

Street Railway Journal

Vol. XXVI.

NEW YORK, SATURDAY, AUGUST 19, 1905.

No. 8.

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.

Copyright, 1905, McGraw Publishing Co.

TERMS OF SUBSCRIPTION

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

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.
Remittances for foreign subscriptions may be made through our European office.

NOTICE TO SUBSCRIBERS

REMITTANCES.—Remittances should be made by check, New York draft, or money order, in favor of the STREET RAILWAY JOURNAL.

Change of Address.—The old address should be given, as well as the new, and notice should be received a week in advance of the desired change.

Back Copies.—After July 1, 1905, no copies will be kept on sale beyond fifteen months prior to date of issue, except in bound volumes.

NOTICE TO ADVERTISERS

Changes of advertising copy should reach this office by 10 a. m. Monday preceding the date of publication, except the first issue of the month, for which changes of copy should be received two weeks prior to publication date. New advertisements for any issue will be accepted up to noon of Tuesday for the paper dated the following Saturday.

Of this issue of the Street Railway Journal 8000 copies are printed. Total circulation for 1905, to date, 269,550, copies, an average of 8169 copies per week.

Jerking on the First Controller Point

Although we have many times called attention to the laxity which frequently exists in the adjustment of resistances on motor cars so that there will be a jerk on certain points when the car is started, the numerous cars which are still defective in this respect emphasize the need of calling attention to this feature again. It is very often the case that the resistances are so proportioned that there is an uncomfortable jerk at the first point. This jerking is very annoying to passengers, especially in cars with longitudinal seats or when there is a standing load. While care on the part of the motorman or the

use of some automatic device for restricting the advancement of the controller handle can prevent jerking due simply to "fast feeding," it cannot prevent jerking caused by improper proportioning of the resistances. This is a matter which requires constant attention on the part of the master mechanic and his men, not only to see that car resistances are properly adjusted when new, but that they are kept so, and kept free from partial short-circuits.

A Hint for the Passenger Agent

Within a very few weeks one of the most delightful seasons of the year for out-of-door life will be upon us, and it behooves every street railway traffic man whose routes cover picturesque country to see what can be done to make 1905 a record year for fall month receipts. There is no reason why Sunday-school picnics, outings of labor organizations and holidays of other social and business gatherings need be confined to the summer months, even though the closed car may be operating in ordinary city service for the comfort of regular passengers. The encouragement of nutting parties, husking bees and other autumn festivities ought not to be a difficult task for the traffic man whose initiative is a little out of the ordinary, and if the steam roads can make money out of the September and October foliage, the electric railways ought to be able, with their cheaper fares, more frequent and cleaner service and ability to deliver passengers at all attractive points en route, to increase their revenues through the renting of special cars and encouragement of traffic on the regular trips.

There is no doubt that the open car is best fitted for the full enjoyment of out-of-town trips by such parties, and in many localities the public fails to realize how late in the season one can ride in perfect comfort if plenty of wraps are carried. Why should not the trolley sleigh ride—if it can be so-called—become popular in the late fall and winter season on progressive roads? Given a good supply of lap robes, and possibly an arrangement of electric heaters to be used as foot warmers, the open car ought to be as comfortable and certainly far less expensive than the "one-horse open sleigh" of old. Skating carnivals are now regularly encouraged by many Northern roads on the parks which attract so many passengers in the summer season. All America is turning to out-of-door recreation to-day as perhaps never before, and it is up to the street railway traffic man to turn as much of this demand as possible into money. It is none too early to plan an advertising campaign for the fall and winter somewhat along the lines suggested above.

Car House Approaches

The track layout of car houses is always an important factor in the operating convenience of a street railway. In most cities very little space available for storage tracks is wasted in the car house itself, but one often finds poor arrangements of tracks in the car house approach. Thus it is sometimes the practice of the operating company to connect the main line with the car house branches through a single track, which

plan ties up the whole layout if anything breaks down at the point of maximum congestion. In other cases the curves are brought so close together that cars cannot safely pass except on the straight track.

It would seem to be good common sense to install at least two tracks between every car house and the main line, so that an outlet can always be had as well as an inlet. It is also needless to say that the main line itself should be as free as possible from the complications of special track work. There is no pleasure for the passengers in the two dozen or more jolts that a double-truck car passes through in traversing the frogs of five or six car-house stubs leading directly from the main line, and there are no benefits derived either by the car equipment or the track itself from such a layout on the score of lessened maintenance. Local conditions often require an undesirable arrangement, but in rural or suburban car houses where there is plenty of room, it ought always to be possible to lay out a simple and effective track approach. Whatever the car house approach, however, it should always be operated so that the main line traffic will not be needlessly delayed. With this point in mind, the switches should always be trailing when possible. If facing switches must be used, it is better to install a gauntlet track, so that only one facing switch is required on the main track, and to keep this switch open for the main line cars; otherwise the main line crew must set the switch over again every time a car enters the car house, losing valuable time. This is a common defect in operation, even on some of the largest systems.

Improving Interurban Connections

The expansion of electric railways from local into through systems during the past few years has brought about many important changes in equipment and service, and on lines operated under the same general management it is now generally well appreciated that the successful handling of through traffic depends to a large extent upon the care with which the schedules are watched at intersection and meeting points. A great deal can often be done, however, to improve these matters on systems which meet or cross, but which are not under the same executive officers.

It often happens that the schedules of such lines are so arranged that the respective cars miss one another by from one to ten minutes, making it necessary for transferring passengers on the last car to wait from twenty-nine to fifty-nine minutes before continuing their journey. In many cases it is not advisable to arrange the schedules so that meetings shall take place, but there is no doubt that such irregular and long waits constitute the most serious obstacle to enjoyable long-distance trolley travel. Perhaps the most exasperating part of the whole question is the all-too-common experience of seeing the car desired pull away from the intersection point just as the car on the other line approaches, thanks to a childish notion on the part of the management that a rival system deserves no recognition, even if it delivers passengers at certain points to the company's own lines. It is not an uncommon sight to see a car leave the end of the route at a steam railroad station a moment or two before a through express pulls in, leaving the passengers to pay five or ten fares to the local hackman, or perchance continue their trips via the steam road. Shortsighted practices of this kind are manifestly very poor policy, and there ought to be no need of calling attention to them in these days of broader conceptions of what makes for efficient and profitable service.

Acceleration in Interurban Service

High acceleration has long been appreciated as an important factor in urban and suburban rapid transit, but its influence in interurban work is not as widely understood. In elevated and subway service in great centers of population, it pays to concentrate enough power in the motors to provide just about all the acceleration that the passengers can comfortably support, on account of the frequent stops and heavy traffic density. At crowded stations it is hard to avoid stops of from twenty-five to thirty seconds even with the most careful organization of train service and platform attendance; cars and trains must be gotten out of the way as quickly as possible, and economy of power under such conditions is not for a moment to be balanced against the pressure of the public demand for swift transit over the lines of the operating company. Hence we find acceleration rates worked close up to 2 m.p.h. or 2.5 m.p.h. per second during the time spent in passing over the resistance notches of the controller, and although in a multiple-unit system a train of five motor cars may easily draw 1200 kw momentarily from the third rail, the magnitude of the traffic justifies the instantaneous peaks at power and sub-stations.

In suburban service, particularly where steam railroad competition exists, the demand for fairly high rates of acceleration is also insistent. Unfortunately the electric railway has found it difficult to outgrow the old-time practice of stopping anywhere and everywhere to pick up passengers, so that even with the potential speed possibilities of four-motor equipments, it is often impossible to make fast time unless the acceleration is forced close to the edge of physical discomfort. As the number of stops per mile decreases, the necessity of such quick starting from rest lessens, until, in the case of the simple interurban road with few stops between termini and a reasonable freedom from sharp curves, the acceleration problem dwindles to a small matter in comparison with the questions of operating methods, train despatching, maintenance of continuous service, emergency precautions and traffic stimulation.

