be corrected, and, this being the case the apparatus described is able to cope with any leakage conditions that may be found in practice. The only additions to the regular locomotive equipment are the automatic valve for controlling the compressor air and the additional valve shaft and shifting piston installed upon the compressor itself. The remainder of the equipment must be had in any event in the ordinary third-rail system.

The compressor is so designed that the engine equipment in no way interferes with the operation of the machine as a compressor. It could be totally disabled and the machine would still be compressor operative. The loss of pressure in the reservoir does not affect the Westinghouse air-brake system, to which it is connected, for the reason that the latter is connected to auxiliary tanks separated from the air entering tank by a check valve. The first tank forms the reserve supply for the compressor, and the pressure in the tanks to which the air-brake system is connected is therefore not reduced by any demands the compressor may make upon the air system for its

engine duty. The speed of the compressor as an engine is entirely independent of its compressor performance.

By suitable adjustments controlling engine mechanism, the compressor voltage can be raised from 400 volts to 1000 volts, regardless of whatever the line voltage may be. It is therefore able to pick up switches that may have bad contacts in the shunt circuits of sufficient resistance so that the line voltage would not be able to operate them. The apparatus has given very satisfactory results in its recent performance and bids fair to give commercial satisfaction in the future.

THE FINZI SYSTEM TO BE TESTED ON THE VALTELLINA RAILWAY

In the issue of Dec. 12, 1903, a description was published of a test made with the Finzi single-phase system on the street railway lines of Milan, Italy. It is now announced that the Società Italiana per le Strade Ferrate Meridionali will soon make extended comparative tests between the three-phase system now employed on its Valtellina road and the Finzi single-phase system.

The Valtellina Railway, as most of the readers of this paper know, is a standard gage line, operated distinctly under steam railway conditions, and connecting Como with Lecco, Colico, Sondrio and Chiavenna, in the northern part of Italy. For the last year this road has been operated as a three-phase alternating-current road. Its power station is situated in the Alps, and generates 20,000 volts at 15 cycles per second. Twelve transformer sub-stations distributed along the line reduce this tension to 3000 volts, which is directly fed to the overhead contact line. The rolling stock consists of passenger motor cars and freight locomotives, both of the double-truck type, and both equipped with one three-phase induction motor on each of the four driving axles. The passenger motor cars usually haul one or more trailers, and the locomotives are coupled to the ordinary freight trains in the manner customary on steam roads.

The administration of this road, naturally greatly interested in all electrical progress, has for some time been anxious to compare the merits of the three-phase and the single-phase system, and it has now decided on a series of impartial tests which will undoubtedly furnish a great amount of very valuable information in this respect. After careful consideration of the merits of the various single-phase systems now on the market, a Finzi single-phase equipment was ordered to be installed in one of the standard Valtellina motor cars, the equipment to consist of four single-phase alternating-current motors, each rated for a normal output of 100 hp at 200 volts to 400 volts, together with the necessary controlling apparatus. The car is to be controlled electrically from either end, but no rheostats will be used, thus making the regulation very efficient. The current will be taken direct from the 3000-volt overhead contact line by means of the standard type of Valtellina roller trolley. Each of the four motors will drive one of the four axles of the double truck car by means of an intermediate gear. This car, as well as the three-phase cars now in use, will be called upon to haul a 100-ton train from Lecco to Sondrio at a speed up to 45 miles per hour.

This paper hopes soon to be able to give further details regarding these tests, which will undoubtedly be watched with great interest by all interested in electric traction matters. The Finzi system is represented in this country by Muralt & Company, of 25 Pine Street, New York.

The next annual meeting of the Colorado Electric Light, Power & Railway Association will be held at Colorado Springs, Sept. 21, 22 and 23, 1904. This is a recent organization, and a large attendance is expected.

ANALYSIS OF TRAFFIC AND METHODS OF DEVELOPMENT

BY HENRY W. BROOKS, JR.

In the effort to increase the net earning capacities of street railway properties, it has been the writer's experience to find that managements have generally devoted relatively far more attention to questions of economic operation than to methods of stimulating traffic. This may be due to a too widely accepted conception that there is a certain defined volume of traffic, little more, little less, waiting to be handled, and that energy devoted to handling that traffic cheaply is more productive of results than if devoted to efforts to get more. In some instances, we may lay it to want of faith in ability to control traffic; again, to lack of keen perception of highest traffic possibilities. The road, once having been built upon a location selected by the original constructor as affording the best route (at that time), the tendency is to simply accept what traffic comes, without a systematic and vigorous policy of working up more patronage.

The traffic is the *raison d'être* of the road. It is vital; it is ever before us; it presents great possibilities. The study of passenger movement is very broad, but space permits of but a brief analysis and a few general suggestions as to methods of development.

In looking back over the last few years, electric railway owners and managers have reason to feel well satisfied with the traffic statistics presented. It is reasonable to suppose, in as many years hence, having a better knowledge of the laws of traffic, equally good increases will be shown.

The traffic problem is not an easy one to tackle. We cannot definitely tabulate, mentally or by records, the actual results of any policy we instituted. The different threads making up the total traffic are so numerous and so closely interwoven, it is hard to distinguish them. In making any special analysis of traffic fluctuations, one must be extremely careful at all times to follow correct reasoning and deduction, it being easy to go astray for this reason. For instance, we note an increased traffic in connection with an increased car service, and possibly we give to it all the credit, without taking into consideration such other causes as increased directions of industrial activity calling for more hands at the mills served. But if it presents many difficulties, it is prolific of good results, if an accurate analysis of individual conditions is made and the proper stimulating methods applied.

The fundamental basis for any traffic study, whether proposed for a new line or improvement of an old road, is a careful consideration of total population and that part which is to be served, its tendency to increase or decrease in numbers, to shift its locality, becoming more dense or more spread out, its social, commercial and industrial characteristics and to what extent it can be dominated by transportation facilities.

The total traffic of a road rests, first, upon the aggregate population served, which in turn is modified by its characteristics or habits; second, the natural location; third, the type of construction and equipment of the line, and fourth, the operating methods.

While total population has a decided effect on volume of travel, yet the equal population of two cities may produce widely different amounts of passenger traffic. This difference may be due to differences in location of social and industrial conditions. As total populations increase from year to year, it is found the number of rides per inhabitant increases and in a somewhat faster ratio. This, of course, may be limited by the distribution of the population. In many healthily growing cities, it may be noted the ratio is 2 per cent or 3 per cent increase in passengers carried to 1 per cent in population.

The business, industrial and social habits of the people, to-

gether with the location of different points or centres; in other words, the grouping of the business, industrial, residence, suburban, shopping and amusement localities, are very important forces. The local prosperity, wage scale, and stability of employment all bear on the traffic obtainable.

The effect of tributary cities, suburbs and towns in feeding traffic to a terminal system in a central city is very apparent. Terminal lines, those located in and about large cities, are materially benefited by the construction of outlying or interurban lines, the latter serving as feeders. Two of the large electric railway syndicates hold opposing views on this point; one constructs its own feeders or extensions; the other, doubtful of the return to the investor, encourages rather than prevents the construction of such lines by independent parties, then effects very satisfactory terminal agreements. By this policy the latter secure a very remunerative additional traffic without the risks of capital investment or direct obligation.

The railway facilities existing have a considerable effect on the number of passengers.

In laying plans for a vigorous policy of stimulating traffic, we may ask ourselves, why? where? when? how do people travel? and what will induce them to take our cars? From what sources do our passenger earnings come?

The motives which induce travel are necessity and pleasure. The necessity of making the trip, the saving of time, physical exertion and discomfort, also protection from the weather.

The different classes of travelers are generally divided into the following groups, and an analysis of the traffic of individual companies along these lines may show in which groups the company is losing its full traffic possibilities and what methods to apply to secure it.

First, "regular," being that traffic which arises from the necessities of people, such as between homes, offices, factories, stores and schools. This affords a final volume, daily between certain hours of morning, noon and evening, all the year around between certain points.

Second, "floating," or that occasional or irregular travel such as visitors to the city, children, those overtaken by storms and other inclement weather, and that arising from social life, such as visiting, marketing and shopping. This class of travel is not large, with the exception of the shopping which in some localities is quite dense at certain hours, as seen, for instance, between 4 and 6 o'clock at the Manhattan Elevated stations in the shopping districts, or on the Madison Avenue line, formerly known as the "Shoppers' Line."

Third, "rush" travel, which includes theater, base ball, racing, public celebration, circus day and other extraordinary crowds.

Fourth, those who travel on Sundays, holidays and other pleasant days just for the pleasure of the car ride.

Fifth, "special" travel by chartered cars. Leaving aside for the moment the general methods of "traffic building," what methods shall we apply specially to the different classes to secure their traffic?

The first group or "regular" travel can largely be depended upon without special catering, other than to give a quick, reliable and frequent service with due consideration to comfort. All these points, however, are vital, as business and working people must be punctual to their work, count on a certain time for making the trip, are annoyed and injured by delays, or having just missed a car, if there is not one following shortly. Then, too, a working man would prefer to live in the slums near his work, rather than get up early in the morning and have a long, slow ride home at night in an uncomfortable car, when tired with his day's labor.

Clean, neat, attractive cars and courteous conductors and motormen, appeal specially to the shoppers and callers of the second class.

The manager who is always alert to the opportunities

afforded by all local events, always on hand at the right time with adequate service for large crowds, will catch considerable revenue from the third class, that might have been lost or sought other channels.

The pleasing appearance of cars, swiftness of motion and agreeable locality draw pleasure travel, which is not so particular as to schedules.

By coming in contact with and catering to Sunday-schools, lodges, clubs and other bodies, quite a good business by special cars may be done. The writer has in mind a small road that only ran six special cars during all of last season. By the above policy, they have diverted or originated traffic for thirty-two special cars so far this month.

Some of the methods by which general traffic is secured and kept might be briefly mentioned. If we stop to consider the many salesmen of a merchant seeking patronage or the vast army of officials, general, local and traveling freight and passenger agents and solicitors employed by steam roads to scour the country for traffic, it certainly is worth while for the more favored electric roads to reach out for more business.

The route has in many instances a very direct bearing on the volume of business, but as we are dealing with established properties, we can only suggest judicious extensions and routing cars along natural lines of travel. The accessibility of the line, avoiding the time and effort of walking at either end, has a direct influence upon the choice of routes or making the trip at all, and it may be judicious to extend feeders into territory where travel arises. While it is the originating point, generally speaking, that gets the business, yet it is often the point of destination which causes the traffic, and these points should also be reached, if they are not already.

The type of construction and car equipment must be such as will make the trip easy, quick, safe, comfortable and agreeable. The use of open or closed cars in respective seasons and special types, such as combination cars, influences travel. Large, conspicuous and commodious terminals have very effectively aided recreation travel.

In facing the car service question, the manager has to draw the line between affording his patrons a frequent service and keeping down his car mileage. Unfortunately, but little practical information has been obtained from experience as to the direct relation between frequent service and volume of traffic. But we do know generally, that up to certain bounds, increased service results in increased traffic. A small interurban road in Massachusetts is continuing its winter schedule of hourly service, with the result of a considerably lighter traffic than last summer, when half hourly service was given. It is also very evident that the bulk of short haul traffic can only be secured by a frequent and punctual service. All roads cannot afford to give a frequent service, but they can be punctual, which is often fully as stimulating to traffic. As a rule schedules usually follow, rather than precede, traffic increases. Increased facilities are not offered to invite new travel, but come only when demanded by overcrowding. Frequently the car service can be readjusted to good advantage by a more equitable appointment of cars over the various system lines, thus caring for the heavier business without additional equipment or operating expense.

Another source of increased traffic is found in running through cars over connecting roads, especially in establishing new long distance routes. When several electric lines form a route in competition with a steam road, it is quite essential to offer equivalent facilities in the way of taking passengers from originating point to destination without change of cars or loss of time. Where impossible, the next best thing is an adjustment of schedules by adjoining lines, to make connections. Interchangeable mileage books are talked of in connection with this traffic, but it is a question whether they would promote enough new traffic to pay for their added bother.

The effect of consolidating connecting properties is very apparent in the increases of this through traffic.

The speed or time required to make the round trip is an essential point in inducing traffic. Important as it is, speed with a view to securing traffic should never be sought at the expense of safety. The proceeds of such increased traffic is far less than the cost of the inevitable accident. Very high speed is not always required; frequently a reasonably rapid service is quite as satisfactory. This should be based on local requirements. We must, however, successfully compete with the time made by other methods of travel, such as steam roads, boat lines and other electric railways.

Get and keep a good reputation for safety. Many people will avoid a recklessly operated road by taking another route.

One of the prime causes of electric traffic, especially on interurban lines, is cheapness of transportation. The low cost from starting point to destination and return, influences people to make the trip and select their route in preference to a railroad or boat. As fares are reduced traffic will increase, although not in the same proportion. There is a limit beyond which further reductions fail to draw sufficient traffic to warrant the concession. Reductions for school and workmen's tickets are effective, but the greatest possibilities lie in concessions to amusement travel, which promptly responds.

It is advised to be extremely conservative in irrevocably reducing fares, especially marked reductions or wholesale slashing of rates in anticipation of enormous traffic increases. A company can only afford to make a less rate when either a very large volume can be obtained thereby or where it entails but little additional cost of handling.

A judicious and systematic policy of advertising produces good results, and desired patrons may be reached without heavy outlay. Briefly, the most successful advertising has been along the line of attractive cars, inexpensive car signs, striking fliers, or illustrated booklets respecting amusement parks and other places of interest, the self-paying, specially illuminated trolley car for excursionists, very suggestive of the pleasures of riding, time tables (especially for new lines) distributed at hotels, stations, etc.; reading notices in the daily papers as to the attractiveness of points along the line, and last, but not least, through the men. Handle them so that every well-bred, courteous, well-dressed conductor and motorman will be an active traveling passenger agent and promoter of publicity, by always taking a personal interest in handling traffic, by his pride in the company's line, cars and service, and by his words of support. They are the men who come directly in contact with the traveling public and can reach business.

So much has been written and said about amusement parks as a source of increased traffic, that the writer will simply refer to the financial operations of two properties with which he is familiar.

The first road is located in and about a city of some 35,000 population, and connects with two other lines. About two miles from the city, near the main line, a tract of some forty acres was secured and an amusement park established at a cost of \$38,400. A three-quarter mile spur from the main line was built at a cost of \$7,755.60 for roadway, track and line, and \$975 for a terminal shed.

The aim was to build cheaply and spend money from season to season, as conditions warranted.

The amusements installed consist of an open-air theater, with capacity for 1500; different performances nightly by a light opera stock company; ball ground; training track; casino and dancing pavilion; cafe, naphtha launch, row boats, bathing houses, swings, donkeys, merry-go-rounds, and a monkey cage. The grove has a capacity of 8000 or more picknickers. The largest attendance so far was about 7400, on a holiday; the average, 2800; the total for last season, 350,000 (partly estimated).

The financial results for the second full season were as follows:

Railway:	Av. per Day.	Season.
Gross receipts (partly estimated).....	\$280.00	\$35,000.00
Net receipts (upon basis average net receipts per passenger carried, whole line, 1.75 cents).....	49.00	6,125.00
Fixed charges (on additional track and equipment)	14.27	1,783.84
Net income, the result of establishing park	34.73	434.16
Park:		
Gross receipts from theater, other amusements and refreshments, and cost of refreshments	\$793.50	\$99,187.50
Direct expenses of amusements.....	\$556.50	
General expenses.....	48.20	
Advertising	20.05	
Repairs and renewals.....	12.47	
Management	23.44	
Interest, taxes, etc.....	21.50	
	682.16	85,270.00
Net income from park.....	\$111.34	\$13,917.50

The average amount spent in the park per person was quite high—about 28 cents.

The company believed the manager had enough to do to concentrate his attention on the railway proper, without going into the "show business," and therefore an arrangement was made with an ex-owner of a pleasure resort to run this place for a proportion of the net profits. From the above figures, this seems to have worked well. The above figures make an excellent showing, but it must be remembered that practically nothing has been deducted for the very large depreciation in such park equipment, nor was the park department charged with the cost of lighting during that year.

The other company to which I refer has a smaller, higher-priced park property, built on a more expensive scale, but drawing far less traffic. The total cost of line and park stands them \$48,247.65, and about \$30,000 of car equipment is devoted to that service on an average. A cheaper and less attractive class of vaudeville performances and band concerts are given. The largest attendance was about 6000; the average for 132 days 1100, and 145,200 for the season (closely estimated). Assuming the average net receipts per passenger to have been the same as for all the line, or 1.43 cents, the railway net receipts were for the season \$2,076.36, less fixed charges of \$1,954.02, or \$122.34 net income.

The gross receipts of the park were \$29,767.60; the cost of amusements, general expenses, including lighting, advertising and salaries, was \$28,512.72, showing net earnings of \$1,254.88. Although not separated on the books, the taxes, interest, etc., on the park property were \$2,632, thus leaving a deficit of \$1,377.12, exclusive of any allowance for depreciation.

The coming summer season it is proposed to advertise more freely and "popularize" the place. It is planned to secure some skating and dancing parties and crowds in the winter.

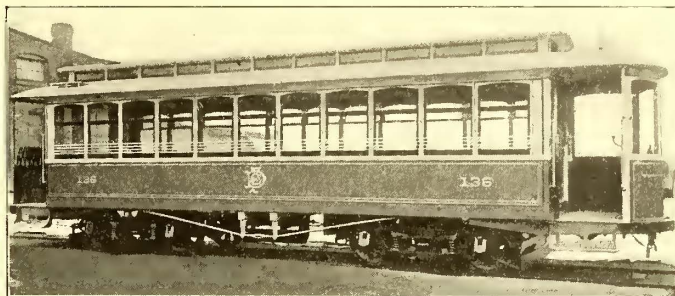
It has been possible in limited space to only outline some of the methods by which traffic may be built up. Doubtless many others will suggest themselves to the reader's mind. With careful watching of traffic fluctuations, general or on certain lines, or in certain classes of traffic, the why and wherefore can be ascertained and proper measures taken.

A local man and manager of a property, being more familiar with all surrounding conditions, naturally should be the best one to analyze the traffic problem and plan a policy for securing increases. As often happens in the industrial world, it is sometimes wise to call in a brother manager or some outside traffic expert of clear insight, keen observation and wide comparative knowledge of traffic under various conditions.

The traffic end affords splendid opportunities for building up the earning capacities of properties.