The point is that it is well to ascertain pretty thoroughly in interurban propositions before signing the contracts for rolling stock, power station and sub-station equipment just what can be done in the way of schedules with moderate acceleration capacity in the motors and low gear ratios. The entire first cost of the road from rail-bonds to generators depends intimately upon the current demands of the rolling stock during acceleration, and the operating expenses are also profoundly influenced by the momentary power consumption with the schedules adopted. High acceleration is of minor importance in the long-distance express service of steam railroads, because the time spent in attaining full speed is so small a percentage of the total running time, and to some extent the same reasoning applies to the through interurban line. Even with an acceleration rate of 0.5 m.p.h. per second, the electric motor shows a clean pair of heels to the great majority of steam locomotives in the matter of getting up speed. On roads operating but a few cars, the ratio of average to maximum load is lower than on large systems, so that higher rates of acceleration, and consequently severer instantaneous current drains, can better be sustained by the latter, other things being equal. When an interurban proposition requires a good deal of city running, is complicated by a tortuous alignment, and passes through well-settled territory where the local traffic along the line between the terminal centers is pretty sure to be substantial, it may pay to adopt the heavier equipment necessary to provide high acceleration, but in most cases it is well to remember that

it costs money to be able to pick up speed at the rate of 2 m.p.h. per second in remote country districts. Modest beginnings are worth as much in interurban railway work as in many other spheres of activity, provided a reasonable lease of future possibilities is taken in preparing for the ultimate expansion of business.

Express and Freight

Interurban roads are considerably at variance with each other in methods of handling freight and express. In this we do not refer so much to the physical conduct of the business as we do to the commercial methods involved. There are some half dozen different plans in use at the present time. Probably the majority of the more important interurban systems have what practically amounts to a fast freight service. That is, they handle a class of matter which is frequently sent by express on steam roads, and also bulky freight. All shipments are taken as promptly as if they were express matter, the rates being as low or lower than competing steam railroad freight rates. This is not strictly express at freight rates, as some have said, because it does not involve delivery or collection, which is a large item of expense on short hauls. Whether this service goes under the name of freight or express is immaterial, except that the word express may have a certain advertising value and may convey more accurately to the mind of the public the kind of service that is given.

There is another side to this question, however, which is that those unfamiliar with the service might think that express rates were charged instead of rates approaching steam road freight rates. On a few roads a general express business is carried on, with collections and deliveries like any of the large steam railroad express companies. Of course, the rates for this service must be very much higher than for freight which is not delivered by wagon. The volume of business handled will be considerably less, although the net revenue may be more. A few roads are handling freight, both in small quantities and carload lots, at about the steam railroad freight rates or less, the methods being very similar to those used on steam roads, with the important difference that usually much more prompt shipment can be obtained than on steam roads. The last meeting of the Ohio Interurban Railway Association brought out a discussion on all these different classes of service, and in addition a kind of combined freight and express service was described, which appears to have considerable merit. We refer to the plan of taking small packages for prompt shipment at one rate, and bulky stuff, to be shipped as suits the convenience of the company at any time within a certain number of days from date of consignment, at a much lower rate. This gives the company a certain amount of freight all the time, which can be hauled when the express car would otherwise run light, or which can be left behind when heavy shipments of better paying express matter are received.

It is a question whether both freight and express business cannot be satisfactorily carried on by an interurban road on the same cars. One of the greatest expenses about the maintenance of a through express business is the delivery and collection by wagons. There are comparatively few places on an interurban road where the company can afford to maintain regular wagons for delivery. The only feasible way to maintain an express service under such conditions is to make arrangements with local teaming companies along the route to handle express matter to and from the cars. It could easily be arranged to consider all matter taken for prompt shipment as

coming under one class as long as it is on the cars of the company, leaving it to the shipper to specify whether it shall be collected and delivered by wagon or not. In this case it would simply be a matter of adding the teaming charges to the freight charges to make the express rate and give express service. As a matter of fact, shippers over electric freight lines at the present time frequently have permanent arrangements with teamsters for the prompt collection and delivery of matter. This is quite likely to be the case with the largest shippers as well as the receivers of the largest consignments—that is, the wholesale and retail merchants—to maintain their own wagons, as they do not care to pay the extra price for collection and delivery.

A great deal has been said in some quarters about the great possibilities of hauling heavy freight over electric roads. We are inclined to think that the possibility of heavy freight business on electric roads has been considerably overestimated by some, but we are of an equally strong opinion that the possibilities of the light freight business are much underestimated. It is the local freight and local passenger business that interurban roads are especially adapted to carry. They are so much better adapted to this than steam roads that it is certain to be only a question of time when most of the local business will be carried on by electric roads wherever steam and electric roads parallel each other. As we have beforetime remarked, the existence of a frequent light express service tends to create more business of this kind, just as the existence of frequent passenger service creates passenger traffic.

On account of the limitations of sub-stations and power stations, most of the present interurban roads are not suited to hauling heavy freight trains, although short trains made up of standard steam railroad freight cars can easily be handled when occasion demands it. Whenever a road's heavy freight business gets to a point where long freight trains must be hauled, one usually finds the management casting about for some steam locomotives. It is frequently the case that considerable freight can be hauled in carload lots without bunching these cars into long trains, and in such cases work can be far better done electrically than with steam. The minute, however, that freight trains begin to get of a length which overtaxes the capacity of the sub-stations along the line and calls for a large additional investment in power and sub-station apparatus which must remain idle most of the week in order to handle a few long freight trains, it is time to see if the freight business cannot be cut up into smaller train units, or to buy a steam locomotive if the right of way is such as to permit operation with steam. Then, too, there is the question of the interference of freight business with passenger business, which came up at the last Ohio convention and which is a very important point to consider. With passenger service as frequent as it is on most interurban lines, there is not much chance for long or slow freight trains on the line without interfering with the passenger trains. Considerable business in the way of light, fast freight can be done, however, using cars which can make the same schedule between turn-outs as the regular passenger cars. There is little economy in having slow cars for express or light freight. A fast car will often be given permission to make a run between two turn-outs, where a slow one would be held fifteen minutes to avoid any chance of delaying a regular passenger car. Taken altogether, the more frequent the passenger service on a road, the more necessary is it to have freight cars geared to equally high maximum speed.