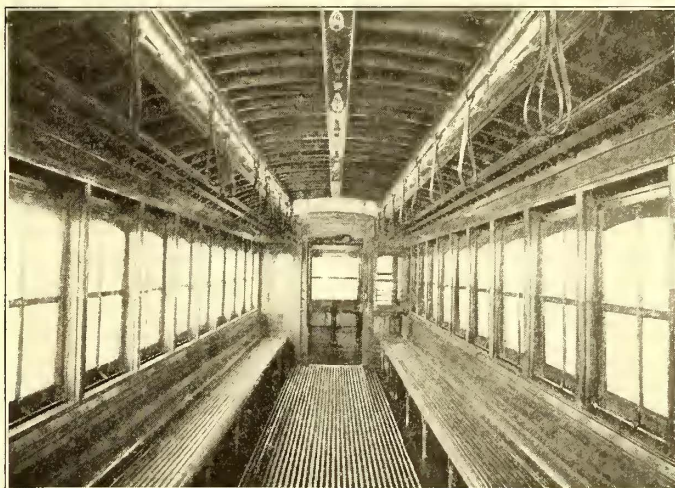
NEW CARS FOR THE CITY OF MEXICO

The Mexico Electric Tramways, Limited, has lately added to its equipment twenty-four new cars, built by the American Car Company, of St. Louis. Twelve of the cars measure 25 ft. 4 ins. over the end panels and 34 ft. 9 ins. over the crown pieces, and twelve are 30 ft. 8 ins. over end panels and 40 ft. 1 in. over crown pieces. Of the latter number, four are for second-class passengers, the difference being that longitudinal seats, composed of wooden slats, are provided instead of the



FIRST-CLASS CAR FOR MEXICO CITY

transversely placed cane upholstered seats of the first-class cars; the roofs are without ceilings, and the lights of the window sashes are divided into four parts. The shorter cars are vestibuled at both ends, and have entrances at both sides, while the rest are used on lines with loops at the terminals, and



INTERIOR OF SECOND-CLASS CAR

therefore are vestibuled at one end only, with entrance at one side.

The climate of the City of Mexico is exceedingly severe on cars. The intense sun and extremely dry atmosphere produce a shrinkage of the most carefully seasoned wood, rendering the



SECOND-CLASS CAR FOR MEXICO CITY

use of large, unprotected, thin sections very unsatisfactory. To overcome this, the cars are built with straight sides, faced with 1/8-in. steel. Steel ceilings are used instead of veneer, as

the laminated sections of the veneer become detached in that climate. The steel plates of the ceilings are so arranged that rattling is prevented. They are painted and decorated, and have the same appearance as painted veneer.

Except the difference in length mentioned, the dimensions of the cars and sizes of materials are the same. They are as follows: Width over belt rails, 8 ft. 2 ins.; over centers of posts, 2 ft. 8 ins.; height of the steps, 17 $\frac{3}{8}$ ins.; height of the risers, 14 ins. The side sills are 4 $\frac{3}{4}$ ins. x 7 $\frac{3}{4}$ ins., and the end sills, 5 $\frac{1}{4}$ ins. x 6 $\frac{7}{8}$ ins. The sill plates are 8 ins. x $\frac{5}{8}$ in.; center cross joists, 4 $\frac{1}{2}$ ins. x 5 $\frac{1}{2}$ ins.; thickness of corner posts, 5 $\frac{1}{4}$ ins., and side posts, 2 $\frac{3}{4}$ ins. The furnishings include Brill sand boxes, angle iron bumpers, "Dedenda" platform gongs, ratchet brake handles and folding gates.

The illustration of the first-class car shows it mounted on a temporary pair of trucks. All the cars are mounted on Brill 27-G trucks, with 4-ft. wheel base and 33-in. wheels.

INVERSE TIME-LIMIT RELAY

The inverse time-limit relay is a recent addition to the line of electrical appliances and marks a distinct advance in the protection of line apparatus from the effect of overloads. As its name suggests, the time element is in inverse proportion to the amount of current required to operate it. In other words,



INVERSE TIME LIMIT RELAY IN CASE

the greater the need for its action the quicker it responds, and this feature marks the difference between the inverse time-limit relay and the time-limit relays which preceded it, and are more widely known.

The ordinary time limit relay, as generally employed in connection with the tripping coil of a circuit breaker, insures the line current from interruption until an overload shall have been sustained for a predetermined period which is long enough to threaten the safety of the apparatus. A movable contact then meets a stationary contact in the relay, and the tripping circuit in the breaker is closed, causing it to rupture the line current. The action of the inverse time-limit relay is similar, except that the speed with which the movable contact travels is regulated by the amount of the overload, and it thus differentiates between a short circuit which requires an immediate action of the circuit breaker and a slight overload which will cause no damage unless sustained until the thermal effect is dangerous. Both types prevent unnecessary interruption of the service from slight momentary overloads by preventing the instantaneous operation of a circuit breaker, but in the simple time-limit-relay the time element is fixed, while in the inverse time-limit relay it is automatically adjusted to any excess of the nor-

mal current from a light overload to a short circuit. The value of this feature is apparent.

The accompanying illustration shows a new inverse time-limit relay announced by the Westinghouse Electric & Manufacturing Company. It is made in types for both single and polyphase circuits, the single-phase relay containing one electro-magnet, with its regulating mechanism and the polyphase type consisting essentially of two single-phase mechanisms in a case, and properly connected. The electro-magnet consists of two coils connected in series with a series transformer and having a U-shaped laminated iron core from which the moving contact is suspended. When an overload occurs the core is drawn into the coils, raising the moving contact until connection is made with the stationary contact and the tripping circuit is closed.

The variable time element is supplied by an air check which is connected with the magnet core by a vertical rod. As the core and moving contact rise the air in the checking chamber is compressed and acts in the same manner as a dash pot in retarding the closure of the circuit. An intake valve allows the checking chamber to fill quickly when the overload is removed and the relay is thus automatically reset. The outlet valve furnishes the inverse time-limit feature, as the ball which closes the valve is held lightly under the compression of a coiled spring, the amount of the pressure upon the valve from within regulating the size of the opening. When a slight overload occurs the pressure upon the check is light and the air escapes slowly through a small opening. In the event of a short circuit the magnet core would be drawn rapidly upward, the air being expelled quickly from the valve which the pressure would force wide open, and the tripping circuit would be closed. The effect upon the time limit varies with the amount of overload, the length of time being in inverse proportion to the excess of current. Should the overload cease before the contacts touch, the magnet core drops to its original position and the relay is reset. The simplicity of this arrangement insures its perfect action under all conditions, and permits a sturdiness of construction not always found in conjunction with so sensitive and delicate an operation.

Adjustments are provided covering a wide range in time and current. The stationary contacts can be raised or lowered, thus varying the distance traversed by the moving contacts. Both the intake and the outlet valve of the air check are adjustable, thus controlling the speed with which it is emptied and filled. The leverage of the counterpoises attached to the check is also subject to adjustment, and by means of weights placed upon the scale pan beneath the magnet the weight of the moving element is increased.

AN IMPROVED TRACK SANDER

An improved track sander for electric cars has been invented recently by Henry Fresh, and is now manufactured by the Emergency Car Brake Company, of Cumberland, Md. The accompanying illustration shows a St. Louis M. C. B. truck, partially equipped with the sander designed for double-truck cars. This sander consists of a water-proof hopper built on the truck, with an agitator to loosen the sand, a double-port valve to insure the flow of sand, and a shoe to deposit the sand on the rail.

The hopper is made of a single steel casting. The top or dome and the bottom bowl are fitted with a lap flange union, machined and fitted with rubber gaskets bolted firmly together. The opening in the dome for filling is fitted with a cap in the same manner, locking itself over the rim on the collar by giving the cap one-half turn with a wrench, making the hopper water-tight. The hopper is porcelain lined throughout, which gives the interior a dry and smooth surface and prevents the sand from getting damp.

The valves are provided with two sanding ports, so that in case one of the ports becomes choked the other will produce sufficient sand to sand the rail. The lower disc is stationed in the lower portion of the hopper, and the upper is rigidly attached to the agitator bar connecting to the operating bar. The discs operate one over the other. When the sand is needed the ports are brought over each other by the upper disc making one-half revolution, and when closed are turned back, making a tight valve.

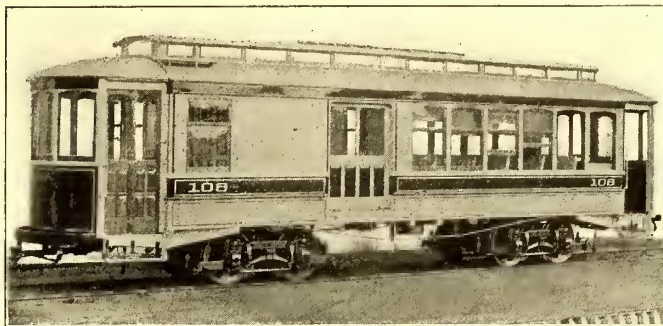
The agitator, which connects the valve to the operating bar, is provided with six teeth or cutters, which, in turning the valve, cut loose through the hopper the sand which becomes compact from the vibration of the truck. The sand cannot be applied without being loosened by the agitator. The gear wheels are in the little dome, where they are kept free from the sand and enclosed from the snow and mud from the wheels. The shaft from the gear wheels is connected to the operating bar by a sleeve coupling.

The shoe is said to distribute the sand on the rail very economically, while at the same time it is a positive sander, putting the sand where it is needed, whether on a curve or straight track. The shoe is made of a steel casting, receiving a 2-in. hose, which conveys the sand from the hopper into the shoe. The shoe has a 6-in. base on the rail, with an opening in the bottom 2 ins. wide from front to tip, forming a channel to distribute the sand without rolling off the sides of the rail. The shoe is provided with an inside flange to guide through curves,

SEMI-CONVERTIBLE COMBINATION CARS FOR YORK, PA.

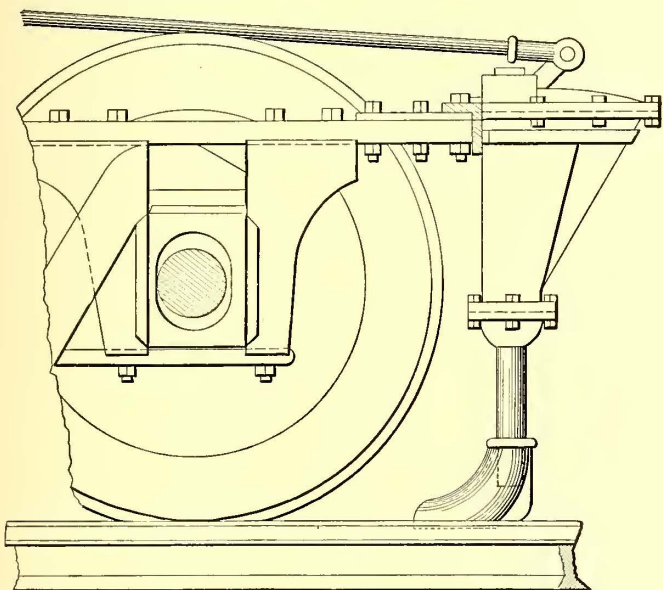
The J. G. Brill Company has lately finished four combination passenger and baggage cars, like the one illustrated, for the York Street Railway Company. The railway is one of a number owned by the York County Traction Company, aggregating a trackage of 33 miles, and connecting the important towns in the vicinity of York. Thirty-five miles of lines are about to be added to the system, which, with the existing roads, will practically cover the county.

The new cars are of the builders' semi-convertible type, as



ONE OF THE SEMI-CONVERTIBLE COMBINATION CARS IN YORK, PA.

will be seen in the illustration. The large windows and low window sills always indicate this design. The interiors are handsomely finished in cherry of natural color, with decorated birch veneer ceilings. Thirty-six-in. transversely placed seats leave the aisles 22 ins. wide, although the cars are but 8 ft. 2 ins. over the posts at belt. This is on account of having the window pockets in the side roofs instead of in the walls, thereby allowing the seat ends to be brought within the posts and against the side lining. The length of the cars over the bodies is 30 ft. 8 ins., and over the vestibules, 40 ft. 1 in.; width over the sills, 7 ft. 10½ ins., and over the belt rails, 8 ft. 2 ins. The length of the baggage compartment is 12 ft. 8 ins. This compartment is furnished with folding seats for the use of smokers, and has a 4-ft. sliding door on either side. The side sills are of long leaf yellow pine, 4¾ ins. x 7¾ ins., plated on the inside with 6-in. x ½-in. steel. The end sills are 5¼ ins. x 6⅞ ins. The distance from center to center of posts is 2 ft. 8 ins.; sweep of posts, 1¾ ins.; thickness of corner posts, 3¾ ins., and of side posts, 3¼ ins. The angle-iron bumpers, platform gongs, channel-iron draw bars, brake handles and other specialties are of the builders' manufacture. The trucks are Brill 27-G-I, with 4-ft. wheel base, 33-in. wheels and 4-in. axles.



TRUCK EQUIPPED WITH TRACK SANDER, ALSO SHOWING SANDING SHOE EMPLOYED

and projections to attach the adjusting and hanger bars, the latter connecting the shoes to the operating bar with lugs and jaws, the shoes being raised and lowered as the sand is applied and closed.

The operation of the sander is simple, as the parts are operated from one lever at one time. The operating bar is connected to the lever by draw-bars running back to the king bolt and then to the operating lever. The lever can be operated freely without catching, and when put back holds itself securely. The hopper can be attached to the different styles of trucks by making the attachments and bracing to suit.

The opening for filling is on the inside of the hopper, near the center of the truck, 16 ins. from the wheels, protecting it from the mud, snow and water from the wheels. All the valves and operating parts are enclosed, making it a sure and positive sander in the worst weather. Every part or opening is made tight with gaskets or bushings, so that it is practically impossible for the sand to get damp in the hopper.

INCREASE IN ST. LOUIS PASSENGER TRAFFIC

Nearly 15,000,000 more passengers were carried by the St. Louis Transit Company during the three months which ended June 30, 1904, than during the first quarter of the year. The figures also exceed by 12,000,000 the second quarter of 1903. The quarterly report of the company, filed a few days ago, shows that during the months of April, May and June, there were made 1,551,168 trips, upon which were carried 50,027,717 passengers. During the same period of 1903 there were 1,367,454 trips made and 38,421,172 passengers carried. Last year a law was passed requiring daily instead of quarterly reports from street railway companies, and providing that the companies pay car licenses at the rate of one mill for each passenger carried. Upon this basis the company would have to pay the city \$50,027 for the quarter just ended. The companies are fighting the law in court and have obtained a temporary order restraining the city from enforcing it. The case will be heard next fall.

LEGAL DEPARTMENT*

ABUSIVE LANGUAGE OF EMPLOYEE TO PASSENGER

The law is very well settled that a common carrier is liable for an actual assault and battery committed by a conductor or other employee upon a passenger. In one of the most recent cases involving the subject, which recognized the right of a conductor to strike a passenger in self-defense, it is nevertheless expressly laid down that abusive language or opprobrious epithets applied by the passenger to the conductor are insufficient to justify an assault by the latter. (*Birmingham Railway, Light & Power Company vs. Mullen* [Ala.] 35 So. 702.)

A recent case in the Court of Appeals of New York has attracted much attention, in which it was held that a street car company might be held liable in damages for the use by a conductor of abusive language without any assault or physical contact. (*Gillespie vs. Brooklyn Heights Railroad Company*, 178 N. Y. 347.) The conductor refused to return to the plaintiff, a passenger, her change for car fare, and, on being requested to do so, he called the plaintiff a "dead beat" and "a swindler," and applied other abusive epithets to her in the presence of other passengers.

This case has been the subject of very grave divergence of judicial opinion. The trial court allowed a judgment for the return of the change, to which the plaintiff was indisputably entitled, but held that "other damages, if any, were not the proximate result of the act of the conductor." The Appellate division affirmed this action of the trial court, dismissing the claim for damages for abusive language without opinion. The Court of Appeals, by a bare majority vote, reversed the lower courts and holds that the liability in question may exist. The reasoning in the Court of Appeals was not entirely satisfactory. The dissenting judges, for example, say that "it is extending unduly the doctrine of a common-carrier's liability, in making it answerable in damages for slanderous words spoken by one of its agents." But the majority did not hold the master liable, as for an act of defamation. In the opinion of the Court, it was expressly stated that the plaintiff was not entitled to recover for any injury to her character resulting from the insulting language, and, as the present writer understands the discussion, although the presence of other persons aggravated the injury, the liability would have existed if the abusive language had been used by the conductor when no third person was within hearing.

It is not improbable that the hesitation on the part of many of the judges to recognize the cause of action grew out of the sentiment against permitting the recovery of damages for mental suffering only. It has been held in New York that no recovery can be had for injuries resulting from fright caused by the negligence of another, where there is no immediate physical injury (*Mitchell vs. Rochester Railway*, 151 N. Y. 107). This is in accordance with the present weight of authority in the United States. The real reason for such decision is expressed in the following language from the opinion in the *Mitchell* case:

"If the right of recovery in this class of cases should be once established, it would naturally result in a flood of litigation in cases where the injury complained of may be easily feigned without detection, and where the damages must rest upon mere conjecture or speculation. The difficulty which often exists in cases of alleged physical injury, in determining whether they exist, and if so, whether they were caused by the negligent act of the defendant, would not only be greatly increased, but a wide field would be opened for fictitious or speculative claims. To establish such a doctrine would be contrary to principles of public policy."

The Court of Appeals in the *Gillespie* case seems to have drawn a somewhat arbitrary exception to the rule that damages may not be allowed for mental suffering only, and while the decision is theoretically vulnerable in certain respects, many considerations of expediency are urged in its favor by leading text writers. The decision, indeed, would seem to constitute an expression of a practical policy to be followed in a certain

class of cases rather than the disposal of a particular case according to general principles and the ordinary analogies of the law. The Court of Appeals expressly withholds the right to recover exemplary damages, although it is true that the idea of compensation by money for injured feelings is anomalous and the gist of the recovery is essentially punitive.

In spite of its theoretical inconsistency, this decision now embodies the law of New York, and there is considerable authority in other States tending in favor of the same position. The withholding of the right to exemplary damages will prevent the grievous oppression of common carriers through inordinate verdicts, but the right to recover whatever a jury shall, within reasonable limits, pronounce to be compensation for abusive and insulting language is a principle that must be reckoned with in practice.

LIABILITY FOR NEGLIGENCE.

ILLINOIS.—Carriers—Street Railroads—Passengers—Injuries—Complaint—Allegations of Negligence—Proof—Res Ipsa Loquitur—Evidence—Witnesses—Cross-Examination—Trial—Order of Proof—Discretion—Instructions—Appeal—Objections—Exceptions—Supreme Court—Jurisdiction—Questions Reviewable.

1. Where plaintiff was injured by the fall of a trolley pole while he was passing from one street car to another at a junction point, and his evidence that he had a transfer, and that of his son that a transfer was taken from his pocket when he was brought home after the injury, was not contradicted, the fact that the transfer itself was not offered in evidence did not render the proof as to plaintiff's status as a passenger insufficient.

2. Where a passenger on a street car was injured by the fall of a trolley pole as he was alighting at a junction point, proof that plaintiff was a passenger, of the fact of the accident, and the resulting injury, established a prima facie case of negligence, without proof as to what caused the pole to fall.

3. Where, in an action for injuries to a passenger on a street car by the fall of a trolley pole as he was alighting, at least three of the six counts of the declaration charged general negligence, the fact that other counts of the declaration charged specific negligence with reference to the fall of the pole, which was not proved was not material.

4. Where plaintiff was injured by the fall of a trolley pole from a street car running on a certain avenue in a city, and plaintiff's son testified that cars running on such avenue bore the inscription, "The Chicago City Railway," which was defendant's corporate name, and defendant introduced medical witnesses who testified that on the same day plaintiff was injured they were directed by defendant to make an examination of plaintiff, and were paid by defendant for so doing, such evidence was insufficient to show that defendant owned and operated the cars on such avenue.

5. An objection that plaintiff could not recover, by reason of a variance between the declaration and the evidence, should be denied where the objection failed to point out wherein there was a variance, so that it might be obviated by proper amendment.

6. Where physicians were introduced as witnesses for defendant in a suit for injuries, it was proper to permit them to be asked on cross-examination by whom they had been sent to examine plaintiff, and by whom they were paid, for the purpose of affecting their credibility and the weight of their evidence.

7. Where, in an action for injuries to a passenger on a street car, plaintiff asked leave to recall his son for the purpose of showing the inscription on the cars on the line on which he was injured, after plaintiff had closed his case, the granting of such permission was not an abuse of discretion.

8. Where, in an action for injuries to a passenger, the court permitted plaintiff, after he had rested, to introduce evidence of the inscription on the cars of the line on which he was injured, and, after the witness had retired and plaintiff had rested, defendant's attorney stated that he desired to offer evidence "on the question of the inspection of the cars," etc., whereupon the judge stated that he would receive no evidence, except as to the ownership of the line, at that stage of the case, and defendant thereupon did not put any witness on the stand, or make any offer of proof, it could not claim on appeal that the court erred by its mere statement in refusing to receive the evidence.

9. Where, in an action for injuries to a passenger, plaintiff alleged that he was a carpenter and contractor, evidence as to his general earning capacity prior to the accident was admissible.

10. In the absence of objections and exceptions taken at the time to alleged improper remarks of the trial judge, error cannot be predicated thereon.

11. In an action for injuries, an instruction that, if plaintiff had

* Conducted by Wilbur Larremore, of the New York Bar, 32 Nassau Street, New York, to whom all correspondence concerning this department should be addressed.

proved his cause of action as alleged in his declaration, he was entitled to a verdict, was not unobjectionable.

12. Where, in an action for injuries to a passenger, plaintiff's evidence as to defendant's ownership and operation of the railroad on which plaintiff was injured was sufficient to establish a prima facie case, and was not contradicted, it was not error for the court to assume such fact in its instructions to the jury.

13. In an action for injuries to a passenger by being struck by a trolley pole, an instruction that the burden was on the carrier to show that it did all that human care, vigilance, and foresight could reasonably do, consistent with the character and mode of conveyance adopted, in the practical prosecution of its business to prevent accidents and injuries to passengers riding on and alighting from its cars, was not in conflict with other instructions requiring plaintiff to prove that defendant owned and operated the car in question, and requiring defendant to exercise such care as human beings are capable of, consistent with the practical operation of defendant's trains, and that a party charging negligence must prove it.

14. Where a declaration for injuries to a passenger charged that the injury was permanent, it was not error for the court to permit the jury to allow damages for future suffering.

15. Where an instruction submitted a number of matters of fact to the jury, and correctly stated the law applicable thereto, and concluded with a sentence beginning with, "What is the truth, the jury must determine from the evidence only," the instruction was not objectionable on the ground that it did not require the jury to find the matters submitted from the evidence.

16. In an action for injuries to a passenger, objections that the verdict is contrary to the evidence, that the damages are excessive, and that plaintiff is a maligner cannot be reviewed by the Supreme Court.—(Chicago City Railway Company vs. Carroll, 68, N. E. Rep. 1087.)

INDIANA.—Carriers—Street Railway—Injury to Passenger While Alighting—Instructions—Harmless Error.

1. Where, in an action by a passenger for injuries in alighting from a street car, the jury find that the car was not moving, any error in refusing to instruct that, if she attempted to alight from a moving car, she could not recover, and in instructing that, if the car was so nearly stopped that an ordinarily prudent person would have deemed it safe to alight, and she was injured by its sudden starting, she could recover, was harmless.

2. In an action by a passenger against a street car company it is not error to instruct that, if she was injured while attempting, in the exercise of proper care, to alight from a car, by the motorman suddenly starting it, she can recover, though the motorman's act is not required to have been negligent; since starting a car while a passenger is alighting is prima facie negligence.

3. In an action by a street car passenger injured in attempting to alight it is proper to instruct that, while a common carrier of passengers is not an insurer of their safety, still the law exacts of it the exercise of the highest practicable care in the operation of its cars and stopping and starting them to enable passengers to get on and off, and for any failure to exercise such care, and for slight neglect of duty in this respect, it is liable to a passenger who is himself without fault, etc.

4. In an action by a street car passenger injured while attempting to alight, and in which the burden of showing contributory negligence is on the defendant, it is proper to instruct that, if the burden is upon either party to show any particular fact, such fact should be established by a fair preponderance of the evidence, and that, if there is no preponderance on any question—that is, if affirmative evidence is only balanced by the negative evidence—then such fact would not be proven.—(Indianapolis Street Railway Company vs. Brown, 69 N. E. Rep., 407.)

INDIANA.—Collision With Street Car—Action for Damages—Pleading—Negligence and Contributory Negligence.

1. The complaint in an action against a street railroad company alleged that plaintiff was driving his horse and wagon along a street on the north side of defendant's track, and when within 10 or 12 feet west of a cross street, on which he intended to drive north, his horse took fright at the rapid approach of one of defendant's cars, then about 200 feet east of him; that his horse, on account of such fright, ran rapidly, and shied to the north, and the wagon struck violently against a pole at the corner of the street intersection, and the horse became unmanageable, and reared and fell back toward the wagon, and wheeled toward the track, running along the same, and that during all such time his horse was unmanageable; that his horse continued thus to run along the track for about 75 feet, when the car caught up with the wagon, and was carelessly and negligently run into and against the same, and the wagon was broken, the horse injured, and plaintiff knocked out and injured. Held, that it clearly averred that plaintiff's injury was the result of defendant's negligence,

and that this was all that was necessary, and the fact that the complaint also averred that plaintiff was not guilty of contributing to his injury was unnecessary, and did not render it bad; such averment being immaterial, and, at most, merely surplusage.

2. Defendant's street car was 200 feet or more distant from the place where plaintiff had hitched his horse when he started to get into his wagon, and, before he had reached or could reach the lines, the horse jumped and threw him down, and then, being unmanageable, started with the wagon and plaintiff along and near the track before the car, swerving from one side to the other, until they were struck by the car. Held, that plaintiff's negligence, if any, did not contribute to the injury, and that he could not be charged with negligence after the horse became unmanageable.

3. It being shown that the motorman, by the exercise of due care under all the circumstances, might and should have prevented the injury, the case was fully within the rule that where one person sees another in peril, from which he is unable to extricate himself by reasonable care, it is his duty to so act as not to increase the peril, and if he acts so as to increase the danger, with full knowledge of the facts, he will not be relieved from the damages resulting from his negligence.—(Hammond, W. & E. C. Electric Street Railway Company vs. Eads, 69 N. E. Rep., 555.)

INDIANA.—Master—Injuries to Servant—Fellow Servants—Negligence—Complaint—Employer's Liability Act—Construction.

1. Where several defendants file joint and separate demurrers to a complaint, which are overruled, and they then jointly and separately except to the ruling of the court, an assignment of error by one of the defendants, predicated on the exception, raises the question of the sufficiency of the complaint.

2. An employee of an interurban railroad engaged in the construction of track, who is injured while in a work car of the company for the purpose of being carried to his home from his work, is a fellow servant of employees of the company operating a passenger car which caused the injuries.

3. Allegations in a complaint by a servant against his master for damages for personal injuries that the work plaintiff was engaged in doing had no connection with, and was not in any way incident to or a part of the work or employment of the motorman or servants in charge of a passenger car of defendant which ran into the work car in which plaintiff was seated; that he was simply a passenger on the work car; that defendant owed him a duty, and was bound to carry him safely, are mere conclusions of the pleader, not admitted by demurrer.

4. An allegation in a complaint for damages for personal injuries received by an employee that he was injured without any fault or negligence on his part does not take the place of averments showing that the risk of incompetency of the person in charge of a switch, whose negligence is alleged to have caused the injuries, was not knowingly assumed by plaintiff as an incident of his service.

5. Under Burns' Rev. St. 1901, section 7083, subd. 2 (Horner's Rev. St. 1901, section 5206s), providing that every railroad corporation shall be liable for damages for personal injuries suffered by any employee while in its service, the employee so injured being in the exercise of due care and diligence, where such injury resulted from the negligence of any person in the service of such corporation to whose order or direction the injured employee at the time of the injury was bound to conform, no recovery can be had where the employee is injured while conforming to the order or direction of one employee and his injury is caused by the negligence of another employee, who had no such authority.

6. Under Burns' Rev. St. 1901, section 7083, subd. 4, providing that every railroad corporation shall be liable for damages for personal injuries suffered by any employee while in its service, the employee so injured being in the exercise of due care and diligence, where such injury was caused by the negligence of any person in the service of such corporation who has charge of any signal, telegraph office, switch yard, shop, roundhouse, locomotive engine or train upon a railway, an injury due to the negligence of a person in charge of a switch does not render the corporation liable.

7. In an action by a servant against his master for personal injuries, predicated upon the common-law liability of the master, where the injury was caused by the negligence of a fellow servant, known by the master to be reckless and incompetent, the complaint must allege that plaintiff had no knowledge of the recklessness and incompetency of the negligent fellow servant.

8. In a complaint by a servant against his master for personal injuries, predicated upon the common-law liability of the master for injury caused by the negligence of a fellow servant, known by the master to be reckless and incompetent, an allegation that plaintiff was without any knowledge of the careless and reckless conduct of "said motorman in operating said car" which caused

plaintiff's injuries is not equivalent to an allegation that plaintiff at and before the time of his injury had no knowledge of the recklessness and incompetency of the motorman.

9. In a complaint by a servant against his master for personal injuries, allegations that the injuries were received by reason of the master's negligent and defective rules and mode of keeping knowledge of and directing its cars are mere conclusions of the pleader, stated by way of recital, and will be disregarded in determining the sufficiency of the pleading.

10. In an action by a servant against his master for personal injuries alleged to have been received as the result of negligence of fellow servants, proof of plaintiff's knowledge of the recklessness and incompetency of his fellow servant who caused the injury is not limited to actual knowledge, but he is bound by implied knowledge such as he could have acquired by the exercise of ordinary care.—(Indianapolis & G. R. T. Company vs. Foreman, 69 N. E. Rep., 669.)

INDIANA.—Street Railways—Personal Injuries—Negligence—Collision With Vehicle—Evidence—Sufficiency—Inferential Circumstances—Silence of Defendant—Streets—Right of Way.

1. In an action against a street railway company for negligently running its car into plaintiff's vehicle and injuring him, evidence examined, and held sufficient to sustain the verdict for plaintiff.

2. In an action for personal injuries the negligence of the defendant directly contributing to the injury may be shown by direct or circumstantial evidence, and may be inferred from all of the facts of the case.

3. In an action for personal injuries the purpose to commit wilful injury will not be inferred when the result of wrongful conduct may be reasonably attributed to negligence or inattention.

4. Where, in an action against a street railway company for personal injuries by collision with plaintiff's vehicle, defendant gave no evidence, the jury might draw an inference of carelessness, rather than of pure accident, from the fact of such silence.

5. Though a person driving his vehicle along a street railway track in the direction traveled by the cars must get off the track on approach of a car, he is not required to constantly look behind him.

6. Where plaintiff was driving his vehicle along a street railway track in the direction traveled by the cars on a street on which the wagon was plainly visible to a motorman approaching from behind, plaintiff might be presumed to know that the car could only run him down by carelessness or wilfulness.—(Indianapolis Street Railway Company vs. Darnell, 68 N. E. Rep., 609.)

INDIANA.—Street Railroads—Driving Across Tracks—Contributory Negligence—Jury—Answers to Interrogatories—General Verdict—Evidence—Admissibility.

1. In an action against a street railroad for personal injuries, it appeared that plaintiff attempted to drive across defendant's tracks; that, before going on the crossing, he looked and listened, but did not stop; that no car was within 250 feet when he started over; that he did not know a car was approaching; that no gong was sounded, or warning given of the approach of the car; that the motorman saw plaintiff's horse on the crossing when the car was over 200 feet away, and could have stopped the car within 75 feet at any time after the horse entered the crossing; and that the car approached the crossing at a high and dangerous rate of speed. Held, that plaintiff's failure to stop was not contributory negligence, as matter of law.

2. The general verdict determines all material issues in its favor.

3. All reasonable presumptions will be indulged in favor of the general verdict.

4. No presumptions will be indulged in favor of the jury's answers to interrogatories.

5. The answers of the jury to interrogatories will not control the general verdict unless in irreconcilable conflict therewith.

6. Where the answers of the jury to interrogatories are antagonistic or inconsistent, they neutralize each other, and will be disregarded.

7. The answers of the jury to interrogatories override the general verdict only when both cannot stand, the conflict being such as to be beyond the possibility of being removed by any evidence admissible under the issues.

8. The right of a traveler to cross the track of a street railroad is not inferior to the right of the street railroad to pass over the crossing.

9. While the failure of those in charge of a street car to give the required signals of its approach will not excuse a person attempting to cross the track in front of it from the exercise of due care, yet the jury may consider that fact in connection with all the circumstances attending the accident, in passing on the conduct of the one injured in making the attempt.

10. Answers to interrogatories by the jury in an action against

a street railroad for personal injuries received by being struck by a car while attempting to cross the track, indicating that, had plaintiff stopped, he could have seen and heard the car in time to have avoided the injury, are not inconsistent with the general verdict, finding that he used due care.—(Union Traction Company of Indiana vs. Vandercook, 69 N. E. Rep., 486.)

INDIANA.—Carriers—Negligence—Dangerous Premises—Invitation—Owner's Knowledge of Danger—Liability—Evidence.

1. Where a street railway owning a park reached by its lines, and maintaining attractions for the public there, has knowledge that there is a conspiracy on the part of certain persons to assault any colored persons visiting the park, and knows of acts of violence committed pursuant to such design, but it transports colored persons there without warning them of the danger, and they are assaulted, pursuant to the conspiracy, the company's employees making no attempt to interfere, the railway company is liable for the injuries.

2. In an action for such injuries, evidence of prior assaults committed on colored persons at the park, and articles published in daily papers describing the occurrences, were admissible.—(Indianapolis Street Railway Company vs. Dawson, 68 N. E. Rep., 909.)

INDIANA.—Street Railroads—Passengers—Injuries While Alighting From Cars—Excavations in Street—Negligence.

1. A street car company operating its cars on streets in which the city had made excavations was guilty of actionable negligence in stopping its cars opposite such excavations for the purpose of letting off passengers without properly guarding the passengers alighting, or warning them of the danger, of which they were ignorant, but of which the company knew or was bound to know.—(Fort Wayne Traction Company vs. Morvilius, 68 N. E. Rep., 304.)

IOWA.—Railroads—Employee of Independent Contractor—Personal Injuries—Action.

1. A railroad company is not liable to an employee of an independent contractor, engaged in raising defendant's roadbed and track, for personal injuries received by him from being struck by a stone which had rolled from the pile of dirt which was being used in the work in which plaintiff was engaged, lodged upon the tracks, and was knocked against the plaintiff by a passing train.—(Reilly vs. Chicago & N. W. Railway Company, 98 N. W. Rep., 464.)

IOWA.—Carriers of Passengers—Street Railways—Personal Injuries—Absence of Conductor—Negligence—Question for Jury.

1. The fact that the motorman left the car on which plaintiff was riding, and that the conductor took his place, and became acting motorman in sole charge of the car, was not of itself such negligence as would render the company liable to plaintiff for injuries received in alighting from the car.

2. Plaintiff claimed that, while riding on a street car in the sole charge of a motorman, she signaled him to stop, but that the intersecting street was passed some distance before the car slackened, as she thought, to allow her to alight, and when she undertook to do so the car suddenly moved forward, causing her to fall. Held that, if the motorman saw plaintiff signal, the question whether, in the exercise of ordinary care, he should have anticipated that she would attempt to alight while between such crossings, was a question for the jury, and it was error to instruct that he should have anticipated such movement.

3. If the negligence of a passenger on a street car contributed to her injury, as an efficient cause, she could not recover, and the jury need not find that she contributed in a "material" degree.

4. An instruction that a passenger on a street car could not recover if she contributed to her injury in a "material" degree was erroneous, and could not be interpreted as merely intending that her negligence must have directly or approximately contributed to it.—(Root vs. Des Moines Railway Company, 98 N. W. Rep., 291.)

KANSAS.—Carriers—Injury to Passenger—Directing Verdict.

1. Generally, in an action to recover damages for personal injuries, where the defense is the contributory negligence of the plaintiff, the question is one of fact, and not of law; and it is error for the court to render judgment for the defendant upon the petition and opening statement of the case by counsel for plaintiff, unless the facts admitted are such that reasonable minds could not differ as to the negligent conduct of plaintiff.—(Cummings vs. Wichita Railway & Light Company, 74 Pacific Rep., 1104.)

KANSAS.—New Trial—Grounds—Insufficient Damages.