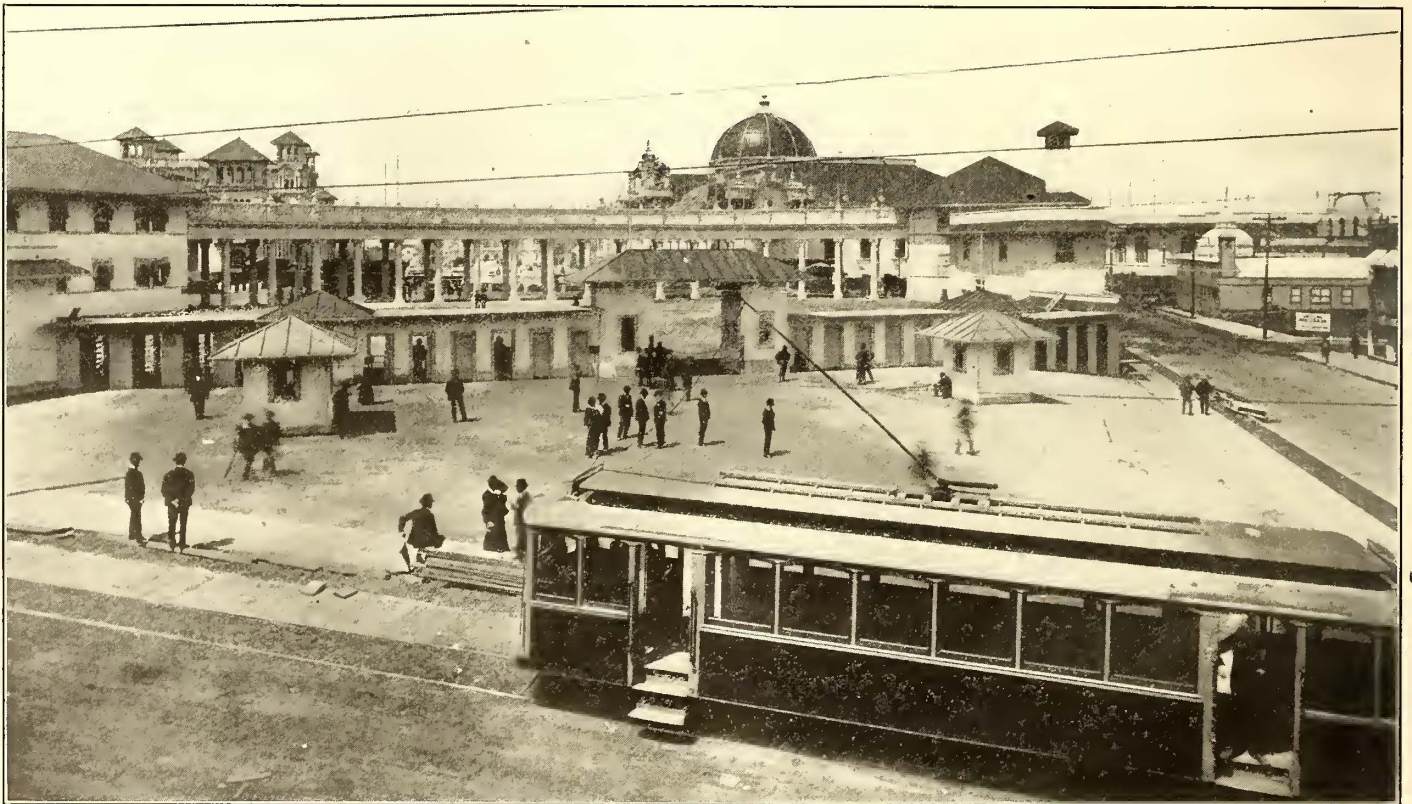
TRANSPORTATION FACILITIES AT THE PORTLAND FAIR

The site of the Lewis and Clark Centennial Exposition at Portland, Ore., was very happily chosen, being picturesquely situated on the western bank of the Willamette River and directly overlooking a small lake, some forty minutes by street car service from the business center of the city. In preparation for the increased traffic, due to the influx of visitors to the Exposition, the Portland Consolidated Railway Company, which operates all the lines leading to the fair grounds, has gone to considerable care and expense in providing adequate transportation and terminal facilities. This portion of the fair is of equal interest from a street railway standpoint to the exhibits, of which a description was published last week, so that an account of the methods employed follows.

The accompanying map shows the street railway company's terminals immediately adjacent to the fair grounds. A double-track loop was built, passing down Twenty-Seventh Street and turning on Upshur Street past the main entrance to the Ex-

Street and Sixteenth Street lines run out Washington Street, and when a little over half a mile from the business center of the city separate and have separate double tracks to the entrance loop. The Willamette Heights cars also run out Washington Street. The Sixteenth Street and South Portland lines run over the Thurman Street tracks for nearly a mile, and the Morrison Street lines serves a street of the same name for a like distance before it is diverted toward the fair grounds. These different lines cross and recross, and are connected by curves and turn-outs at a number of different points so as to allow a variation in the route of the cars in case of accident, blockade or any other reason. For instance, on baseball days, the cars on the Twenty-Third Street line could be run out by the ball grounds instead of turning on the loop several blocks to the south.

The time-tables for the fair traffic were figured out on a basic service of six-minute intervals on four lines, the Twenty-Third Street cars being considered extras. This made the lowest service to the Exposition grounds forty cars to the hour.



MAIN ENTRANCE TO EXPOSITION, SHOWING TURN-STILES, TICKET BOOTHS AND COLONADE

position. A special feature of this loop is the divergence of the tracks on Upshur Street, which for a distance of 400 ft. or so were spaced with 17-ft. 6-in. centers. This leaves plenty of room between the cars for people to congregate and allows the cars to be boarded on either side. On both tracks of this loop the cars run in the same direction. There is a slight downward grade on Upshur Street from Twenty-Seventh Street, and this grade aids very materially in the handling of cars slowly and carefully through the crowds which gather here on special days.

The following five separate lines of cars running on four double tracks handle all the traffic to the Exposition: The Willamette Heights line runs out Thurman Street to Willamette Heights, passing a short block of 200 ft. south of the Exposition entrance, while the Twenty-Third Street, Sixteenth Street and South Portland lines are diverted to the loop tracks at the junction of Twenty-Seventh and Thurman Streets. The Morrison Street line runs down Twenty-Seventh Street and directly around the loop. All these lines run over or connect with the main arteries of the city. Thus the Twenty-Third

which was found, however, to be inadequate. It was then decided to double up the service on the four lines and place a six-minute service on the Twenty-Third Street line during the greater portion of the day, giving a carrying capacity to and from the grounds of ninety cars to the hour. On special days, second sets of extras are put on the various lines, bringing the capacity up to 130 cars, while for short periods of time the service has reached 150 cars to the hour.

The cars used on these lines are from 35 ft. to 38 ft. in length, are mounted on double trucks and have, as a rule, a single motor to each truck. The seating capacity ranges from forty to fifty people, though most of the cars will accommodate, when heavily loaded, as many as 150 people. The carrying capacity of the road, as figured for the Exposition, was thus, under extreme conditions of loading, about 1200 per hour on ordinary occasions. On special occasions it would probably exceed 20,000 per hour. On the opening day the attendance was between 39,000 and 40,000, and on July 4, the heaviest day for the street railway service up to the present, the turnstiles at the fair grounds registered 54,000. As is gen-

crally the case at expositions, after the display of fireworks in the evening, there was an immense crowd, all intent upon getting home at the same time. The management of the Portland Consolidated Railway Company had made ample preparation for just such a contingency, and the crowds were swept away down town almost as fast as they congregated, so that by 11:45 p. m. the streets were practically clear of people.

The power for the operation of the fair traffic is taken from the steam station of the Portland General Electric Company, only 1/2 mile distant from the Exposition loop, and from the converting and distributing station of the same company, located in the heart of the city. The lines thus have the advantage of being fed from both ends, and up to date, on the days of the heaviest traffic, no trouble has been experienced from the power, which in all cases has been adequate, and has had a steady voltage with hardly any perceptible drop on any portion of the lines.

At all the principal crossing points and at the entrance to the loop, switchmen have been stationed to signal passing cars, prevent interference of teams, etc., and at points where the cars have averaged more than one to the minute this step has been found a decided advantage in the expediting of traffic. The streets over which the majority of the cars run are provided with good pavements, and are, in consequence, largely used for general traffic, yet very little trouble has been experienced by the cars in the way of congestion from teams and vehicles. This fact is largely due to the efficiency of the switchmen mentioned, as well as to the street railway company's foresight in running separate car lines to the Exposition grounds. As the loops at the fair entrance are located on



VIEW ON LOOP, SHOWING CARS OPPOSITE MAIN ENTRANCE TO FAIR GROUNDS

city streets, there has been no attempt made to compel the purchase of tickets before boarding a car. The fares are taken up as with ordinary traffic.