1. Section 307 of the Code of Civil Procedure, which reads, "A new trial shall not be granted on account of the smallness of the damages, in an action for an injury to the person or reputation, nor in any other action where the damages shall equal the actual

pecuniary injury sustained," denies the right to grant a new trial in the kind of actions therein named on account of the smallness of the damages awarded, and to grant such new trial is error.

2. The last clause of said section is a limitation on the right to grant new trials under the provisions of section 306, rather than an enlargement of the power denied in the first part thereof.—(Metropolitan Street Railway Company vs. O'Neill, 74 Pacific Rep., 1105.)

KENTUCKY.—Street Railroads—Collision With Wagon—Negligence—Jury Question.

1. The horse drawing the wagon in which plaintiff was driving ran away across a bridge, and as it was about 300 feet from the end of the structure a street car turned onto the bridge. The horse continued to run along the track on which the car was advancing until it got just in front of the car, when it swung to one side, and the car collided with the wagon, and threw plaintiff out. The car made no effort to stop until after the collision. When about 100 feet from the car, plaintiff waved his hands, as if to notify the motorman. The car could have been stopped within 6 or 8 feet. Held, that a peremptory instruction for the defendant street car company was error.—(Thiel vs. South Covington & C. Street Railway Company, 78 S. W. Rep., 206.)

KENTUCKY.—Carriers — Injury to Passengers — Excessive Damages.

1. In an action against a railroad company for an injury to a passenger's finger which did not cause any permanent impairment of plaintiff's ability to earn money, and only caused him a loss of \$255 for doctor bill and wages, a verdict for \$1,100 was excessive.—(Louisville Railway Company vs. O'Mara, 76 S. W. Rep., 402.)

KENTUCKY.—Street Railways—Collisions With Carriages—Duty of Company—Failure to Watch and Warn—Actions for Injuries—Evidence—Offer of Settlement—Gross Negligence—Damages—Appeal—Harmless Error.

1. In an action against a street railway company for injury to a hack and death of a horse, testimony of plaintiff that immediately before the accident his hack was worth \$1,100 or \$1,000; that, after spending over \$200 in repairs, it was not worth more than \$500 or \$600; that the horse was worth \$80, and the harness destroyed \$60—supports a verdict for \$80.

2. Statement in an offer by plaintiff to settle with a street railway company for damages done to his horse and hack, to the effect that he had expended \$207 in repairs of the hack, and wanted that, with \$100 for his horse and harness, in full for his claim, is not conclusive on plaintiff as to the amount of his damage.

3. In an action against a street railway for damages to a horse and hack, the admission of evidence as to the time plaintiff was deprived of the use of the hack, and of the value of the lost use for that time, was not prejudicial, where the evidence was later withdrawn from the jury by a written instruction and admonition of the court, and the verdict showed that the jury obeyed such instruction.

4. In an action against a street railway for injuries to a hack, evidence that the track was on a much-traveled highway in an incorporated town, and that the place of the injury was on a down grade, and where the view to the approach was obstructed, and that the car was being run at a speed of 20 miles an hour, without any signal of its approach, was sufficient to submit to the jury the question of gross negligence.

5. Drivers and pedestrians on a highway are not trespassers, but have an equal right with street cars to use the highways; and, if the car driver fails to keep a proper lookout for their presence and give them timely warning of his approach, the company will be liable for a resulting injury, although the car was running at a reasonable rate of speed, and although, after the driver actually discovered the peril of the person on the track, he unavailingly used every means at his command to avert the injury.—(South Covington & C. Street Railway Company vs. McHugh, 77 S. W. Rep., 202.)

KENTUCKY.—Street Railways—Injuries to Teams—Punitive Damages—Gross Neglect—Evidence—Sufficiency.

1. Evidence that a street car was running through a narrow city street after dark, at a rate of from 12 to 20 miles an hour; that it failed to sound its gong at the crossing; and that the motorman was looking back, and not ahead—was sufficient to show gross neglect and authorize punitive damages in an action for injuries by a driver of a team.—(Louisville Railway Company vs. Teekin, 78 S. W. Rep., 470.)

LOUISIANA.—Carriers—Negligence—Injury to Passengers.

1. It is not negligence for a street car to start while a passenger is in the act of passing from the platform into the car.—(Sharp vs. New Orleans City R. Company, 35 S. Rep., 614.)

LOUISIANA.—Street Railroads—Operation—Lease of Road—Negligence of Lessee.

1. A railroad corporation, by its very incorporation under the

laws of the State, assumes as one of its primary obligations that it shall operate the road under such conditions as to properly secure the safety of the general public.

2. It is liable for injuries to persons caused by the wrongful or negligent operation of the cars upon the road, whether operated by itself or by another corporation to which it had leased it.—(Muntz vs. Algiers & G. Railway Company et al., 35 Southern Rep., 624.)

LOUISIANA.—Street Railroads—Accident at Crossing—Contributory Negligence.

1. The recognized rule is that before attempting to cross a railway track a person should stop, look and listen, and it will hardly do to substitute for it a rule to the effect that, being at a distance from a crossing, toward which he and an electric or steam car are traveling, he may then form an opinion as to which of the two will get there first, and, acting upon that opinion, essay the crossing without giving himself further concern upon the subject.

2. The fact that a street railway company has operated a car at too high a rate of speed will not entitle a party who is injured to recover if it appears that the fault of the company would not have caused the injury save for the supervening and greater fault of the party injured.—(Heebe vs. New Orleans & C. Railroad, Light & Power Company, 35 Southern Rep., 251.)

MARYLAND.—Street Railways—Personal Injuries—Crossings—Vehicles—Collisions—Imputed Negligence—Contributory Negligence.

1. The negligence of a driver of a vehicle is not to be imputed to one who rides with him by invitation, and is injured by collision with a street car.

2. Where plaintiff was riding by invitation with one whom he knew was a skillful, experienced driver, who had for many years been traveling the streets in vehicles such as they were riding in, and he saw this driver check his horse as they approached a street railway, and lean forward beyond the side curtains and look for cars, and plaintiff, in his position, could not see through the glass in the side of the curtain, and did not hear a car approaching, he was not guilty of contributory negligence in relying on the care of the driver.—(United Railways & Electric Company vs. Biedler, 56 Atlantic Rep., 813.)

MASSACHUSETTS.—Carriers—Injuries to Passengers—Alighting From Cars—Negligence—Evidence.

1. Where a passenger on a street car made no effort to alight when the car reached the terminus of a branch track at a station, at which point other passengers alighted, and after the conductor carried the trolley around to the other end of the car, and as the car was about to start, plaintiff attempted to alight, and was injured by the car starting while he was doing so, but neither the conductor nor the motorman had any reason to suppose plaintiff desired to get off at that time, defendant was not guilty of negligence warranting a recovery.—(Spaulding vs. Quincy & B. Street Railway Company, 69 N. E. Rep., 217.)

MASSACHUSETTS.—Carriers — Injury to Passengers — Evidence—Sufficiency—Competency.

1. On appeal by plaintiff in an action for injuries sustained by a passenger on a street car owing to a defective device for opening and shutting the door, it is not to be presumed, in favor of appellant, that an inspection of the car by the jury added anything to the evidence contained in the bill of exceptions.

2. In an action against a street railway for injuries to a passenger, it was plaintiff's theory that the slot in the door which contained the opening device was defective, and exposed those opening the door to the risk of having their fingers bruised when the door was slid back. It appeared that the passenger had declared that he "jammed his finger at the door," and one witness, who saw him open the door, testified that he used his right hand, while it was his left that was injured. Held, that there was nothing to warrant a finding that plaintiff was injured by means of the opening device.

3. In an action against a street railway for negligence causing the death of a passenger, it was plaintiff's theory that the passenger's fingers were bruised in the device for opening the door, and that from such injuries he fainted, and fell from the car, and was killed. There was evidence that he had taken six or eight glasses of ale that evening, and there was no evidence to show that he did faint. Held, that the jury would not have been warranted in finding that his fall was caused by an injury to his finger, it being as reasonable to suppose that he might have fallen from sleepiness, apoplexy or from the effects of the ale.

4. In an action against a street railway, where plaintiff claims that a passenger was injured by his fingers having been bruised in the slot used for opening the door of the car, there was nothing to show that the injury to his hand was caused by any difficulty in opening the door. Held, that testimony of a witness as to whether he had observed any difficulty in opening the door in

that car, or one like it, was incompetent.—(Williams vs. Citizens' Electric Street Railway, 68 N. E. Rep., 840.)

MASSACHUSETTS.—Street Railroads—Injury to Child—Negligence of Parents—Questions for Jury.

1. In an action against a street railway company for an injury to a child through the negligence of the company, the question whether the father exercised due care in permitting the child to go into the yard, which was inclosed, to play, from whence she went into the street, was for the jury.

2. A child of three years was permitted by her father to go into the yard to play with an older sister of 9 years and a neighbor's child aged 10. The yard was inclosed, and the gate was kept closed. After going into the yard, the children wandered into the street, and the younger child was struck by a street car. Held, that it was for the jury whether the child was under the charge of her older sister after they left the yard and went on the street.—(Mellen vs. Old Colony Street Railway Company, 68 N. E. Rep., 679.)

MASSACHUSETTS.—Street Railroads—Boy Clinging to Car—Wanton Injury—Contributory Negligence as Defense—Instruction—Company's Liability—Previous Acts of Negligence—Admissibility of Evidence.

1. Plaintiff, a boy 6½ years old, ran against a street car, and was clinging to the lower step near the forward end as the car rounded a curve. He cried to the motorman to let him off, but the motorman, though perceiving plaintiff's danger, turned on the power in a wanton and reckless way, thus starting the car quickly forward and throwing plaintiff to the ground, injuring him. Held, that plaintiff's failure to exercise ordinary care, even at and after the motorman's act, was no defense, in view of the wilful, wanton and reckless character of the act.

2. An instruction, in a personal injury case, that, if defendant's act was wilful and intentional, plaintiff need not show that he was "in the exercise of due care," means ordinary care, and is not objectionable as relieving plaintiff from special care, which peculiar circumstances might impose upon him.

3. A master is liable for the acts of his servant done recklessly or wilfully in the course of his employment.

4. In a personal injury action involving the defense of contributory negligence, defendant's evidence of previous acts of carelessness on plaintiff's part is inadmissible.—(Aiken vs. Holyoke Street Railway Company, 68 N. E. Rep., 238.)

MASSACHUSETTS.—Street Railroads—Injuries to Pedestrians—Contributory Negligence—Evidence.

1. In an action to recover for the death of plaintiff's intestate, who was run over by one of defendant's street cars, evidence held to show that, though deceased stepped between the rails to avoid travelers approaching him on the street, he was guilty of negligence in not stepping off the track, and out of the way of the car approaching him from the rear, and the evidence was therefore insufficient to take the case to the jury.—(Dooley vs. Greenfield & T. F. Street Railway Company, 68 N. E. Rep., 203.)

MICHIGAN.—Carriers—Injuries to Passengers—Street Railroads—Evidence—Appeal—Assignments of Error—Review.

1. Where no assignment of error was taken to a portion of the judge's charge at the trial which was objected to on the oral argument on appeal, such objection cannot be reviewed.

2. In an action for injuries to a passenger on a street car, evidence reviewed, and held to justify the court in submitting to the jury the question whether an injury to plaintiff's spinal column was caused by other hurts which plaintiff received during the accident, and not by an electric shock, for which he was not entitled to recover.—(Perry vs. Detroit United Railway, 98 N. W. Rep., 17.)

MICHIGAN.—Street Railroads—Right of Way—Contributory Negligence.

1. The cars of a street railway company do not have the exclusive right of way on its tracks, and a motorman has no right to operate a car under the assumption that the right of way will be clear, and propel the car at the extreme rate permitted by law.

2. Failure of persons driving on street railroad tracks to look and listen for cars approaching from behind does not constitute contributory negligence as a matter of law.—(Rouse vs. Detroit Electric Railway, 98 N. W. Rep., 258.)

MICHIGAN.—Street Railways—Driver of Vehicle—Attempt to Cross Track—Contributory Negligence—Jury Question.

1. Where the driver of a vehicle at night turns to cross a double street car track, looking as he does so, and perceiving one car approaching on the nearer track at the distance of a block, and another on the further track at a distance of two blocks, he is not guilty of negligence, as a matter of law, in failing to look a second time before reaching the second track, and to endeavor to avoid the car on that track by remaining on the first track, or backing

clear of it, but the question is for the jury.—(Chauvin vs. Detroit United Railway, 97 N. W. Rep., 160.)

MICHIGAN.—Carriers of Passengers—Personal Injury—Declaration—Proof of Injury—Negligence—Evidence—Instructions—Remarks of Counsel—Harmless Error.

1. In an action by a passenger for injuries sustained by reason of the car running through an open switch, the declaration alleged that defendant's negligence consisted in want of reasonable care, in not having the switch properly adjusted, in not keeping the implements used in adjusting it so that children and others could not improperly use them to move the switch, in running the car at a high rate of speed, and in failing to approach the switch with the car under control. It was shown that the switch was at a public place, where many children congregated; that it was not fastened; that it was opened by any one desiring to do so by the use of a bar left there by defendant; that the car approached the switch at a rate of 15 or 20 miles an hour; and that some one had thrown the switch open. Held, that the evidence was sufficient to require the submission of the case to the jury.

2. In an action for injuries sustained by a passenger by reason of the car running through an open switch, the declaration alleged that plaintiff was thrown on the ground; that he was thereby bruised, hurt and wounded, sustaining a concussion of the spine, and injuring the tissues and nerves in the gluteal region of the right hip, causing a wasting of the right leg, and the nerves, muscles and tissues thereof, permanently disabling him from manual labor; that he suffered great pain and anguish of mind and body; and that he became sick, sore, lame and disordered. Held to authorize proof relative to neuritis of the sciatic nerve.

3. Where, in an action for personal injuries, a pre-existing injury was shown, which was caused by plaintiff falling on ice, which had not prevented him from working, and which affected the hip joint and left leg, but not his back, an instruction that plaintiff could not hold defendant liable for the effects due to the former condition, or its growth or development, and that plaintiff was entitled only to such damages on account of decreased earning power as, in accordance with his former condition, the jury should consider just, properly and sufficiently stated the law.

4. The remark of counsel, in his argument to the jury, that the witnesses for the adverse party were "cattle," though highly improper, does not constitute prejudicial error, where the court stated that he would not make such remarks, and where counsel thereupon retracted, and his associate stated that he did not think counsel intended to say the men were cattle.—(Leslie vs. Jackson & S. Traction Company, 96 N. W. Rep., 580.)

MISSOURI.—Street Railways—Injury to Pedestrian—Contributory Negligence—Burden of Proof—Evidence—Sufficiency—Instructions.

1. Where, in an action against a street railway company for injuries to a pedestrian from being struck by defendant's car, there was no proof that plaintiff did not look or listen before attempting to cross the track, it will be presumed that she was in the exercise of due care.

2. It is not negligence as a matter of law for a person to fail to look and listen before attempting to cross a street railway track while a car is over 200 feet distant, with the view of the motorman unobstructed.

3. Where plaintiff, in attempting to cross defendant street railway company's track, fell while the car was over 200 feet distant, and the motorman's view unobstructed, the question of whether he could have seen plaintiff in time to have stopped the car before injuring her was for the jury.

4. In an action for negligence, failure to specifically define reasonable care is not error, where no such definition was requested.—(Priesmeyer vs. St. Louis Transit Company, 77 S. W. Rep., 313.)

MISSOURI.—Carriers—Injury to Passenger—Degree of Care Required—Instruction.

1. In an action by a passenger for injuries it is not error to instruct that the common carrier of persons is bound to use "the highest degree of care" for the safety of its passengers.—(Tillman vs. St. Louis Transit Company, 77 S. W. Rep., 320.)

MISSOURI.—Carrier of Passengers—Street Car Company—Negligent Carriage Beyond Destination—Injury While Returning—Liability.

1. The act of a street car company in negligently carrying a passenger one block beyond her destination is not the proximate cause of an injury sustained by her from a fall on an icy sidewalk while returning to the point of original destination.—(Haley vs. St. Louis Transit Company, 77 S. W. Rep., 731.)

MISSOURI.—Carriers of Passengers—Injury—Evidence—Burden of Proof—Instructions.

1. An instruction that the negligence charged is that the conductor of defendant's car stopped it to permit plaintiff to alight,

and while she was alighting suddenly started it, throwing her down and injuring her, is not objectionable as placing stress on the stopping of the car as part of the act of negligence.

2. A charge in an action against a street railway company for negligence, setting out plaintiff's theory, and stating that the burden is on plaintiff as to the act of negligence "throughout the case," is not objectionable as requiring the plaintiff to prove herself free from contributory negligence, where no reference is made to that.

3. The burden is not shifted from a passenger on proof of her injury in alighting from a street car so as to require an explanation from the company, but she must also prove that the accident occurred through the company's fault.

4. Where a street car company was entitled to an instruction that it was not guilty of negligence unless a car had "stopped" when a passenger attempted to alight, the use of the term "stopped still" was no abuse of the right.

5. Where a passenger, in her petition against a street railway company, alleged, and her evidence tended to prove, and her requests for instructions assumed, that the car had stopped when she attempted to alight therefrom and was injured, she cannot complain of instructions, on defendant's request, that, if the injuries were caused by her leaving the car before it had stopped, or if she got off the car while it was yet moving, the company is not liable.—(Peck vs. St. Louis Transit Company, 77 S. W. Rep., 736.)

MISSOURI.—Street Railroads—Crossings—Injuries to Pedestrians—Contributory Negligence—Humanitarian Doctrine—Trial—Witnesses—Examination—Facts Previously Testified To.

1. Where, in an action against a street railway company for the death of a pedestrian at a street crossing certain witnesses not only testified that the motorman could see the deceased, but also testified to all the physical facts necessary to determine how far the motorman could have seen him, and were permitted to make all the corrections they desired in their testimony, it was not error for the court to refuse to permit plaintiff's counsel to again ask the witnesses concerning such facts.

2. Where plaintiff's decedent could have seen an approaching street car, by which he was killed at a street crossing, at all times after starting to cross the street, but attempted to cross in front of the car without looking or paying any attention thereto, he was guilty of such contributory negligence as precluded recovery.

3. Where the negligence of plaintiff's decedent, who was killed by a street car at a crossing, was not only concurrent with that of the motorman, but was contemporaneous and coincident with his injury, no recovery could be had under the humanitarian doctrine.—(Ries vs. St. Louis Transit Company, 77 S. W. Rep., 734.)

MISSOURI.—Street Railways—Negligence—Persons on Track—Proximate Cause—Discovered Peril—Action by Parents—Evidence.

1. A girl of 11 years of age and a boy of 9, walking on the tracks of a street railway without looking for a car, are guilty of negligence.

2. Where two children went on the tracks of a street railway and walked along the same in the same direction from which a car was approaching them, the motorman of the car had a right to presume, in the first instance, that they had looked for the car, or would look, and get out of the way.

3. Where, in an action against a street railway for the death of a child who was run over by a car, it appeared from plaintiff's evidence that deceased was walking along the track in the same direction in which the car was moving, and could have been seen for over 400 feet by the motorman, it was a question for the jury whether the motorman knew, or by the exercise of ordinary care should have known, of the danger in time to have averted the accident.

4. Where the motorman of a street car sees one walking along the track ahead of the car, and that he is oblivious of his danger, in time to avert accident, but fails to do so, the company is liable.

5. In an action for the death of plaintiff's 11-year-old daughter, killed by being run over by a street car while on her way to school, the fact that there was no positive evidence to show that the girl was unmarried was no ground for sustaining a demurrer to the evidence.—(Jett et al. vs. Central Electric Railway Company, 77 S. W. Rep., 738.)

MISSOURI.—Street Railroads—Injuries to Wagon—Actions—Evidence—Nonsuit—Instructions—Uncompleteness—Conflicting.

1. In an action against a street railroad for injuries to a wagon a nonsuit was properly denied where, on plaintiff's evidence, the wagon was visible for the length of a block on the same track as that on which the car was running, and the motorman might have avoided the collision.

2. In an action against a street railroad for injuries to a wagon, an instruction to find for plaintiff if the motorman saw or could have seen the wagon in time to warn the driver and enable him to drive off, or in time to stop the car, before the collision, was incomplete in that it failed to also state that the motorman must have neglected to warn plaintiff's driver, and that such neglect must have been the proximate cause of the accident.

3. In an action against a street railroad for injuries to a wagon, an instruction to find for plaintiff if the motorman could have seen the wagon in time to warn the driver and enable him to drive off, or in time to stop the car, before collision, was in conflict with instructions given for defendant to the effect that it was not liable if its servants used ordinary care to stop the car as soon as they saw, or might have seen, plaintiff's wagon in a position of danger, and which accepted that theory as the only ground of recovery.—(Jersey Farm Dairy Company vs. St. Louis Transit Company, 77 S. W. Rep., 346.)

MISSOURI.—Street Railroads—Crossings—Injuries—Duty to Look and Listen—Contributory Negligence—Questions for Jury—Proximate Cause—Last Clear Chance—Care Required—Instructions—Quotient—Verdict—Appeal.

1. Plaintiff testified that before crossing a street car track he looked both ways, and saw no car coming, and when the front wheels of his wagon struck the south rail of the track he heard a noise, and looked west, and saw a car approaching about 200 feet away at a rapid rate of speed; that he whipped up his horses, but failed to get the wagon across in time to avoid a collision, and was injured; that the reason he did not see the car before starting across the track was that his view was obstructed by the foliage of shade trees, which was not disproved. Held, that plaintiff was not guilty of contributory negligence, as a matter of law.

2. Where, in an action for injuries in a collision with a street car at a crossing, plaintiff's evidence tended to show that the car was running at a rate of speed prohibited by a city ordinance, and it was a reasonable inference that, if the car had been running at a lawful rate of speed, plaintiff could have cleared the track before the car arrived, such proof showed negligence per se.

3. Where, in an action for injuries in a collision with a street car at a crossing, it appeared that the car was from 200 to 250 feet west of plaintiff when his horses were in the track on which the car was running, and that the car could have been stopped within a much shorter space than 200 feet, and plaintiff and his team were in plain view of the motorman, attempting to cross as the latter approached the crossing, it was the duty of the motorman to have stopped the car in time to have avoided injuring plaintiff, and his omission to do so was the proximate cause of the injury.

4. Where the negligence of a street railway motorman in failing to stop his car to avoid injuring plaintiff while he was endeavoring to cross the track, which the motorman could easily have done, was the proximate cause of plaintiff's injury, plaintiff's contributory negligence in driving on the track without looking or listening was no defense.

5. In the absence of proof that a quotient verdict had been returned by the jury, error of the court in charging that, though it was improper and illegal for them to agree to arrive at a verdict in that manner, yet, if they did not so agree, but assented and voluntarily agreed on such amount without reference to the manner in which it was obtained, the verdict was not contrary to law, was not available on appeal.

6. In an action for injuries in a collision with a street car at a crossing in a populous part of a large city, an instruction which required the motorman in charge of the car to keep a vigilant watch for other vehicles, and on the first appearance of danger to stop or check his car in the shortest time and space practicable, was not erroneous, as requiring too high a degree of care.—(Kolb vs. St. Louis Traction Company, 76 S. W. Rep., 1050.)

MISSOURI.—Street Railroads—Injury to Passenger—Negligence—Instructions—Pleadings—Assumption of Risk—Damages.

1. A street railway company assuming to carry a passenger standing on the steps of the platform of the car, outside of the gate, and on the side next to the other track, on which cars run in the opposite direction, is chargeable with the duty of carrying him safely in that position, if it can be done by that high degree of care which the law requires the company to observe toward its passengers.

2. A street car passenger taking a dangerous position by standing on the car steps, outside of the gate, and on the side of the adjacent track, on which cars run in the opposite direction, is required to exercise that degree of care for his own safety which prudent persons under like circumstances would observe.

3. A street car passenger, because of the crowded condition of the car, stood on the step of the front platform of the car, outside of the gate enclosing the platform, and on the side next to the

track on which cars were operated in the opposite direction. The motorman saw him, and warned him that it was a position of danger. The conductor saw him, and, without warning, collected his fare. It was feasible to carry a passenger safely in that position. The company carried men safely in that position, and carried this passenger for about two miles, when he was injured by the car and a car traveling on the other track coming nearly in contact with each other at a curve in the road, because of a violation of the rules of the companies operating cars on the tracks, governing the passing of cars at curves. There was nothing to show that the passenger was guilty of negligence after taking his position on the step. Held, that the question of defendants' negligence was for the jury.

4. Though the act of the passenger in taking the position on the step was an act of negligence, which contributed to his injury, the question of the negligence of the motorman, knowing the position of the passenger, running his car into the curve in plain view of the car on the other track, was for the jury.

5. The petition in an action by a street car passenger for injuries, alleged negligence of defendants in bringing their cars in close proximity while meeting on a curve. The answer consisted of a general denial and a plea of contributory negligence, in taking a dangerous position on the step of the platform of the car, outside of the gate, and on the side next to the other track. Held, that an additional plea alleging that the passenger knew, or by ordinary care might have known, the situation of the tracks, and that the danger of riding on the step was known, or by ordinary care might have been known, to the passenger, and that he assumed the risk, if intended to charge that his injuries resulted solely from his voluntary act of riding on the step, was covered by the plea of general denial.

6. If the pleader intended to allege that the position was so dangerous that injury to the passenger could not have been avoided by the exercise of the care incumbent on the carrier, and that the danger was obvious or known to the passenger, the plea was defective for failing to so allege.

7. If the plea intended to allege that the passenger's negligent act of riding on the step contributed to his injury, it was covered by the plea of contributory negligence.

8. A street railway passenger never assumes the risk of the company's negligence.

9. A fact about which there is no dispute, and which is conceded to be true notwithstanding the allegations in the pleadings, may be assumed in an instruction to be true.

10. Where there was some evidence that the car of the other company stopped after entering the curve at a point where the danger was greatest, an instruction that such company was not liable, if at the moment of the accident its cars was not passing through the curve, was properly refused, because authorizing a verdict for it if its car had stopped after entering the curve.

11. Where there was nothing to indicate that the verdict in a personal injury action was not the result of calm judgment, the court on appeal will not disturb it as excessive.—(Parks vs. St. Louis & S. Railway Company, et al., 77 S. W. Rep., 70.)

MISSOURI.—Master and Servant—Personal Injuries—Negligence—Pleading—General Charge—Evidence—Sufficiency—Accident—Presumption—Fellow Servants—Street Railways.

1. In an action against a master for personal injuries to a servant, a general charge of negligence is sufficient as against an objection first made on trial.

2. In an action against a master by a servant for personal injuries, evidence that a crowbar used by other servants fell through the floor to the next story, and struck plaintiff on the head, was sufficient to cast on defendant the necessity of showing that the accident was not the result of negligence.

3. Plaintiff, who was engaged in hauling away rubbish made by carpenters in their work, was a fellow servant with the carpenters, and could not recover for injuries inflicted by their negligence.

4. A street railway is not within the provisions of the fellow-servant statute applicable to railroads, whereby the master of common servants is made answerable for their negligence to each other.

5. Where an action was against the Metropolitan Street Railway Company, and the petition charged that such company was a common carrier, and a corporation organized and existing under the laws of the State, owning and operating street and electric railways between certain points, and that plaintiff was employed by defendant in hauling trash from its power house, there was sufficient in the case to show that defendant was a street railway company, and not within the fellow-servant statute applicable to railroads, though there was no direct and affirmative proof of such fact.—(Johnson vs. Metropolitan Street Railway Company, 78 S. W. Rep., 276.)

MISSOURI.—New Trials—Discretion of Trial Court—Malicious Prosecution—Damages—Excessive Verdicts.

1. The granting of new trials rests peculiarly within the sound discretion of the trial court.

2. In circuit courts is vested the authority and the duty to supervise verdicts, and to grant new trials if the verdict is improper or not sustained by the evidence.

3. In an action for malicious prosecution, although plaintiff's evidence established his high character, and unjust denouncement by defendant's servants upon the charge of breach of the peace and their detention of him prior to arrest, his release on bail, and discharge after trial, coupled with unprovoked and unjustified insult, so that plaintiff was entitled to liberal redress and punitive damages, a verdict for \$1,500 actual damages and \$1,000 exemplary damages was excessive.—(Farrell vs. St. Louis Transit Company, 78 S. W. Rep., 312.)

MISSOURI.—Street Railways—Injury to Passenger Alighting—Time to be Allowed—Variance—Impeaching Testimony—Damages—Instructions—Harmless Error.

1. Where a passenger on a street car has a young girl with her, extra time should be allowed her in alighting, in view of her delay necessary to assist her companion to alight.

2. There is no variance between a complaint alleging that while plaintiff was alighting from a street car, and before she had a reasonable time to alight, the car started, and proof that it did not stop a sufficient time to allow her to alight, in view of her delay caused in assisting a young girl with her to alight.

3. Judgment will not be reversed for variance, in the absence of a showing, under Rev. St. 1899, section 655, providing that no variance shall be deemed material unless proved so by affidavit.

4. The conductor of the street car having testified, in an action for injury to a passenger in alighting, that the car did not start till after the passenger had alighted, evidence that while assisting her to arise from the ground he recognized that she had been thrown from the car, is admissible to impeach him.

5. Error in an instruction in an action for personal injury, in which the testimony showed that plaintiffs paid his physician \$20 for his services, authorizing a recovery for any expenses necessarily incurred for medical attention, instead of leaving it to the jury to decide whether the amount paid was reasonable, is not materially prejudicial, so as to require a reversal.—(Hannon vs. St. Louis Transit Company, 77 S. W. Rep., 158.)

MISSOURI.—Street Railroads—Injury to Passenger—Assault by Conductor—Petition—Demurrer—Waiver—Statutes—Appeal and Error—Verdict.

1. An appeal on the record, in the absence of a bill of exceptions, restricts the court to a review of questions arising on the face of the record.

2. Where a demurrer to a petition on the ground that defendant is not a necessary party to a complete determination of the action is overruled, an answer on the merits is equivalent to a withdrawal or abandonment of the demurrer, under Rev. St. 1899, section 602, relating to waiver of objections.

3. A carrier is liable where plaintiff, after a street car had stopped for the purpose of receiving passengers, and while still, or slowly moving, attempted to get on, and was violently and without provocation assaulted by the conductor, causing plaintiff to fall from the car, whereby he sustained injuries.

4. By pleading to the merits defendant waives all objections to the petition except that it fails to state facts sufficient to constitute a cause of action and the objection that the court has no jurisdiction over the subject-matter of the action.

5. Any defects in a petition alleging that plaintiff, after a street car had stopped for the purpose of receiving passengers, and while still, or slowly moving, attempted to get on, and was violently assaulted by the conductor, causing plaintiff to be thrown and fall from the car, whereby he sustained injuries, such assault being without provocation or justification, and committed while plaintiff was on the car or step thereof, are cured by verdict, under Rev. St. 1899, section 629, requiring pleadings to be liberally construed with a view to substantial justice between the parties.—(Strauss vs. St. Louis Transit Company, 77 S. W. Rep., 156.)

MISSOURI.—Street Railways—Ejection of Passenger—Injuries—Action—Declaration of Conductor—Res Gestae—Instructions.

1. In an action against a street railway company for injuries sustained by a passenger on his being thrown from a car by the conductor, the statement of the conductor, made shortly after the occurrence, and when passengers were crying, "Stop the car!" to the effect that he was not going to stop the line for a man, was not admissible as a part of the res gestae.

2. Though plaintiff's witnesses testified that the car proceeded without stopping, the erroneous admission of the declaration of the conductor was not harmless.

3. In an action against a street railway company, the complainant alleged that plaintiff had refused to pay his fare until the car had passed a dangerous curve, plaintiff at the time the fare was demanded having hold of a rail to keep from being thrown from the car, and being incumbered with packages, but that the conductor threw him from the moving car, which allegations were sustained by plaintiff's testimony, and the answer alleged that on refusal to pay his fare the conductor had put plaintiff off without unnecessary force, which theory was sustained by the conductor's testimony. The court instructed that if the jury found that plaintiff refused to pay his fare the conductor had a right to put him off, but had no right to use any more force than necessary, nor to subject him to injury by pushing him off while the car was moving; and, if the conductor violently pushed him from the car when it was moving so rapidly as to throw him to the ground and injure him, plaintiff was entitled to recover. Held, that the instruction was not open to the objection that it permitted a recovery on a different cause of action from that stated in the petition.—(Gotwald vs. St. Louis Transit Company, 77 S. W. Rep., 126.)

MISSOURI.—Carriers of Passengers—Street Railway—Landing Passenger—Running Past Crossing—Proximate Cause of Injury—Safe Place to Alight.

1. Running past a street crossing is not the proximate cause of injury to a street car passenger hurt in an attempt to alight.

2. Where a street car stops 15 feet beyond a street crossing, at a place where the ground slopes up from the track so as to be on a level with the car's step at a point reached by a passenger in her first step in alighting, but the place from all appearances is safe, there is no negligence sustaining a recovery by the passenger for straining the muscles of the leg in alighting.—(Lynch vs. St. Louis Transit Company, 77 S. W. Rep., 100.)

MISSOURI.—Street Railways—Injury to Passenger—Duty of Carrier—Damages—Instructions.

1. Evidence of a passenger on a street car that she was thrown from the body of the car into the street by a sudden lurch thereof is sufficient to authorize a finding that there was such an unusual and severe lurching thereof as to constitute negligence.

2. An instruction in an action for injury to a passenger on a street car that a common carrier is bound to use the highest degree of care for the safety of its passengers, followed by an instruction that if the motorman was negligent, and his negligence caused the car to lurch, throwing plaintiff into the street, plaintiff could recover, unless she was not exercising ordinary care, is not erroneous because the term "highest degree of care" is not defined.

3. An instruction that, if the jury find for plaintiff, they should assess her such damages as they think, under the evidence, would compensate her, etc., is not erroneous because using the word "think" instead of "believe" or "find."—(Ilges vs. St. Louis Traction Company, 77 S. W. Rep., 94.)

MISSOURI.—Carriers—Ejection of Passenger—Refusing Money as Counterfeit—Damages—Evidence of Character.

1. In estimating damages for the wrongful and forcible ejection of a passenger, his physical pain, though slight, and his mental suffering naturally resulting, may be considered.

2. The honest expression of opinion by a conductor that money offered to him for fare is counterfeit, and his refusal to accept it on that account, he not charging that the passenger knew it was counterfeit, is not a tort, or an element of damages for the wrongful ejection of the passenger.

3. A passenger, in an action against a carrier for a wrongful ejection, may not give evidence as to his character, it not being attacked.

4. Where a passenger is rightfully on a car, and tenders and continues to tender a lawful money for his fare, which is refused on the claim that it is counterfeit, he is not required to leave the car, but may make protest against and reasonably resist ejection.—(Breen vs. St. Louis Transit Company, 77 S. W. Rep., 78.)

MISSOURI.—Street Railroads—Injuries to Person on Track—Negligence—Instructions—Evidence—Harmless Error.

1. In an action against a street railway company for the killing of a child on its track, evidence examined, and held that the question of the company's negligence in failing to stop the car in time to have averted the injury after discovering the child's peril, or which, by the exercise of ordinary care, could have been discovered, was for the jury.

2. Where the petition in an action against a street railway company for killing a child on its track alleged that the company's servants saw the child on the track and approaching thereto in time to have avoided the accident by stopping the car, an instruction that the company's servants were not required to stop the car until they saw, or might have seen by the exercise of reasonable care, that the child was or about to be placed in a position of peril, was not outside of the issues.

3. The servants of a street railway company in charge of a car are required to stop the car when they see, or may see by the exercise of reasonable care, that a child is in a position of peril by being on the track, or is about to be placed in such peril.

4. The error, if any, in excluding evidence, is cured by its subsequent admission.

5. The error in excluding from a hypothetical question asked as an expert as to the space within which a street car could be stopped the element whether the car was empty was harmless where on cross-examination the witness testified that it would make no difference whether the car was empty or filled with passengers.—(Meeker et al. vs. Metropolitan Street Railway Company, 77 S. W. Rep., 58.)

MISSOURI.—Carriers—Passengers—Street Car—Injury in Alighting—Sufficiency of Petition—Preliminary Statement of Counsel—Effect—Assumption of Risk—Duration of Contract of Carriage—Instruction as to Degree of Care—Contributory Negligence.