Since the opening of the Exposition the travel on the outside lines of the Portland Consolidated, as well as on those leading to the Exposition grounds, has very materially increased. This is especially the case with the Portland Heights loop line, which climbs to an altitude over 700 ft. above the harbor, and gives the visitor a beautiful view of the city, rivers, adjoining country and the Cascade Range. The latter includes five per-

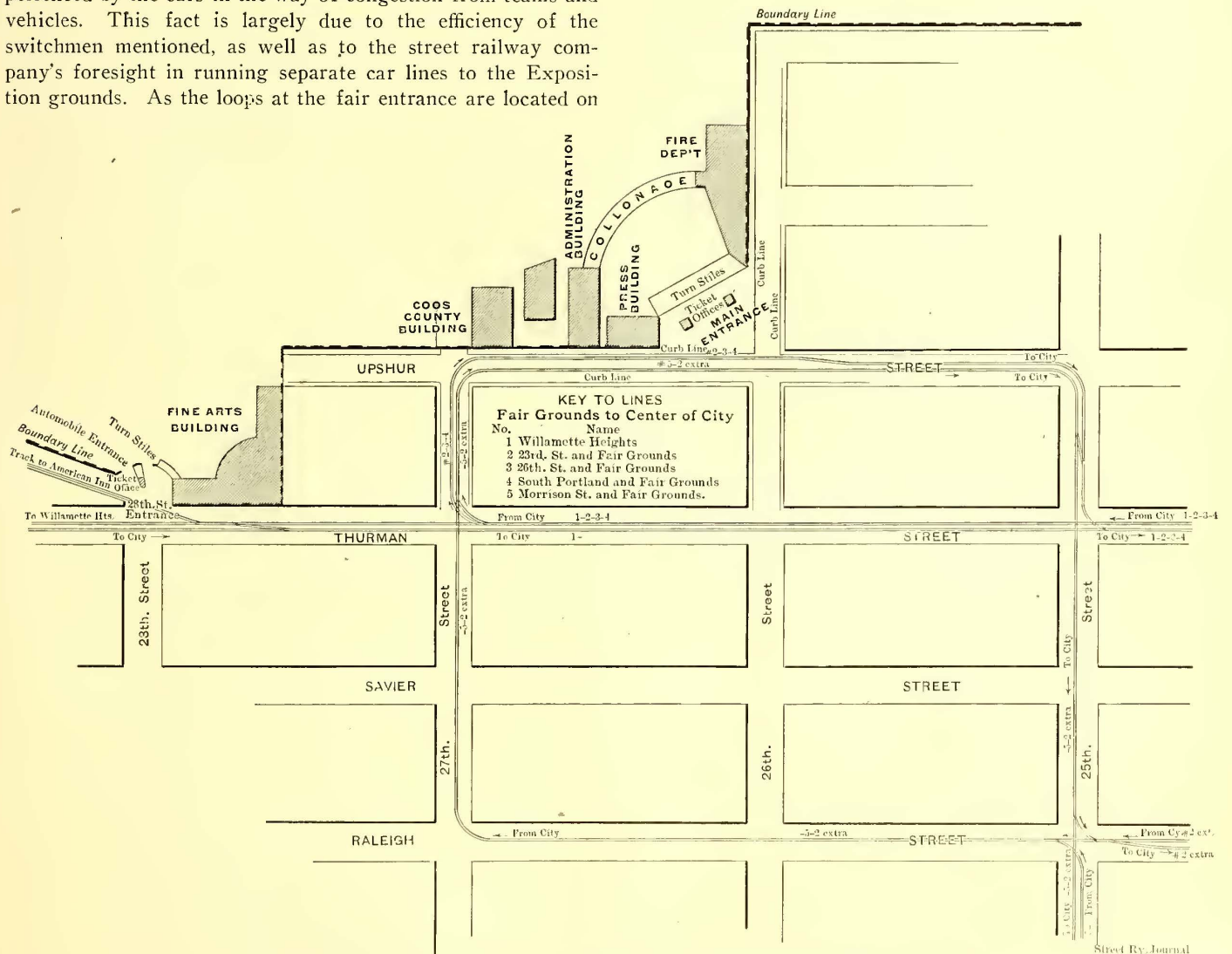


DIAGRAM SHOWING LOOPS AT AND ROUTES TO THE FAIR GROUNDS, PORTLAND

petually snow-capped peaks towering a mile above the summit of the range proper, making the view one of the most beautiful to be had anywhere in the vicinity of the city of Portland.

The interior thus secured is a circular area approximately 19 ft. in diameter. This is divided near the middle by a steel grating partition 6½ ft. high, providing an office for the de-

A NEAT CAR-HOUSE DESPATCHER'S OFFICE

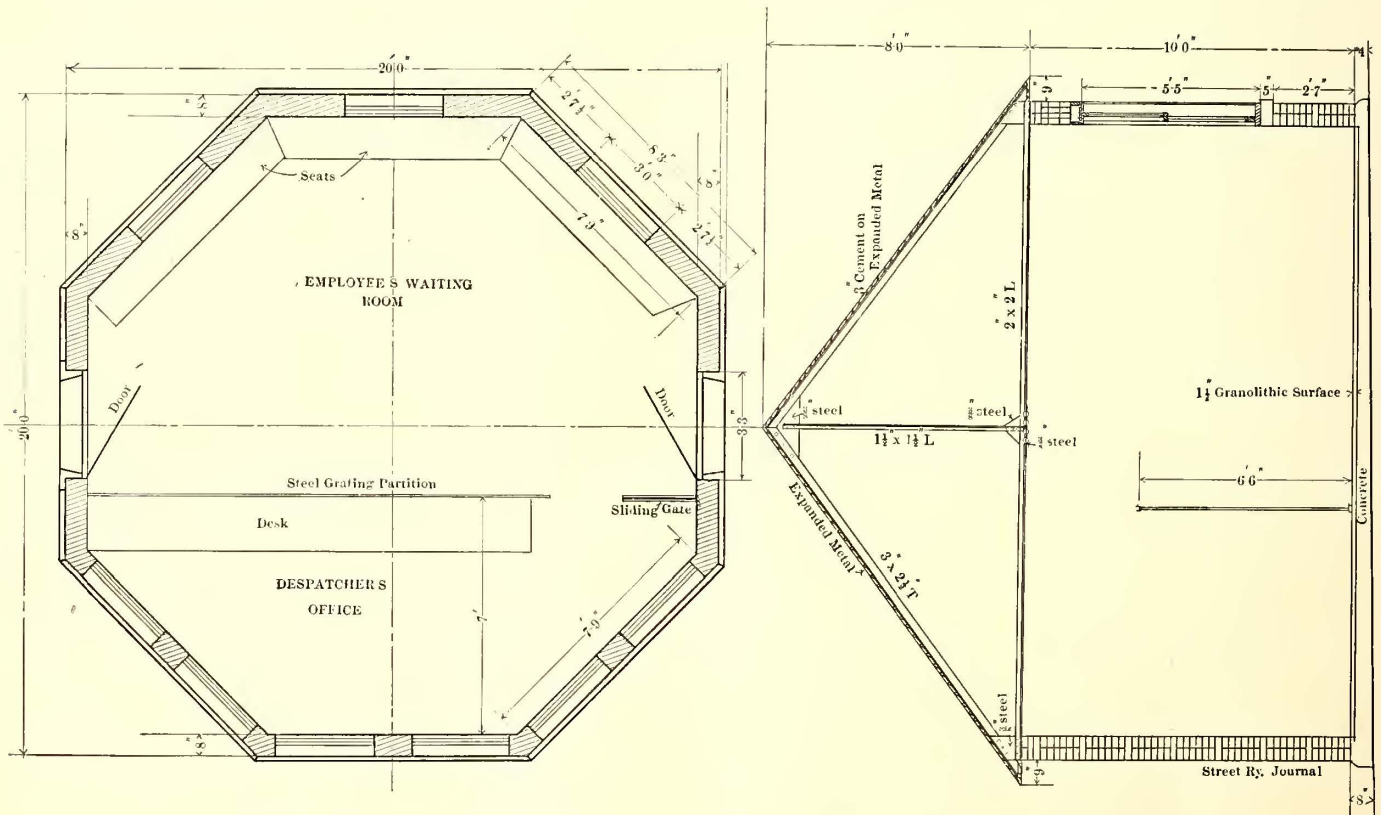
A combined office and waiting room of attractive design and intended for the use of the car despatchers, conductors and motormen has recently been constructed by the Scranton Railway Company, of Scranton, Pa., at its large Providence car house. The demand for such a building which would shelter the despatcher and men in cold or stormy weather and still be within easy access and in full sight of all cars leaving the house, had been strongly felt in Scranton, as in many other cities. The location of such an office in any portion of the car house always presents some inconvenience to both despatcher and men. If the despatcher is on the second floor he is at some distance from the men; if his office is on the ground floor his view is often obscured. It was accordingly decided to locate the office in a separate building in front of the car house, where it occupies an open space between the two sections of special work leading to the street, as shown in the accompanying illustration.