1. A passenger alleged that the defendant company operated an electric line through a country district; that the car she was on was an open one; that at a regular station defendant maintained an elevated wooden platform; that plaintiff notified the conductor of her desire to alight at this station, and that it was the duty of the carmen to stop opposite the platform, but they carelessly ran the car beyond that, and stopped where the ground was three or four feet below the running board and the surface was rough; that when the car stopped the conductor carelessly called the name of the station, and waited for plaintiff to alight, without offering to assist her; and that in attempting to step carefully onto the ground by reason of the great distance and the uneven surface, she fell and was injured. Held, that the petition stated a cause of action, though it was not expressly averred that the place where the car stopped was unsafe or dangerous.

2. The opening statement of counsel as to what he expects the evidence will disclose is not an admission binding on his client, so as to form a basis for a nonsuit.

3. The doctrine of assumption of risk has no application to the case of a passenger injured while attempting to alight from an electric car at a dangerous place selected by the carmen, though she made no demand to have the car returned to a safe place for alighting.

4. A passenger's contract for carriage on an electric car covers the period needed for safely alighting therefrom, during which she is entitled to be shown the highest degree of care.

5. In an action by a passenger for injuries, an instruction that defendant is held to "the utmost care, skill and vigilance," accompanied by a recital of the particular facts which will sustain a recovery, is not ground for reversal, in the absence of a request for amendment, though it does not define the degree of care specified as that which would be exercised under the circumstances by very cautious men.

6. An electric car running through a country district ran past a platform provided for the exit of passengers and across a road, where it stopped to permit a passenger to alight, the conductor calling the station. There was a footboard along the side of the car, and plaintiff was permitted to alight, without assistance or remonstrance from the carmen, at a place testified by her to have been 3 or 4 feet, and by others 22 inches below the footboard, and where the ground was uneven. Held, that she was not guilty of contributory negligence, though she failed to go along the footboard to the rear of the car, which was opposite a level piece of ground.—(Fillingham vs. St. Louis Traction Company, 77 S. W. Rep., 314.)

MISSOURI.—Street Railroads—Passengers Alighting—Suddenly Starting Car—Negligence—Proximate Cause—Contributory Negligence.

1. The negligence of a street railway company in suddenly starting an open car, by reason of which a passenger standing between two seats, in the act of alighting, was thrown forward and toward the adjoining track, in which position he was struck by a car passing on the adjacent track, held the proximate cause of the injuries sustained.

2. The statement of a street car passenger, who, because of the sudden starting of an open car while he was standing between two seats, in the act of alighting, was thrown forward toward the adjoining track, in which position he was struck by a car passing on the adjoining track, that when he lost his footing he was not looking for a car on the adjoining track, but was looking where he meant to step, did not show that he meant to step onto the adjoining track without looking, and so did not show that he was guilty of contributory negligence.

3. It is the duty of street car companies to stop their cars long enough to permit passengers to alight safely, and to start a car without giving ample time for this purpose is actionable negli-

gence.—(Scamell vs. St. Louis Transit Company, 76 S. W. Rep., 660.)

MISSOURI.—Carriers—Street Cars—Injury to Passenger—Premature Start—Damages—Earning Capacity—Future Pain and Suffering—Excessiveness.

1. Where, in an action for injuries, plaintiff testified that she was keeping a boarding house when she was injured, and that prior to her injury she did certain necessary work with reference thereto, and that after her injury she was unable to do any such work, and was compelled to hire others to do it, whose services cost her a certain sum each week, an instruction submitting loss of earning capacity as an element of plaintiff's damages was proper.

2. Where there was evidence that plaintiff's injuries were permanent, or were reasonably certain to last an indefinite period, and continue to cause bodily pain and mental anguish, such future pain and anguish constituted proper elements of damage, though plaintiff's injuries were not such as to be externally visible.

3. In an action for injuries to a passenger while attempting to board a street car by reason of a premature start, evidence held insufficient to show that a verdict for \$2,000 was excessive.—(Batten vs. St. Louis Transit Company, 76 S. W. Rep., 728.)

MISSOURI.—Carriers—Negligence—Contributory Negligence—Evidence—Instructions—Credibility of Witnesses.

1. A passenger was alighting from a street car, and her left foot was on the lower step and her right foot in the air, and she had released her hold of the hand rail, when the car suddenly started, and, to prevent being thrown on the ground, she threw herself backward in an effort to remain on the car, but missed the car, and was injured. Held, that the passenger was not guilty of contributory negligence.

2. Where there was no conflict in the testimony, and no witness made any inconsistent or contradictory statement, and no effort was made to impeach any of them, it was proper to refuse an instruction that the jury were the sole judges of the credibility of witnesses and the probability or improbability of the testimony of any of the witnesses; and that, if they believed any witness had sworn falsely, they might disregard his whole testimony.—(Brazis vs. St. Louis Transit Company, 76 S. W. Rep., 708.)

MISSOURI.—Street Railways—Negligence—Collision With Vehicle—Contributory Negligence—Evidence—Contradictory Physical Facts—Comparative Negligence.

1. Where, in an action against a street railway for damages by a collision between a car and plaintiff's wagon, the physical facts show that, if plaintiff had looked before driving on the track he could have seen the car, his testimony that he looked, but did not see the car, should be withdrawn from the consideration of the jury.

2. Where, if the motorman of a street car had kept a vigilant watch, he would have seen plaintiff's perilous position in time to have stopped his car and avoided the collision, the railroad is liable, though plaintiff drove upon the track without looking or listening.

3. Where, without looking or listening, one drove on a street railway track so near to an approaching car that it could not be stopped in time to avoid a collision, the railroad was not liable, though the motorman failed to sound his gong.

4. Where one driving a vehicle and approaching a street railway track sees the car approaching, but continues on his course without again looking to see whether he can safely cross, he is guilty of contributory negligence, precluding recovery.

5. In an action against a street railway for damages from a collision between plaintiff's wagon and a car, plaintiff testified that on approaching the tracks he looked for a car, but did not see one until the front wheels of his wagon were on the track. The physical facts showed that the car must have been in sight when he looked. Held, that an instruction that if defendant could have averted the accident after discovering plaintiff's peril, but failed to do so, it was liable, irrespective of whether plaintiff exercised care to look out for the car, if plaintiff exercised ordinary care to avoid the accident after he became aware of his danger, was erroneous, as authorizing a recovery on the assumption that plaintiff was guilty of no contributory negligence, provided he used diligence to get over the track after the front wheels of the wagon were on it.—(Barrie vs. St. Louis Transit Company, 76 S. W. Rep., 706.)

MISSOURI.—Street Railways—Passengers—Negligence—Sudden Starting of Car—Contributory Negligence—Question for Jury—Instructions.

1. Where a passenger on a street car signaled the motorman to stop for a certain crossing, and the car slowed down, as the passenger supposed, in response to the signal, and while it was moving at the rate of about three miles an hour he undertook to

alight, and the car suddenly started forward, whereby he sustained injuries, the passenger was not guilty of negligence as a matter of law.

2. The question whether a passenger may safely alight from a street car moving at the rate of three miles an hour, depending as it does largely on the surroundings, expertness of the passengers, etc., is a question of fact for the jury.

3. In an action for injuries sustained by a passenger who was attempting to alight from a street car moving at the rate of three miles an hour when the car suddenly started forward, the use in an instruction of the word "slowly" with reference to the speed of the car was not erroneous, especially where other instructions fully and correctly submitted the issue of contributory negligence.

4. In an action against a street railway company for injuries sustained by a passenger, where it appeared that his legs and shoulders were badly bruised, and that he was badly shocked, and confined to his bed, but propped up therein, not being able to lie down, for five or six weeks, and had pleurisy, spat blood and suffered great bodily pain, and that his legs for a time were bruised, and that he was still lame and suffered pain in his legs, a verdict for \$2,000 was not excessive.—(Dawson vs. St. Louis Transit Company, 76 S. W. Rep., 690.)

MISSOURI.—Street Railroads—Collisions—Negligence—Sufficiency of Evidence.

1. In an action for injuries to a team by a collision with a street car, held, that a verdict for plaintiff was not supported by the evidence; the physical facts showing its unsoundness.

2. While the court on appeal is reluctant to interfere with a verdict on the ground of insufficient evidence, it will not accept as conclusive one given at the first hearing, if it cannot be accounted for by rational theories.—(Spiro vs. St. Louis Transit Company, 76 S. W. Rep., 684.)

MISSOURI.—Street Railroads—Negligence—Personal Injuries—Contributory Negligence—Collision With Vehicle—Question for Jury—Instructions—Generality—Right to Object—Waiver.

1. In an action against a street car company for injuries caused by defendant's car colliding with plaintiff's buggy from the rear, evidence considered and held to require submission of the issue whether plaintiff was guilty of contributory negligence.

2. In an action against a street car company for personal injuries resulting from defendant's car colliding with plaintiff's wagon, an instruction, if the servants of defendant negligently ran the car upon the plaintiff's team, and by ordinary care could have avoided doing so, and such negligence was the cause of the injuries, to find for plaintiff, did not constitute reversible error because too general, where other charges restricted plaintiff's recovery to the negligence specifically pleaded.

3. In an action for personal injuries, in which the petition contained allegations of general damages, and defendant did not object to evidence on plaintiff's earning capacity, it thereby waived its right to object to an instruction authorizing the awarding of damages for loss of time.—(Twelkemeyer vs. St. Louis Traction Company, 76 S. W. Rep., 682.)

TROLLEY-WHEEL PATENT DECISION

United States Circuit Court of Appeals for the Sixth Circuit, that of Cincinnati, recently decided that the trolley wheel of the Star Brass Works, of Kalamazoo, is not an infringement of the Anderson patent No. 412,155, owned by the General Electric Company. The case was brought before the court on an appeal from the Circuit Court of the United States for the Western District of Michigan.

The suit for infringement was on the eighth claim of the patent, which covered "the combination, with a trolley frame and trolley wheel, of metallic conducting brushes, *g₂*, between the hubs of the trolley wheel and the said frame, to operate substantially as described." The court construed this claim as requiring the springs to be located inside the harp. In the present form of trolley wheel manufactured by the Star Brass Works, and which is covered by a patent, No. 690,639, the spring is placed on the outside of the harp. Here it is protected against injury from without by being placed in a deep recess, and against injury from within by the intervening frame. The court held that "a patent for protecting a spring by locating it on the inside of the trolley harp is not infringed by placing it in a recess on the outside any more than a patent for protecting it by counter-sinking it on the outside is infringed by locating it wholly on the inside. Although the result may be the same, the device is different, and the patent covers only the device." The judgment of the lower court was, therefore, reversed.

FINANCIAL INTELLIGENCE

WALL STREET, July 27, 1904.

The Money Market

A somewhat firmer tendency has developed in the money market during the week. Rates on call loans have remained the same, but on time loans they are fractionally higher all around. Sixty-day maturities have hardened from $1\frac{3}{4}$ to 2 per cent and, whereas a little while ago, six months money was offered freely at $3\frac{1}{4}$ per cent, $3\frac{1}{2}$ is the figure which bankers now hold out for. This slight advance is a reflection of conditions prospective rather than present. At the moment the plethora of idle capital continues, the surplus, as shown in last Saturday's statement, having reached the exceptionally high level of \$50,000,000. No immediate signs have appeared of a slackening in the currency movement inward from the interior; on the contrary receipts of cash from the country last week exceeded considerably the average of the weeks directly preceding. This extreme ease of the immediate situation is summed up in the market for call money, which, in spite of the more active speculation in securities, has frequently loaned as low as $\frac{3}{4}$ of 1 per cent within the last few days. In fixing their terms for the longer advances, however, bankers have been governed more by the consideration that it will soon be time for the interior institutions to begin their usual autumn drafts on their New York deposits. These deposits this season are unusually large. Moreover, if present indications are borne out there will be an unusually heavy crop yield this year at considerably more than the average prices. For these two reasons, it is quite likely that the drafts upon New York balances during the approaching autumn will be very much larger than the ordinary. To this probability is now added a new feature of the situation which has not developed until this week. Sterling exchange, after persistently refusing to recognize the easy condition of the local money market, has reflected a sudden and remarkable reversal of opinion. It is now perceived that strange as it may seem at this period of the year, the conditions favor high rather than low rates of exchange. Not only has all idea of gold imports been abandoned, but with the marked tendency of foreign money to harden, while our market keeps stationary, there is strong likelihood of a renewal of gold exports. In fact exchange has already advanced to the point where shipments to London direct are very nearly in sight. That this extraordinary spectacle has had something to do with the hardening of time money, there is every reason to believe; if exports of gold do actually set in, we may expect the money market to make more of a response.

The Stock Market

The rise in prices after continuing enthusiastically during the first half of the week under review, has within the last few days encountered a sharp check. There are several reasons more or less obvious for speculative sentiment becoming less confident. One of these, and perhaps the main one, has been the disturbance occasioned in foreign financial circles by the seizure and sinking of English ships by Russian war vessels. This has stopped whatever desire there might have been abroad to enter the American market, and it has besides caused considerable selling of our securities for foreign account. Another influence against the market has been the extension of the beef strike, and the outbreak of labor troubles in the New England cotton mills. Still another retarding incident is the sudden advance in exchange with the attendant prospect of gold exports referred to in the paragraph above. Good judges of Wall Street conditions do not, however, deceive themselves that these are more than supplementary factors in this week's decline. The governing reason unquestionably has been the necessity always belonging to a rising market, to have its sharp reactions from time to time, clearing away the extravagances which have developed from too eager speculative operations. A perfectly natural set back is really what the Stock Exchange has witnessed during the last few days. The news in which the financial situation is most deeply concerned—the crop reports—is still of the most encouraging character. Since the first week of the month the weather throughout the country has been almost perfect for the advancement of all crops. That improvement in conditions has occurred everywhere, with the possible exception of parts of the spring wheat territory, is undoubtedly true. The market is bound to respond to this power-

ful stimulus in time, whether or not it decides to rest for the immediate future.

The local tractions have followed the course of the general market, without developing any noteworthy feature by themselves. Brooklyn Rapid Transit has suffered from liquidation of speculative holdings created on the recent rise, and scattered selling has carried Metropolitan off over 3 points from its late top figure. Manhattan has been inactive.

Philadelphia

As a rule, prices have worked lower in the Philadelphia market during the week. The traction list has felt the effect of the reactionary tendency in other directions, but losses have been limited pretty generally to fractions. Philadelphia Company common is off the most of any, having dropped $1\frac{1}{4}$ per cent from $40\frac{1}{4}$ to 39. The action of this stock for some time has suggested that the interests who have been trying to put it up have had by no means an easy task. The preferred lost a half-point on the week, from $45\frac{3}{4}$ to $45\frac{1}{4}$. All the other leading specialties were reactionary, Rapid Transit falling back from $14\frac{1}{2}$ to $13\frac{1}{4}$, Philadelphia Traction from $98\frac{7}{8}$ to $98\frac{1}{2}$. On the other hand, Philadelphia Electric was comparatively strong, advancing from $6\frac{1}{2}$ to $6\frac{5}{8}$, and in the general decline not losing quite all its gain. American Railways, after selling at $47\frac{1}{2}$, dropped to $47\frac{1}{4}$ on sales of 300 shares. Consolidated Traction of New Jersey was steady, 450 shares changing hands at 67. Other minor transactions comprised 100 shares of Reading Traction at 32, Thirteenth and Fifteenth Streets Passenger at 305 and 300, Fairmount Park Transportation (210 shares) at 16, Philadelphia City Passenger at 201, and Hestonville Passenger at 47.

Chicago

The Chicago dealings in the traction group have again this week been only trifling. Except as a matter of record they are hardly worth recording. One hundred South Side Elevated sold at $91\frac{1}{2}$ to $91\frac{3}{8}$, and 100 Northwestern Elevated common at 16. Otherwise transactions were confined to small odd lots, comprising West Chicago between 43 and $42\frac{1}{4}$, North Chicago at 71 and 72, City Railway at 175, and Metropolitan Elevated preferred at $55\frac{1}{2}$. The steel requirements of the South Side Elevated Railroad for its extensions will aggregate 25,000 to 30,000 tons and the company is said to be shopping around for the material. Stockholders in all likelihood will vote for the bond issue to provide for these extensions at the special meeting August 9. Injunction proceedings have been commenced in the Circuit Court for an order restraining the elevated railroads from further using the Union Loop. The charge is set forth that the Union Loop is an obstruction to travel, shuts out light from the abutting buildings, and creates too much noise. Officials of the road say the whole thing is an attempt at political holdup.

Other Traction Securities

The weakness in Massachusetts Electric issues has been the incident of the week in Boston. From $21\frac{1}{4}$, two weeks ago, and 20 a week ago, the common fell to $17\frac{1}{8}$ on fairly large sales. The preferred, on lighter trading, broke violently from 74 to $69\frac{1}{2}$. It is thought that the main cause of this decline, as well as the very apparent heaviness of the stocks for some time past, will be revealed when the company's next earnings statement is published. Boston Elevated, after a reaction to 151, recovered to $152\frac{1}{2}$, mostly on odd lot purchases. West End common went at $91\frac{1}{2}$, and the preferred from 111 to 112. In Baltimore the feature of the week was a further recovery in United Railways issues. The stock was very active, rising from $75\frac{3}{8}$ to $83\frac{1}{4}$, and receding to 8. Nearly 1000 shares changed hands between 8 and $83\frac{1}{4}$. The income bonds reached 49, but reacted later to $47\frac{1}{2}$. The general 4s sold as low as $90\frac{3}{8}$ and as high as 92, ending at 92. Anacostia & Potomac 5s continued their rise of the week before, selling up from 100 to $101\frac{3}{4}$. Other sales comprised City & Suburban (Washington) 5s at 101, Richmond Traction 5s at 103, City & Suburban (Baltimore) 5s at $113\frac{1}{4}$ and $113\frac{1}{2}$, City Passenger $4\frac{1}{2}$ s at $102\frac{1}{2}$, and Charleston Consolidated 5s at 85. On the New York curb trading was rather broader than in the preceding weeks. Interborough Rapid Transit was the feature still, over 4000 shares being dealt in between 132 and 134 in the week ending Saturday. On Monday the stock advanced from $132\frac{7}{8}$ to $133\frac{3}{8}$, and yesterday on sales of 1500 shares it went to $133\frac{5}{8}$. Other

transactions comprised odd lots of American Light & Traction, the common at 50½ to 51½, the preferred at 91½ to 92; New Orleans Railway common (235 shares) at 9¼ to 9⅜, the preferred (100 shares) at 29¼; St. Louis Transit (60 shares) at 10½, Nassau Electric 4s at 82⅝ to 83, and Washington Traction 4s 78½ to 79. Indianapolis Street Railway 4 per cent bonds were the feature of the trading in Cincinnati last week. Nearly \$100,000 worth changed hands in small lots at prices ranging from 83 to 85¼. Detroit United stock showed considerable activity, and it advanced from 66 to 68. Cincinnati Street Railway sold at 141 and 142. Bond sales were also very heavy in Cleveland, the demand being particularly strong for early maturities. Detroit Citizens 5s to the par value of over \$200,000 sold at 100⅜. Cleveland Electric consolidated 5s sold at 102¼ to 102½ for \$66,000 worth. Northern Texas Traction 5s brought 80 to 80½ for \$18,000 worth. Cleveland Electric stock showed unusual activity, and it advanced from 72½ to 73½ on sales of 575 shares. Northern Ohio Traction & Light stock advanced to 14⅜ on sales of 175 shares.

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	
	July 19	July 26
American Railways	47½	47
Aurora, Elgin & Chicago	—	a12
Boston Elevated	151½	152¼
Brooklyn Rapid Transit.....	52½	50¾
Chicago City	175	170
Chicago Union Traction (common).....	4½	4½
Chicago Union Traction (preferred).....	a30	—
Cleveland Electric	73¼	71½
Consolidated Traction of New Jersey.....	66½	66¾
Consolidated Traction of New Jersey 5s.....	108½	108½
Detroit United	67¾	61¾
Interborough Rapid Transit	133¾	133
Lake Shore Electric (preferred).....	—	—
Lake Street Elevated	3¾	3¼
Manhattan Railway	152	150¼
Massachusetts Electric Cos. (common).....	19½	17½
Massachusetts Electric Cos. (preferred).....	73	70
Metropolitan Elevated, Chicago (common).....	19½	19½
Metropolitan Elevated, Chicago (preferred).....	52½	54
Metropolitan Street	117¼	115
Metropolitan Securities	88¼	86¼
New Orleans Railways (common).....	9¼	9½
New Orleans Railways (preferred).....	29½	29
New Orleans Railways, 4½s.....	72	73
North American	88½	87¾
Northern Ohio Traction & Light	a15½	13¾
Philadelphia Company (common).....	39¾	39
Philadelphia Rapid Transit	13¾	13
Philadelphia Traction	98¾	98½
St. Louis (common)	11¼	10¾
South Side Elevated (Chicago)	91½	91½
Third Avenue	121½	117½
Twin City, Minneapolis (common)	95½	95
Union Traction (Philadelphia)	54¾	54
United Railways, St. Louis (preferred)	54¼	54
West End (common)	91	91
West End (preferred)	110	111

a Asked.

Iron and Steel

The Steel Corporation's report for the June quarter, issued yesterday afternoon, is likely to start discussion afresh as to the present tendency in the iron trade. Net earnings for the three months reach close to \$20,000,000, which is as good as expected, and the company shows a comfortable surplus after payment of preferred dividends against a deficit for the March quarter. But in the unfilled orders on hand a large decrease is shown, both in comparison with three months ago and a year ago. This might seem to bear out the recent assertions that there has been no real improvement in the trade situation, were it not for the fact that the decrease in orders on hand from July, 1903, no more than corresponds in proportion to the decrease in earnings. Quotations are as follows: Bessemer pig iron \$12.35, Bessemer steel \$23, and steel rails \$28.

Metals.

Quotations for the leading metals are as follows: Copper 12¾ cents, tin 25 15-16 cents, lead 4¼ cents, and spelter 4 15-16 cents.

THE RICHMOND RECEIVERSHIP

As noted in the STREET RAILWAY JOURNAL of July 23, William Northrop and Henry T. Wickham were appointed on July 16 by the United States Circuit Court for the Eastern District of Virginia as receivers of the Virginia Passenger & Power Company, the Richmond Passenger & Power Company and the Richmond Traction Company. Mr. Northrop, who is in charge of the operation of these properties, is the assistant secretary and assistant treasurer of the three companies, while Mr. Wickham is a well-known financial authority in Virginia.

The first act of the receivers was to begin an inventory of the property of the consolidated companies, to be presented to Judge Edmund Waddill, Jr., of the Federal Court. It is understood that no change in the policy or operation of the properties will be made for some time, if at all. The officials in charge of the several departments have been retained in their old positions at the same salaries. Meanwhile the proceedings instituted by the Corporation Court of Petersburg by Messrs. Fisher, Davis and Rogers continue to be heard, and will probably be concluded in a few days. In that proceeding, as previously mentioned, receivers are asked for the Virginia Passenger & Power Company alone. It is difficult to see just what would be the effect if Judge Mullen, in the State Court, would grant their plea, for such action would conflict with that taken by the Federal Court.

The business of the railway lines of this city and suburbs Sunday, July 17, the first day under the receivership, was unusually large. Travel to and from the parks in the afternoon and evening and on the city lines during business hours and in the evening on July 18, was above the average, the warmer weather causing more general patronage of the trolley lines.

It is alleged in the bill of the Bowling Green Trust Company, which prevailed upon Judge Waddill to appoint a receiver, that the Virginia Passenger & Power Company has failed to pay its taxes due upon its property on Jan. 1, 1904, and is still in default that it has failed to keep up the insurance on some of its properties, as agreed to; that it has repeatedly defaulted on its interest, and now owes large sums to the holders of its coupons. The complainant further alleges that during the year 1903 the constituent companies failed to earn their fixed charges over and above operating expenses, and that the results of operating of said properties for the year shows total deficit of \$648,602.80, and that the floating debt of the Virginia Passenger & Power Company on Dec. 31, 1903, aggregated the sum of \$3,026,523.49.

It should be stated here that the interest on the bonds of the Traction Company has been paid since this bill was filed.

The complexity of the Richmond traction situation has been increased further by the action of Miles M. Martin and George A. Ainslie, former counsel for George E. Fisher in his various street railway transactions, who have filed suit against Fisher through their attorney, James E. Cannon, in the Chancery Court for \$6,500 alleged to be due for professional services. An attachment has been accordingly issued against anything of monetary value which may be due to Mr. Fisher from his Richmond street railway and other interests in Richmond. A copy has been served upon the Virginia Passenger & Power Company by the Sheriff.

TRACKLESS TROLLEY CHARTER REFUSED IN PENNSYLVANIA

Attorney-General Carson has given an interesting opinion to Governor Pennypacker on the status of trackless trolley companies, in which he advises against the granting of a charter to the Sayre Trackless Trolley Company, because the purpose for which the company sought a charter is not within the provisions of the acts of Assembly authorizing the granting of charters.

An application for a charter was made by the company for the purpose of installing and operating a line of trackless cars and coaches, with electric power, to furnish transportation for the public in the boroughs of South Waverly, Sayre and Athens, in Bradford County. After discussing the acts of Assembly which provide for the granting of charters, and commenting on the language of the acts, the attorney-general says:

"All existing companies are subject to restraint. This proposed new company would be without restraint. No statute applies to it. It is not a railroad, nor a railway, nor an omnibus line. If it were attempted to subject it to the restraint of existing statutes, it might be found that no statute in terms applied to it, and that no statute could be judicially stretched so as to cover it. Hence, a gigantic creature of the State's begetting would arise to roam at will, uncontrollable because beyond the reach of existing law."

RAILROAD MEN ENJOY BATHING AND FISH DINNER AT MANHATTAN BEACH

Prominent railroad officials and their invited guests who are accustomed to participate annually in a Coney Island fish dinner did so for the ninth time on the evening of July 22 at the Manhattan Beach Hotel. The committee of arrangements consisted of H. H. Vreeland, president New York City Railway Company; W. F. Potter, general manager Long Island Railroad; D. M. Brady, president Brady Brass Company, and George W. West, superintendent of motive power, New York, Ontario & Western Railroad.

The party, which numbered about seventy, was taken to Manhattan Beach in a special train over the Long Island Railroad. On arriving at Manhattan Beach, the guests enjoyed a dip in the sea. After the dinner, which was as good as any other ever served for a like event, a brief time was pleasantly spent upon the pier, and the evening was concluded at the beach theater.

The outing was a most enjoyable one in every respect, and the committee of arrangements received many deserved congratulations.

AN IMPORTANT ORDER OF MASSACHUSETTS COMMISSIONERS ON FARE QUESTION

The Massachusetts Railroad Commissioners have recently handed down a decision in which they hold that if, when a street railway company applies for a location, it chooses, instead of relying upon its rights to leave fares for the future determination as to what may prove to be reasonable charges, to pledge itself to specific rates, its failure immediately to realize the expected profit does not justify it in the establishment of a higher rate in violation of the assurances given. The order deals with the complaint of the Mayor and Aldermen of Haverhill concerning fares upon the Haverhill & Southern New Hampshire Street Railway. In it the board also adheres to the theory that fare limits should be largely governed by the location of communities, rather than by exact distances. The company in question had sought to establish a mileage basis, claiming that between three and four miles is as far as it ought to carry a passenger for 5 cents.

The text of the order is as follows:

The Haverhill & Southern New Hampshire Street Railway Company has been in operation about two years. The company has secured from the Board of Aldermen of Haverhill a location in that city, offering as an inducement therefor the promise of a 5-cent fare within the city limits. This arrangement as to fare was made one of the conditions of the grant of location.

In the recent case of Keefe against the Lexington & Boston Street Railway Company it was decided that a condition in a street railway location which purports to establish fares is not legally binding upon the company, as boards of aldermen and selectmen under existing statutes have no authority to regulate fares upon street railways.

The Haverhill & Southern New Hampshire Company has now raised its fares, and among other changes has increased the charge between Haverhill Square and Ayer's Village from 5 to 10 cents. It is contended that under the old rates the company has been unable to operate its railway with profit.

In establishing the new fare limits the company attempted to carry out a sort of a mileage basis for rates charged, claiming that between 3 and 4 miles is as far as it ought to carry a passenger for five cents. This new theory as to the establishment of fare limits overthrows the commonly recognized custom of fixing fare limits with reference to points where patrons have occasion to regularly take or leave the cars in large numbers. We doubt the wisdom of this change, as we believe that the interests of the public, and in the end those of the company, will more likely be served by adherence to the theory that fare limits should be largely governed by the location of communities rather than by exact distances.

The Haverhill & Southern New Hampshire Street Railway Company is part of a system controlled by companies having, to be sure, a separate corporate existence but a common ownership of stock and a common management. An examination of conditions of traffic upon all parts of this system is therefore pertinent to the decision of such a question as that raised here. If we assume that these companies may rightfully undertake to increase their receipts in some way we are not satisfied that the 10-cent fare between Haverhill Square and Ayer's Village is justifiable. Haverhill Square is about 5 miles from Ayer's Village, both places being within the city of Haverhill. The new fare of 10 cents between these points, a rate of about 2 cents a mile, is higher than the usual charge found upon steam railroads in suburban travel.

Nor do we consider that a 10-cent fare between these points is a reasonable charge when considered in connection with other fares in force elsewhere upon street railways under conditions which permit some measure of comparison.

Boards of aldermen and selectmen, in granting street railway locations in the streets, naturally inquire into the purpose of those who seek to obtain them. If at such a time, instead of relying upon its rights to leave fares to future determination as to what may prove to be reasonable charges, a company chooses to pledge itself to specific rates, its failure to realize at once the expected profit from the undertaking would hardly justify the establishment of a higher rate of charge in violation of the assurances given. Relying up-

on these assurances not only may the public authorities have been induced to grant rights in the streets in the expectation of relieving congested districts in city and town centers by a better distribution of homes, but individuals, in many instances in considerable numbers, may have been lead to change their places of residence in furtherance of the same purpose.

But however this may be, we are of the opinion that the increase of fare between Haverhill and Ayer's Village imposes a disproportionate burden upon that portion of the traveling public which is required to pay it, and for that reason a lower charge must be recommended.

NEW YORK ALDERMEN GRANT APPLICATION OF NEW YORK, WESTCHESTER & BOSTON RAILROAD

With only eight dissenting votes, the Board of Aldermen, on July 26, approved the application of the New York, Westchester & Boston Railroad for permission to cross the streets of Bronx Borough in the construction of an electric railway to various points in Westchester County, including a spur to White Plains and another to the Connecticut State line at the village of Port Chester. Sixty-two affirmative votes were cast on the passage of the resolution after a favorable report had been received from the railroad committee. During the debate on the Westchester grant Ald. McCall, the nominal Tammany leader of the Board, promised that at the next meeting, to be held Aug. 9, a report would be made on the application of the New York & Portchester Railroad Company, so that that matter could be disposed of by the members at that time. The resolution now goes to Mayor McClellan for action.

Immediately on the passage of the resolution a statement was issued by the banking house of Dick & Robinson, of New York, which is financing the Westchester line, in which it is stated that the Westchester Company will enter the field to bid for the construction and operation of the proposed East Side Subway, which will extend from the lower end of New York City up Broadway and Lexington Avenue to the Harlem River. This would enable the company, if it got the contract, to make a connection with its Westchester line at Third Avenue and 138th Street, making possible an interchange of cars and the operation of through trains from White Plains and the cities and towns along Long Island Sound and the Bronx to the Battery.

Dick & Robinson state that the general supervision of the road will be under Samuel Hunt, vice-president of the company and one of the trustees for the City of Cincinnati of the Cincinnati Southern Railroad, while the engineering plans will be under the direction of John Bogart, formerly State Engineer of New York. James P. McDonald will be the contractor, he having had twenty-five years of experience building roads in this country, South America and the West Indies. They say he will put 15,000 men and all the necessary plant to work as soon as the right of way is obtained, the contract calling for the completion of the road in two years.

ILLINOIS TUNNEL COMPANY BUYS TERMINAL SITE

A site for a general terminal of the Illinois Tunnel Company's system of underground electric railways has been secured by the company at a cost of \$2,500,000, through the purchase of the property on the west bank of the Chicago River, north of Taylor Street, now occupied by the Albert Dickinson Company's seed warehouses and owned by the Chicago Dock Company. The tunnel company will proceed immediately to remodel the property, and promises to have its lines in use by November for general transportation under the streets of much traffic now carried on the surface. On all sides of the purchased tract, which measures 404 ft. north and south and 700 ft. east and west, are the terminals of trunk lines. The property has connection with all the railroads and is adjacent to the tunnel company's large conduit under Taylor Street, which connects the tunnels under the business district of the South Side with the West Side tunnels.

"On the terminal site," said Albert G. Wheeler, president of the Illinois Tunnel Company, "we shall have a general distributing system for the transportation of freight between stores and warehouses and the steam railroads. We also will have our own power plant. We shall spend \$1,500,000 immediately and improve the property gradually."

The most important feature of this practical completion of the tunnel company's equipment will be the probable ending of street congestion in downtown districts by heavy teaming. A tunnel extending under nearly all the important streets of the loop district, and connections will be made with all the large wholesale and retail houses and business blocks. It is the intention of the company to haul all kinds of freight and material to and from these big establishments, to carry goods from the stores to outlying distributing centers, and to transport all kinds of refuse which collects in the large business blocks.

FIRE IN EAST ST. LOUIS POWER HOUSE

Fire damaged the power house of the East St. Louis & Suburban Railway Company one evening last week. It started in the boiler room, and is believed to have originated from spontaneous combustion. Hundreds of passengers on the cars of the interurban system of the company, spreading over 122 miles of country adjacent to East St. Louis, were compelled to walk to their destinations or remain in the cars. The automatic coal bins and stokers were the first to be destroyed. Every available fireman in East St. Louis was summoned, and the entire force concentrated upon a fire wall, 4 ft. 6 ins. thick, which separated the boiler room from the engines and generators. The flames were stopped at this wall and the million-dollar plant was saved, the chief damage being the explosion of one boiler shortly after the fire started, and the bursting of one of the main steam pipes. As every car on the system is equipped with a telephone, the general office communicated with all conductors, informed them of the reason for the shutting off of the power, and told them to stay with their cars until morning. With the break in the power supply, came the extinguishing of all the electric light in East St. Louis, as the railway plant furnishes power for both private lights and the city lighting service. The steam pipe which burst was the principal feeder from the boiler room to the engines, and until this was repaired no power of any kind could be furnished. The break was repaired early the next morning and service resumed. With the assistance of the St. Louis Transit Company, the cars on the city lines were given sufficient power to take them to the sheds. The loss is estimated between \$15,000 and \$50,000.

EARNINGS OF THE PITTSBURG, McKEESPORT & GREENSBURG RAILWAY COMPANY

The Pittsburg, McKeesport & Greensburg Railway Company, of Greensburg, Pa., report as follows for the year ending Dec. 31, 1903:

	Gross		Net
	Earnings	Expenses	Earnings
1902	\$99,308.28	\$57,519.93	\$41,788.35
1903	124,533.54	70,454.63	54,078.91

The following is a statement for the six months ending July 1:

	Gross		Net
	Earnings	Expenses	Earnings
1903	\$55,967.28	\$32,935.26	\$23,032.02
1904	68,644.73	38,550.85	30,093.88
Gain, \$12,677.35 = 22.6 per cent.			

The Pittsburg, McKeesport & Greensburg Railway Company is a consolidation of the Westmoreland Railway Company and the Greensburg & Hempfield Electric Street Railway Company. The railway passes through Irwin, Jeannette and Greensburg to Youngwood and Hunker. Extensions are also being built to Trafford City for connection with the Pittsburg Railways Company. The company takes power from the Westmoreland Light, Heat & Power Company. Charles L. Walther, of Pittsburg, has recently been elected director of the company in place of E. M. Prindle, of New York. The other directors are Edward Bailey, of Harrisburg, Pa.; E. C. Gibson, L. B. Huff, Richard Coulter, Jr.; W. D. Chapman, of Greensburg, Pa., and J. E. Studley, of Providence, R. I.

DR. PERRINE'S NEW WORK

Dr. Frederic A. C. Perrine, who has resigned from the vice-presidency and general management of the Stanley Electric Manufacturing Company, to be succeeded by C. C. Chesney, has been elected president of the Construction Company of America. This company last year secured control of the Sheboygan (Wis.) Light, Power & Railway Company, and built the electric interurban line between Sheboygan and Plymouth, Wis. It owns a franchise in the city of Port Washington, Wis., and has procured the necessary right of way for an interurban line to Cedar Grove, a village located about midway between Sheboygan and Port Washington. It is understood that work on this line will be begun this year. Herman A. Strauss, formerly of the engineering department of the Construction Company of America, has been placed in charge of the company's interests at Sheboygan. The company contemplates also building a line to connect Plymouth with Chilton, Wis. M. D. Barr, second vice-president of the Stanley Electric Manufacturing Company, was the former president of the Construction Company.