Not only is this arrangement of a despatcher's office novel, but in its construction the building presents many interesting features. It is of octagonal shape and is entirely of brick, steel and concrete, making it absolutely fireproof. The walls are of



DESPATCHER'S OFFICE, SCRANTON

spatcher and an outer waiting room for the car crews, extra men, etc., who are in readiness to go out on their runs. The office section is fitted out with desks and other conveniences for



PLAN AND SECTION OF DESPATCHER'S OFFICE, SCRANTON

brick, 8 ins. thick, rising to a height of 10 ft. above floor level. The roof consists of a steel framework, built up umbrella shape, of angles and tees, as indicated in the section, and upon this is laid expanded metal for reinforcing the concrete roof, which is 3 ins. thick. This construction consists of truss rod members of 2-in. x 2-in. angles, extending from the eight corners to a central gusset plate, from which a 1½-in. x 1½-in. angle is carried up to the peak of the roof as a stiffener. The roof members or purlins are of 3-in. x 2½-in. T-bars, upon which the expanded metal is carried directly. The floor is of concrete, with a 1½-in. granolithic surface.

the work and telephones for communication with other offices of the system. The building is heated in winter by an equipment of electric heaters distributed around the walls.

The Utah Light, Power & Railway Company, of Salt Lake City, has been laying some tracks on paved streets with 80-lb. Shanghai T-rail, with ties surrounded by concrete and thermit-welded joints. The welding has been carried on with great success, according to reports of R. F. Hayward, chief engineer of the company.

THE UNDERGROUND DISTRIBUTION OF POWER FOR URBAN ELECTRIC TRACTION*

BY JAMES HEYWOOD,

Assistant Superintendent of Lines and Cables, Philadelphia Rapid Transit Co.

It is only fifteen years since the installation of the first underground feeders to be used in connection with an overhead trolley wire. The standard size of cable employed at that time was No. 0000 B. & S. gage, and the distances over which power was transmitted were comparatively short. During the next five years great improvements were made in the methods of d. c. distribution by underground cables. As the street railway systems were extended, the problem of delivering power to distant points at reasonable cost and economy of transmission became more serious. With the perfection of a. c. apparatus, the distribution system has become a still more important feature of the entire plant, and the distribution engineer has had to lend all his energies to the problem of obtaining as nearly absolute reliability as is possible.

The investment per kilowatt for the conduits and cables required by a modern city railway system approaches very closely that necessary to erect the generating station.

With d. c. generation and distribution, the first problem to be solved is the location of the station or stations. The center of the load and the facilities needed by a generating station are seldom found at the same point. As the distances to which power must be transmitted become greater, a point is soon reached with the d. c. system where it is more economical to erect another generating station rather than install feeders to supply outlying districts. In increasing this limit, boosters and accumulator stations have been used with great success. The final determining condition is when the investment charges on the cables, plus the cost of the energy lost in transmission, equals the interest on the capital required to construct an additional station.

With the a. c. system the generation of power may be centralized at a point where coal and water are cheapest. Power may then be transmitted at high voltages to rotary converter stations, located near the center of load, and d. c. current distributed to trolley wires or conductor rail, as the case may be. These transmissions are made with a very small percentage of loss due to drop. The comparatively small cost of converter stations has naturally reduced the distance between distributing centers, and consequently decreased the losses between bus-bar and trolley wire. In densely populated cities the economical arrangement seems to be to place a converter station in the center of an area having a radius of approximately 1 mile.

As the converter stations depend directly for their motive power on the transmission lines from the generating station, a degree of reliability in the cables equal to that of the generating station itself is demanded. We have not yet reached the stage where a cable never burns out. It is therefore essential that each sub-station be provided with at least one cable more than the number actually required to do the work.

CONDUITS

The first condition of reliability in transmission cables is a good conduit. Various materials have been employed in the construction of conduits, among them: paper, glass, wood, cement, terra-cotta and ordinary wrought-iron pipe. The last three are those in most common use to-day. Creosoted wood and cement-lined iron have also been very extensively employed, but we may safely say that most engineers have decided in favor of terra-cotta pipe in some form. Lead cables, when laid in wooden or cement pipes, are subject to corrosion, due to chemical action. Iron pipes often have sharp edges and burs, which are microbes of a most deadly type where a lead-

covered cable is concerned. Iron pipes have other objections which will be touched on later.

The chief objections to terra-cotta pipe are the difficulty in procuring good alignment and the care which must be taken to keep the joints tight. A great deal of trouble has been caused by allowing cement to enter the joints of terra-cotta conduits through the bottom of the duct, where it forms a long, low mound under the open joint. After it has hardened in this position its removal is very difficult, particularly if attempted after the conduit is finished and the street paving restored. It is advisable, immediately after finishing a terra-cotta conduit, to draw through it a rigid die of slightly smaller diameter than the duct and as long as a section of duct. A well-laid terra-cotta conduit, surrounded by a wall of concrete, is, however, a most satisfactory construction.

Conduit should be laid in a formation which will present the

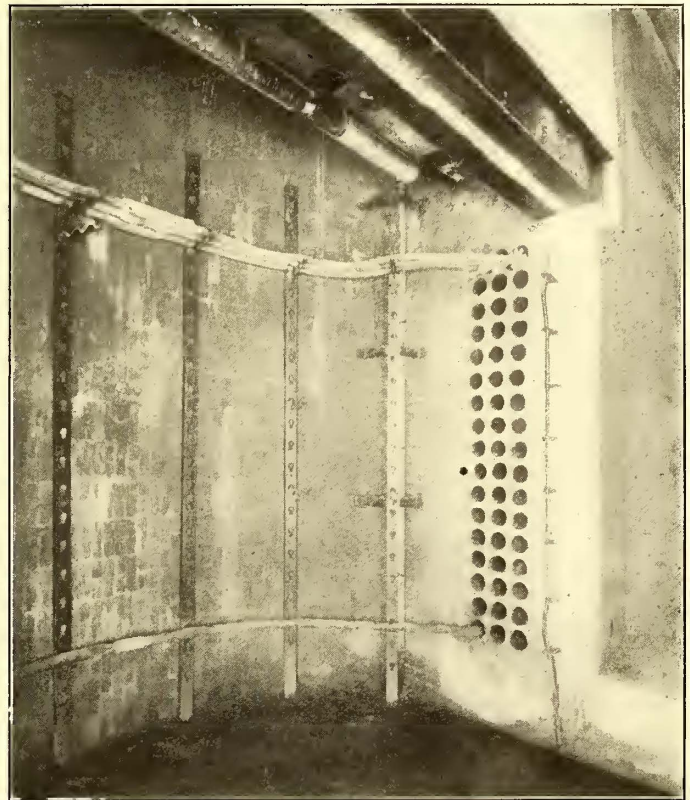


FIG. 1.—INTERIOR OF MANHOLE, SHOWING DESIRABLE ARRANGEMENT OF DUCTS

greatest amount of radiating surface to the surrounding soil, in order to dissipate as much heat as possible. A vertical formation of ducts, such as shown in Fig. 1, is especially desirable, because the cables can be arranged to good advantage in the manholes. For instance, a 20-duct conduit, laid 2 ducts wide and 10 ducts high, will permit 10 cables to be hung on each side of the manhole, and this can be done without any crossings of the cables. It will readily be seen that if the ducts were laid 10 wide and 2 high, considerable bending would have to be done in arranging the cables around the manhole walls.