ANOTHER PROPOSED FRANCHISE ORDINANCE FOR THE CHICAGO CITY RAILWAY COMPANY

The local transportation committee of the Chicago City Council has at last drawn up another franchise ordinance for the Chicago City Railway Company. Last year the local transportation committee drew up a lengthy ordinance, which came to naught because of a disagreement as to the compensation to be paid the city for the franchise. The local transportation committee of this year's Council has just completed another ordinance which includes a compensation clause. The ordinance is based on the theory that franchises granted prior to 1875 run for ninety-nine years from the time they were granted, as decided recently by Judge Grosscup. By averaging the lives of the various franchises owned by the company, the local transportation committee fixed upon thirteen years as the life for a blanket franchise covering all the lines. The ordinance provides that at the end of thirteen years the city may take over the property of the company on paying a fair price therefor, or it may allow the company to operate thereafter up to twenty years from the date of the original grant. Franchise is to end absolutely at the end of twenty years. The company is to put the plant in thoroughly modern condition in the first three years, at an estimated cost of \$15,000,000. As compensation for the franchise, the company is to pay to the city 5 per cent of its gross receipts each year for the thirteen-year period and for each year operated thereafter, up to twenty years, it is to pay 10 per cent per annum. Five cents fare is to be charged, but the city reserves the right to change the percentage of gross receipts prescribed to be paid to it into a lower fare at any time. The company must give transfers and receive transfers from the Belt Line planned for Twelfth, Halsted and Indiana Streets by George A. Yuille. This route begins at Wabash Avenue and Twelfth Street on the south, runs west on Twelfth Street to Halsted, north on Halsted to Indiana Street, east on Indiana Street to North State Street. In addition, Halsted Street is to have through service from one end of the street to the other. The ordinance has been favorably received by the Council committee and the Chicago City Railway Company's representatives.

If the city desires to buy the company's lines at the end of the thirteen-year period and transfer the franchise to another company it must give the company written notice of such intention at least one year, and not more than two years, prior to the time of purchase.

The company must waive its rights under the ninety-nine-year act and all the rights it has in unexpired franchises in return for the new blanket franchise.

If the company's property is taken by the city at the end of the thirteen-year period or thereafter, three appraisers are to be appointed, one by the city, one by the company, and the third by the two thus selected. If either party shall fail to appoint an appraiser the other party may appeal to two judges of the Circuit Court for the Northern District of Illinois, outside of Chicago. The Chief Justice of the Supreme Court of Illinois, and these judges, or any two of them, may appoint the appraiser for the side failing to make such appointment.

It has not yet been announced whether these terms are acceptable to the directors of the Chicago City Railway Company.

LARGE SWITCHBOARD CONTRACT FOR NEW YORK SUBWAY

The Albert & J. M. Anderson Manufacturing Company, of Boston, Mass., has secured a contract for 200 switchboards for the Wason Manufacturing Company's steel cars, to be operated in the New York Subway. The switchboards will be of a special type, will be enclosed in steel cabinets and handle the pumps, lights, air-brakes and heaters on the cars.

MORE CARS FOR MANILA SYSTEM

A contract is about to be let for more cars to be used on the Manila Electric Traction system, which is being built by J. G. White & Company. As noted in the STREET RAILWAY JOURNAL at the time a contract was recently awarded to a Belgian concern, the Compagnie Metalurgique, of Brussels, for several cars. The contract now being considered will be for six double-truck, open, twelve-bench cars. The frames will be made of teakwood and steel, so as to withstand the ravages of the white ants, which are very much in evidence in the Philippine Islands.

ANOTHER STRIKE ON THE NEW YORK SUBWAY

The new strike on the New York Subway, which was ordered by the Building Trades Alliance on July 25, brought out 1160 mechanics belonging to the Alliance. The tile layers, though they belong to the Alliance, did not strike, as their union decided that they must remain at work. The officers of the Alliance, however, are bringing strong pressure on them to quit. Fifteen hundred painters belonging to the Brotherhood of Painters are at work, an additional force of 360 being put on just before the strike was declared, in order to hurry along the work. It is to get one-half of this work for the Amalgamated Painters' Society that the strike has been declared. The contract for the painting is held by Holbrook, Cabot & Rollins. Mr. Holbrook said that the painting would be finished in a day or two, anyway. The bricklayers and members of several other unions which are not in the Alliance are at work in the subway.

John B. McDonald, the general contractor, said that he had not had time to consider the situation, but he felt that matters would soon arrange themselves, and that the subway would be finished on time in any event.

SINGLE-PHASE RAILWAYS

The Westinghouse Electric & Manufacturing Company announces that it has taken contracts covering nearly 150 single-phase alternating-current railway motors of the series-wound commutator type. The aggregate length of these lines is about 150 miles. The car equipments will consist for the most part of four motors varying in size from 50 hp to 150 hp, controlled by auto-transformers and induction regulators on the cars, and operated by alternating current only. One road, which is over 50 miles long, however, will operate from a 3000-volt alternating trolley in the interurban portions, and from a previously installed 500-volt d. c. system within a certain portion of the urban limits. Others are installing a separate low-voltage alternating trolley system for the city service, sometimes paralleling the existing d. c. 500 lines, and using 1100 volts, 2200 volts or 3300 volts outside the city limits. The trolley potentials vary from 500 volts to 3300 volts. Three of these contracts have been mentioned in these pages, viz.: the Indianapolis & Cincinnati Traction Company, the Fort Wayne, Decatur & Springfield Railway Company, of Fort Wayne, Ind., and a line in San Pedro, Cal. It is understood that a number of other contracts have been taken.

THE LEVIS COUNTY RAILWAY COMPANY VS. THE CANADIAN ELECTRIC LIGHT COMPANY

On July 2, at noon, the Levis County Railway Company, a 10-mile electric railway, operating on the south shore of the St. Lawrence River, opposite Quebec City, Canada, had its electric power cut off by the Canadian Electric Light Company. The railway company for a year and a half had been taking electric power at 10,000 volts at its own sub-station, 8 miles from the Chaudiere Falls power station, owned and operated by the Canadian Electric Light Company. Since the first of November last there had been a dispute between the two companies with regard to the interpretation of a clause in their contract relating to the amount of power to be delivered by the power company. Each successive month, beginning with the first of December, 1903, the railway company refused to pay for the power at the rate of \$8,000 a year, claiming that the power company prevented the use of the amount called for by the terms of the contract. Several suits were entered in the Quebec Court by the power company in order to enforce payment; and the case is now pending, and will come to trial next fall. In March last the railway company took action for \$10,000 damages against the power company on two points; first, for preventing it from using the amount of power which should be permitted by its interpretation of the contract; second, for the failure of the power company to continuously deliver power at the 10,000-volt switch in its sub-station.

The first of the foregoing questions hinges on the result of the cases now pending before the court, while the second question is one upon which it would appear to be clear that the power company would have to answer. It seems that momentary overloads of the railway load blew the circuit breakers in the main power house of the power company, and the railway was notified that if it caused the breakers to blow, that the power company would cease to deliver any more power. On several occasions it is claimed that the power company kept power from the railway's sub-station after the blowing of the main power house circuit breakers, even to periods of time exceeding one-half an hour. This, to say the least, was peculiar when water was flowing to waste over its dam; for the company would have the right of rendering a bill for ex-

cess power supplied, and if just, the court would uphold the claim.

The Canadian Electric Light Company apparently not being satisfied with the court delay in making a trial of the above questions between the two companies, notified the Levis County Railway Company on June 13, that unless it paid for the power at the rate of \$8,000 a year for the months of April, May and June, 1904, it would cut off the service July 2. The railway endeavored to come to an understanding with the power company, offering to pay weekly in cash, not merely the rate called for by the \$8,000 a year contract, but an amount in excess of the rate, viz.: \$170, stating to the power company that upon the decision of the court in the fall, the apportionment could be made of this \$170, distributing it on current power, and the power for the past three months (which three months were not before the court). This offer the power company refused, and disconnected the service. In order not to disappoint its patrons, the railway company then offered to the power company \$154 in cash for power to be supplied by the week, which was slightly in excess of the \$8,000 a year rate, and suggested the making of a new contract. This the Canadian Electric Light Company refused. The cars were left along the line, in as much as the railway company denied the right of the power company to cut off for any cause a public corporation, and as the very point brought up by the power company was already before the court. The proceedings in the above case will be watched with great interest.

Meanwhile, the railway company is operating its inclined elevator by outside power, and is now proceeding, and hopes to have in a few days temporary power, which will run half of its usual number of cars. The railway company at once purchased, and is getting ready to erect, a steam plant of 500 hp in a location along the river, giving ample water and coal facilities. A battery of 500 hp of Babcock & Wilcox boilers is to be erected, and a 350-hp Robb compound condensing engine is to be installed. The intention is to belt from the engine to one of the two motor-generator sets of 250 kw each, removing for this purpose the alternating-current end. The railway company was very fortunate in being able to procure immediately a first-class second-hand equipment as above, which had just been superseded by larger units, in a tramway company a few hundred miles from Quebec. Fortunately for the railway company, the great majority of the population on both sides of the River St. Lawrence have taken sides with it in the controversy.

ORGANIZATION OF THE MANUFACTURERS' COMMITTEE OF THE A. S. R. A.

The manufacturers' committee of the American Street Railway Association, which was appointed at a special meeting of the exhibitors at Saratoga last year, held a meeting at New York last week, at which a number of important steps were taken. Richard W. Meade, of 621 Broadway, New York, was appointed permanent secretary of the association; Charles C. Pierce, of Boston, was appointed chairman of the entertainment committee; Edward H. Baker, of New York, chairman of the finance committee, and George J. Kobusch, of St. Louis, chairman of the reception committee. W. B. Albright and E. H. Baker were appointed a committee on badges, and J. R. Lovejoy, John A. Brill and R. W. Meade, a committee on permanent organization.

An entertainment programme at St. Louis, including a number of attractive features, was arranged. It was further decided to send a circular to all manufacturers of street railway material and others interested, soliciting their co-operation and explaining the reasons leading to the organization of the committee and the objects which it desires to accomplish. The membership of the committee was published in the STREET RAILWAY JOURNAL for June 25. The headquarters of the committee are at 95 Liberty Street, New York City.

ALLIS-CHALMERS TURBINE CONTRACT

Thomas E. Murray, electrical engineer for the Anthony N. Brady interests, has placed a contract with the Allis-Chalmers Company for six 5500-kw turbo-generators. One of these is to be installed in the new power station of the Brooklyn Rapid Transit Company, which is being erected adjoining the present Kent Avenue station. This is the first contract which the Allis-Chalmers Company has taken for turbines, and the machines will be delivered in November. The destination of the other five turbines is not officially announced, but they will probably go to some other Brady electric stations. The new power station of the Brooklyn Rapid Transit Company will contain twelve 5500-kw turbo units. The station is now being built for half this number, and so far contracts have been placed for one Westinghouse turbo unit and one Allis-Chalmers unit.

NEW YORK, NEW HAVEN & HARTFORD PURCHASES MORE TROLLEYS

The New York, New Haven & Hartford Railroad, through the Consolidated Railway, which it owns, continues to purchase the electric railways operating in its territory. The latest acquisitions of the company are the Norwich Street Railway, the New London Street Railway and the Montville Street Railway. The purchase of these lines places the company in complete control of the street railway systems of Norwich and New London and the connecting line between the two cities, the Montville Company. The statement is made in the East that the Consolidated Company is to extend its Worcester & Connecticut Eastern line to Norwich at once. This would complete the line from Worcester to tidewater. The three lines just acquired have a total of 36½ miles of track.

STREET RAILWAY PATENTS

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

UNITED STATES PATENTS ISSUED JULY 19, 1904

765,160. Brake Operating-Mechanism; Irvin Baker, Latty, Ohio. App. filed Jan. 14, 1904. A brake-wheel grips the rails, including devices to raise the brake members to override frogs, switches and other obstructions.

765,212. Electromagnetic Block System of Control; Guion Thompson, Duluth, Minn. App. filed March 17, 1902. An arrangement of co-acting electro-magnetic devices located on a moving car and along the roadbed adapted to operate a signal on the car under certain conditions.

765,216. Trolley Guard; William C. Washburn, Cincinnati, Ohio. App. filed Feb. 24, 1904. Guard-arms for preventing the wheel from leaving the feed-wire.

765,263. Electro Fluid-Pressure Switching Mechanism; Walter J. Bell, Los Angeles, Cal. App. filed July 25, 1903. Improved switching mechanism wherein a solenoid magnet for actuating the compressor is substituted for the electric motor.

765,264. Railway Crossing Signal; Walter J. Bell, Los Angeles, Cal. App. filed July 28, 1903. Comprises a plurality of electric lights, each arranged to project light rays in a direction different from the others, and a group of separately manipulated circuit closers in the light connections.

765,266. Audible Signaling Device; Walter J. Bell, Los Angeles, Cal. App. filed Jan. 5, 1904. An electro-magnetically operated bell adapted for use in connection with a railway barrier or gate, or semaphores and other display signals.

765,333. Car Replacer; William E. Burroughs and Seele H. Ellis, New York, N. Y. App. filed March 8, 1904. The replacer is of symmetrical construction and adapted to be used either on right or left side of the track.

765,449. Trolley Harp; Earl R. Warren, Holyoke, Mass. App. filed March 7, 1904. The construction of the harp is such that the trolley-wheel may be removed and replaced readily.

765,516. Trolley; Wilson Selakosky, Lehighton, Pa. App. filed Jan. 27, 1904. Disks arranged at an angle to the trolley-wheel and on each side thereof to prevent the wheel slipping from the wire.

765,544. Trolley Head; Stanislas Bourgeois, Manchester, N. H. App. filed Oct. 24, 1903. The lower half of the trolley-wheel is embraced by a U-shaped guard, which prevents the wheel from engaging with the upper part of the feed-wire when displaced.

765,572. Railroad Switch; Milam M. Fitzgerald, San Antonio, Tex. App. filed Dec. 23, 1903. A construction which eliminates switch tongues and provides for switching all cars going in one direction onto the turn-out, while cars going in the other direction will keep to the main track.

765,604. Shunting Lever or Device for Operating Railway or Tramway Points or the Like; William Taylor, Sandiacre, England. App. filed March 21, 1904. Provides means whereby the switch can adjust itself automatically in the event of a car being run backward through the points.

765,612. Safety Device; Fred B. Corey, Schenectady, N. Y. App. filed Jan. 2, 1904. Means, such as a pneumatically actuated relay operatively connected to the train-pipe of an air-brake system, and arranged to control the supply of power to the operating means for the motor controller in a system of control employing master and motor controllers.

765,614. Convertible Seat; James S. Doyle, New York, N. Y. App. filed Jan. 31, 1903. Relates to seat in the inclosure used by motorman, and provides for an auxiliary seat adapted for use by the motorman when the passenger seat is turned to in operative position.

PERSONAL MENTION

MR. F. A. AUSTIN has been appointed superintendent of the Erie Traction Company, of Erie, Pa.

COL. THOMAS LOWRY, president of the Twin City Rapid Transit Company, has bought the William E. Goodfellow interest in the Minneapolis "Times" for \$60,000.

MR. H. N. ALDRICH has been appointed superintendent of the Amherst & Sunderland Street Railway Company, of Amherst, Mass., to succeed Mr. L. N. Wheelock, resigned.

MR. CHARLES S. LUDLAM, formerly with Haskins & Sells, the well-known accountants of New York, has been appointed comptroller of the New York City Railway Company.

MR. G. F. MANSELL, general auditor of the Appleyard electric system in Ohio, resigned on July 1. He has been succeeded by Mr. A. J. Armstrong, who for many years has been connected with the Pennsylvania and other steam railroad companies in the auditing and other departments.

MR. H. A. BELDEN, general manager of the electric traction and lighting system which is now being hastened to completion in Manila by the contractors, J. G. White & Company, is at present on a visit to this side. He expects to be here about two months. He is a guest at the Hotel Manhattan.

MR. THOMAS FARMER, formerly superintendent of motive power of the Detroit United Railway Company, has resigned his position as superintendent of the G. C. Kuhlman Car Company, of Collinwood, Ohio. Mr. Farmer was one of the founders and the first president of the American Railway, Mechanical & Electrical Association.

MR. D. H. LAVENBERG has been elected general manager of the Toledo & Indiana Railway Company, of Delta, Ohio, and took charge of the property July 15. Mr. Lavenberg is a well-known steam railway man, and left steam railway work in 1899 to engage in electric railway work. He was superintendent of the Toledo division of the Lake Shore Electric Railway until February, 1902, when he resigned to accept a position as superintendent of Northern Texas Traction Company, with headquarters at Dallas, Tex.

MR. CHARLES E. WARNER has accepted the position of general manager of the San Juan Light & Transit Company, San Juan, Porto Rico, which is controlled by J. G. White & Company, of New York. Mr. Warner is a Western man, having spent most of his boyhood in Portland, Ore. He entered Cornell University, but left there in 1890 to engage in practical work, and spent several years in the various branches of railway and lighting construction in New Westminster, Vancouver, Nanaimo, B. C., and Portland, Ore. He was manager of the Northwestern Agency of the Westinghouse Electric & Manufacturing Company at Tacoma, Wash., from 1893 to 1898, during which period he had charge of the surveys and early development of the White River Power project which is now one of the largest hydraulic electric powers in the Northwest. In 1898 he resigned his position with the Westinghouse Company and spent several years in engineering work in Alaska, Nova Scotia and



CHARLES E. WARNER

New England, being connected in Nova Scotia with the Dominion Iron & Steel Company and in New England with some of the high-speed electric railway construction of the Massachusetts Electric Companies. His most notable work, probably, has been done as general superintendent of the Allegheny County Light Company, of Pittsburg, Pa. This company embraces a combination of nearly all the electric lighting interests of Allegheny County, including Pittsburg, Allegheny, McKeesport and the surrounding boroughs, with a total population of about 700,000 people. Mr. Warner infused new life into this organization and put into practice a number of important features of operating economy, beside adopting new methods of getting business. The remarkable results which he has shown have attracted the attention not only of Pittsburg business men and capitalists, but have given him a broader reputation as a successful manager of electrical properties, which resulted in his services being sought for the more important position of general manager of the combined light and railway property at San Juan.