It is next to impossible, however, to lay ducts through a modern city street and obtain the ideal formation. It is often necessary to change the formation at certain locations, particularly when crossing an intersecting street. There is a great temptation, when a particularly difficult crossing is encountered, to use iron pipes because of the ease with which these pipes may be sandwiched between other underground structures. It is a mistake to employ iron pipe in these cases, if by digging a deeper trench and going under the obstructions its use can be avoided.

The shape of the manholes is an important item in the construction of a conduit. They should be designed so that the

* A paper presented before the Philadelphia branch of the American Institute of Electrical Engineers, April, 1905.

cables will have to be bent as little as possible, although it is essential that the cables be bent to some extent in order to place them in a position where they are least subject to mechanical injury.

An elliptical shape, such as is shown in Fig. 2, seems to be well adapted to fulfil these requirements. Intersections where two conduits cross at right angles and enter the same man-holes have always been troublesome. An approximately square hole set diagonally is well adapted to these location. (See

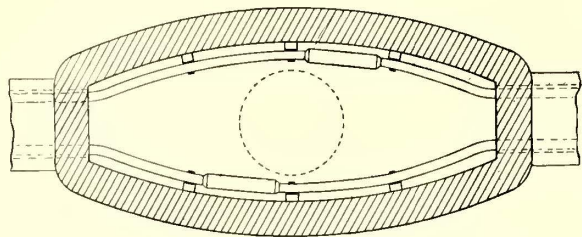


FIG. 2.—PLAN OF ELLIPTICAL MANHOLE

Fig. 3.) Cables entering the corners can be formed around the walls and splices can be made without excessive bending.

The distance between manholes should be made as great as is practical for drawing in the cables. A good standard of length between manholes is 500 ft. It is often necessary to place manholes at shorter intervals, however, on account of sudden changes in grade. Ducts should be laid at such grades as to drain themselves into the manhole.

HIGH-TENSION CABLES

The insulating material for high-tension cables has been the subject of a great deal of discussion and experiment. In this country, manila paper, thoroughly impregnated with a good

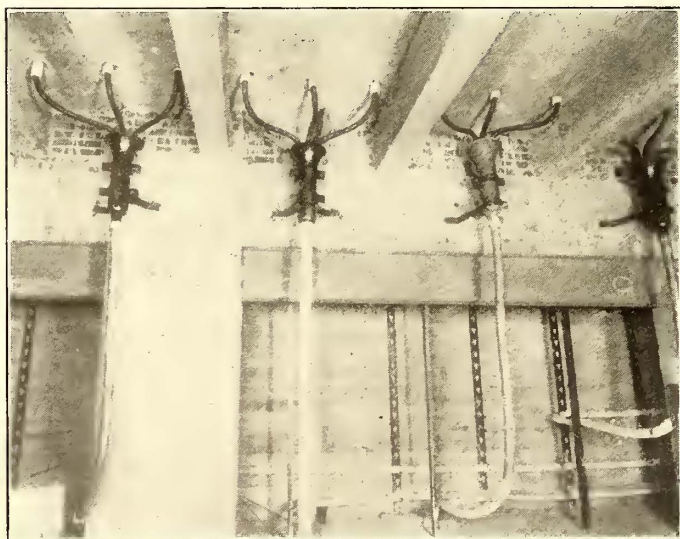


FIG. 4.—METHOD OF ARRANGING TERMINALS

insulating compound, is now used almost exclusively. Rubber compound cable has also been employed with considerable success, and has certain advantages over paper, but is from 30 per cent to 40 per cent more expensive, and under certain conditions is subject to more rapid deterioration.

A three-conductor cable, with each conductor insulated from the others, and from ground, is usually used in three-phase railway transmission. Each conductor is a round, stranded cable, covered with spiral wrappings of paper. The cables are then twisted together and covered over with a spirally wrapped paper belt, and the thickness of the belt usually equals the thickness of paper on each individual conductor. As the interstices between the conductors are filled with jute laterals, the entire cable is a true cylinder and strong mechanically.

A cable constructed in this way would probably operate successfully under 15,000 volts. For voltages much above this, an insulating material of greater dielectric strength would have to be used, as the thickness of an insulating wall of saturated paper is limited by its liability to fracture during installation. Other materials, such as impregnated woven fabric, have higher dielectric strength, but are more expensive.

Paper insulation 6 x 6—i. e., 6/32 in. thick on conductors and 6/32 in. on the belt—if carefully handled, will not fracture and can be depended upon to stand a break-down test of 30,000 volts between any one conductor and the other two conductors grounded to the sheath. Foreign cable makers are making extensive use of triangular-shaped conductors, which obviate the necessity of jute fillers. This arrangement allows of slightly greater cross section in the conductors for a given diameter of completed cable.

As the life of a paper cable depends largely upon the in-

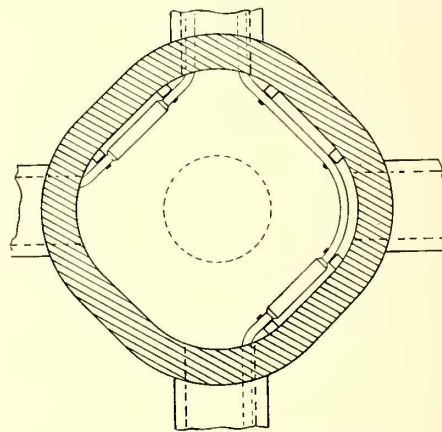


FIG. 3.—PLAN OF APPROXIMATELY SQUARE MANHOLE

tegrity of the sheath, too much care cannot be taken in procuring a good lead of the proper thickness. The lead should be of uniform thickness and free from pinholes or other defects of manufacture. For heavy, three-conductor cables a sheath 5/32 in. thick is not too heavy. A cable containing three No. 0000 B. & S. gage conductors with 6 x 6 insulation and 5/32-in. lead will measure about 25/8 ins. in diameter, and is about the largest size which should be used in 3-in. ducts. Larger ducts would permit the use of larger cables, but they increase the cost of a conduit very materially, especially in streets which are already crowded with underground structures. The size of conductor to be used is, of course, determined by the amount of power to be transmitted. With the distances usually encountered in city work and using voltages above 10,000, cables can be operated up to their full heating capacity without causing prohibitive drops.

TERMINALS

Very satisfactory terminals are made of solid brass or bronze castings, designed to fit over the lead of the cable at one end and flaring out in bell shape at the other. The three conductors are brought through separate holes in a soapstone or wooden disc. (See Fig. 4.) The leads are usually rubber-insulated and covered with a protecting braid of cotton, either weatherproofed or treated with a fire-resisting chemical. Great care should be taken in procuring good rubber compound for these leads. It is a difficult matter to draft specifications which will bind an unscrupulous manufacturer to produce a good rubber compound.

Mechanical tests in which the stretch and "set" qualities of the rubber are noted are very useful, but not entirely reliable in determining the percentage of Para rubber in the compound. An inspection of the mixture at the manufacturer's factory is sometimes made. Valuable data relative to rubber compounds

are given in a paper recently read before the Manchester Section of the British Institute of Electrical Engineers by L. B. Atkinson and C. J. Beaver. The joints in the conductors should be staggered and well down below the disc so as to be thoroughly immersed in the insulating compound with which the bell is filled.

TESTS

High-tension cables should be subjected to a break-down test of twice the working voltage, both in the factory and installation. Numerous break-down tests are not necessary, and are undoubtedly injurious. The writer has known a cable to stand a test of 30,000 volts and break down under 15,000 volts a few hours later. Another cable which was undergoing a ten-minute test of 30,000 volts withstood the pressure for nine minutes and then broke down. There is considerable evidence to show that too much testing strains the insulation.

High-tension cables should be provided with static dischargers to protect them against undue stresses due to abnormal voltages.

INSTALLATION

Some essential points to be considered in a successful installation are: First, a clear duct; second, no sharp bends; third, the isolation of each cable from its neighbor. Assurance can be had of a clear duct by drawing a die through before pulling the cable in. Bends of sufficient radius can be secured by using properly designed manholes.

The third essential has been accomplished in several ways. Stone or brick shelves in the manhole walls have been used, but they do not protect the cables as the latter leave or enter the ducts.

Asbestos webbing wound spirally around the outside of the sheath and held in place by galvanized-iron ribbons has been used with considerable success. If the asbestos is saturated with silicate of soda solution iron ribbons may be dispensed with and at the same time greater fire-resisting qualities secured. Hydraulic cement reinforced by a spiral wrapping of hemp rope and formed around the cable is used by some companies.

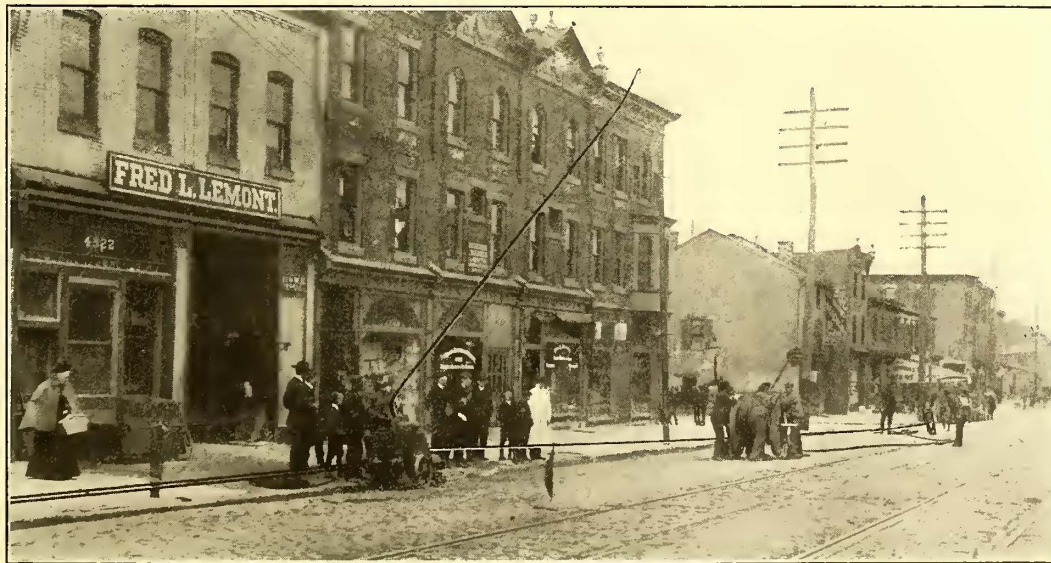


FIG. 5.—DRAWING IN CABLES WITH ELECTRIC WINCH

Cables may be pulled into the ducts by hand or power winches. Fig. 5 shows one method of pulling in cables by means of an electric motor. High speeds of from 50 ft. to 75 ft. per minute may be used with safety provided the pull is steady.

D. C. CABLES

As the size of the distributing feeders must be calculated for the maximum load which is likely to be encountered, the load factor of each trolley section is an important item. Long sec-

tions have better load factors than short ones, consequently are more economical in the amount of copper required to feed a given length of trolley wire.

Three methods are commonly used in calculating feeders, viz.:

(1) Make all trolley sections of equal length and calculate the feeder to give a predetermined drop under full load.

(2) Make all feeders of equal size and vary the length of sections according to their distance from the sub-station to give a predetermined drop.

(3) A combination of both methods may be followed, using two or three standard sizes of cable—e. g., 750,000 circ. mil, 1,000,000 circ. mil, 1,500,000 circ. mil and 2,000,000 circ. mil—thereby reducing the number of different sized cables which must be carried in stock for repairs.

In calculating feeders liberal allowances should be made for abnormal conditions, such as storms and blockades, at which times it is occasionally very desirable to be able to move a large number of cars simultaneously.

Saturated paper cables with a 5/32-in. wall of insulation are giving excellent results for 600-volt d. c. feeders. This thickness of paper gives an electric factor of safety approximating 10, but cannot be materially reduced for mechanical reasons.



FIG. 6.—TAP SWITCH-BOX

Tap cables with twice the carrying capacity of the trolley wire should be installed at frequent intervals, and should be provided with quick-break switches which can readily be opened in case it becomes necessary to "cut out" a cable. A convenient form of tap-switch box is shown in Fig. 6. Rubber-insulated cables are best for taps, as they can be connected to the switch terminals without the use of pot heads and are not subject to mechanical injury in drawing them around bends in the iron pipe which is used in bringing taps up the poles.

Tap cables, and in fact all cables passing through iron pipes, should be covered outside the lead with weatherproof braid. When a burn-out occurs, a large amount of current, seeking a convenient path to ground, flows along the sheath of the cable, and will often burn holes in the lead at the points of contact with iron ducts. A good weatherproof wire will usually prevent this trouble.

RETURN CABLES

It has been said that engineering is the art of spending money. If this be a true definition the engineer has a splendid

opportunity for practicing high art in laying out a return cable system. The current-carrying capacity of rails, where there is a grid system of tracks, has often been underestimated, and numerous small return cables have been installed parallel the tracks. These cables usually occupy valuable duct space and are of little or no use, as nearly all the return current flows through the rails to the station. Short, heavy return cables well bonded to the tracks at important intersections near the station and well bonded rails beyond these points provide an economical return system.

PREVENTION OF ELECTROLYSIS

However good a return circuit may be, the current will divide according to Ohm's law, and take paths other than those intentionally provided, thereby causing potential differences of varying intensities between the lead cable sheaths and ground. To prevent electrolytic action where moisture is present, it is essential that the lead be kept negative. This is usually accomplished by providing a path from the sheaths to the negative bus-bar, which has a lower current density, and consequently less drop than the return cables.

LOCALIZATION OF FAULTS

Notwithstanding the precautions which may be taken, underground cables will occasionally fail. If the trouble is due to a hole in the sheath it can often be detected before a burn-out occurs. A daily insulation test of all feeder cables, including the trolley section, can readily be made with an ordinary voltmeter, and will often detect the presence of this kind of trouble. An ingenious device was patented some years ago by W. D. Gherky, wherein a small paper or cotton-insulated wire was wound spirally around the insulation of a feeder cable immediately inside the sheath and spliced through from end to end. Insulation tests made on this wire would detect a hole in the sheath before moisture could percolate through to the conductor. In practical use, difficulty was found in keeping the test wire from breaking while the cables so equipped were being installed.

Faults of very low resistance in feeder cables can be located by passing an alternating or pulsating current of very low frequency into the cable and through the fault to ground. If a small compass is placed on the cable between the station and the fault, deflections will be noted, while no deflection can be detected beyond the fault. This method was described by H. G. Stott in a paper read before the American Institute of Electrical Engineers in New York.

Feeder cables often burn themselves "clear," and in these cases the fault must be broken down by means of a high voltage, or the "cut and try" method may be resorted to.

High-tension cables often break down between two conductors or from two conductors to ground. In these cases a good conductor is left, and the location of the fault can very rapidly be determined by a loop test. A properly proportioned slide wire and galvanometer with a suitable source of current supply can usually be depended upon to locate the trouble within a fraction of 1 per cent of the total length of the cable.

A complete record showing the location of each manhole through which a cable passes and its distance from the station is of great value when making localization tests.

IMPROVEMENTS UPON THE DETROIT UNITED RAILWAY

Extensive improvements are under way in the electrical department of the Detroit United Railway, Detroit, Mich., involving large additions to the power generating equipment as well as also to the distribution systems, in order to keep pace with the rapid growth of traffic upon its lines of the past year. The policy of the company has been very strongly toward ex-

pansion and progress, in addition to maintaining its rolling stock equipment in the best possible and most attractive condition. Liberal and effective advertising has also been resorted to, with extremely favorable results in increased business.

To secure additional power, one of the main power stations of the company has been extended to accommodate an additional generating unit and the necessary boiler capacity. Power is also now delivered to the company by the Detroit Edison Company from a 1000-kw motor generator recently installed in the new steam-turbine power plant of the latter company at Delray. The latter unit delivers power for the lines of the company extending through the western portions of the city to the many growing suburbs along the river front. The new generating unit at the main power plant consists of a large horizontal Allis-Chalmers compound engine, direct connected to a 1500-kw Westinghouse railway generator. The engine has 32-in. and 68-in. cylinders with 60-in. stroke, and operates condensing, using one of the new barometric condensers of Tomlinson design, recently produced by the Allis-Chalmers Company. The new boiler equipment consists of four 350-hp Stirling water-tube boilers, which were installed with Murphy stokers.

The 2500-amp. storage-battery plant of the company is being moved to a point in the suburbs, some 6 miles distant from the main power station, where it will be installed with a distributing and equalizing switchboard governing all of the principal lines running out to the northern end of the city. From this board equalizing feeders will extend out to near the north ends of these north and south lines, so that in times of peak loads the battery may be thrown on to any one or all of these lines as necessity may require. At times of light load, when the battery is not discharging upon the line, all of these lines may be equalized with each other through the circuit breakers and switches upon the board, by means of a common bus upon the board. This board will be constantly under the care of an attendant and will greatly improve the distribution to these distant portions of the city. The distribution system has been greatly reinforced by the addition of some 28 miles of 1,000,000-circ. mil and 500,000-circ. mil copper feeder cable.

YORK COUNTY TRACTION COMPANY TO USE SELF-WINDING ELECTRIC CLOCK

In order to facilitate the operation of cars, the York County Traction Company, of York, Pa., will place a large self-winding electric clock in service on the west wall of the Weiser Building facing Center Square. The clock will have a dial 2 ft. in diameter, with hands and numerals that may be seen across the square. At night the dial will be illuminated. The company has been operating its cars on Eastern standard time received daily from Washington at the Western Union Telegraph office in York. The watches of the operatives are set according to this time. The company, in the moving of its cars, has found it impossible to be guided by either of the city clocks, which usually are at a variance with the time at the Western Union Telegraph office. The new clock will be inspected daily, and set according to standard Eastern time direct from Washington. The clock has been ordered from the Self-Winding Clock Company, of Brooklyn, N. Y.

The first evidence of an effort on the part of steam roads in the vicinity of Evansville, Ind., to curb the inroads of electric railways is manifest by the Louisville & Nashville announcing that it will begin interurban train service between Evansville and Mt. Vernon soon. The electric railway between these cities is not yet completed.

THE QUESTION BOX

Under the heading "General," there are discussions on claim department methods, the best method of collecting and checking interurban fares, memorandum books, sprinkling requirements and ticket destroyers; life insurance and record keeping are treated in the employees' department; feed-water arrangements, piping and coal handling are considered under "Steam Engineering;" and in the line department there are descriptions of several devices.

A.—GENERAL

A 10.—What percentage of your gross receipts are you paying out through the claim department?

Damages run three-fourths of 1 per cent of gross receipts.
DENVER CITY TRAMWAY Co.

A 11.—A company wishes to set aside a certain fund each year to cover all accident claims. Should this fund be based on a definite sum per car-mile, or on a percentage of the total gross receipts? What would be a proper allowance?

We should prefer the gross receipts, as the fraction per car-mile would be so small, although either could undoubtedly be used with very close accuracy.
DENVER CITY TRAMWAY Co.

A 13.—In the electric railway business, is an accident liability insurance company—mutual or otherwise—feasible? Why?

We think each individual company can handle its own business to best possible advantage. Our experience has been that we can carry our own insurance for about 10 per cent of what the insurance companies would charge us.
DENVER CITY TRAMWAY Co.

A 13a.—How can the claim department best co-operate with the operating department in the prevention of accidents?

A 13b.—Have you ever used the camera to good advantage in adjusting damage claims?

Our claim department prepares quarterly, tabular condensed statements of accidents, similar to the method followed by the Pennsylvania Railroad; these reports are of great value in studying general means for the prevention of accidents as well as the particular steps that may be taken after each individual accident. We use the camera whenever we believe a photograph can be exhibited to advantage. THEODORE STEBBINS, Gen. Mgr. for Receivers, Appleyard System, Columbus, Ohio.

A 37.—What is the best method of collecting and checking fares on interurban roads?

In collecting fares on an interurban road it is customary to give the passenger some form of receipt. This receipt must show the points between which the passenger travels and the amount paid, otherwise it is a practical impossibility to check the work of the conductor; even with two inspectors on a car. With a cash-fare receipt showing the points between which passenger travels and price paid, the work of the conductor can be checked with precision and very little work by methods hardly to be described within the scope of this answer. The cash-fare receipt must also be of a form which can be handled with great rapidity.

THEODORE STEBBINS, Gen. Mgr. for Receivers, Appleyard System, Columbus, Ohio.

A 47.—Have you worked out any special form of hand book or note book by which the manager can keep in convenient shape for quick reference the various data and statistics relative to his property, such as comparative receipts, car mileage, station output, etc.? How do you keep this information? Sample pages or sheets from your book, with description, will be appreciated.

In the matter of keeping data, it has been the writer's experience that no single form of note book or file meets all the requirements. To outline briefly the methods which have been found successful, the really useful arrangements are the alphabetical compartment letter file; the loose leaf book and the plain bound note book. The letter file serves as a receptacle for all data in the way of clippings, such as short extracts from the technical journals, small blue prints, curves, tables already printed and small drawings and photographs. Personally, I have found the geographical separation of subjects the most satisfactory, filing a Boston elevat-

ed test under Boston, rather than under multiple unit control; for instance, a reinforced concrete bridge in St. Paul under S, and so on. The loose leaf book seems to be the best arrangement for handy use in one's grip, or in small sizes in the pocket. It is especially adapted to the use of the busy manager who wants to find therein brief facts and figures that are of more or less private nature, and which have not been published. It is a simple matter to paste useful tables, curves, etc., into a loose leaf book, but it is an utter waste of time to copy anything into a note book which can be pasted in or preserved just as well in a file. The following statement gives an idea as to how this information can be tabulated:

Power Stations—Estimated Costs per Kilowatt (Steam Engine Driven).

	Maximum	Minimum
1. Buildings	\$15.00	\$8.00
2. Foundations	3.50	1.50
3. Boilers and settings.....	17.00	9.00
4. Steam piping	12.00	4.00
5. Engines	32.00	20.00
6. Generator	21.00	18.00
7. Pumps	1.00	1.00
8. Switchboards	4.00	1.50
9. Feed-water heaters	2.00	1.00
10. Wiring and conduits	6.00	3.00
11. Coal conveyors and coal tanks.....	6.00	2.00
12. Smokestack and flues	2.00	1.00
13. Fuel economizers	4.50	2.50
14. Stokers	3.00	2.50
15. Ash conveyors	1.50	1.00
16. Incidentals, concrete flooring.....	2.00	2.00
	<u>\$132.50</u>	<u>\$78.00</u>

With steam turbines the cost will be about 70 per cent of the maximum costs listed.—W. C. Gotshall.

Lastly, the plain bound note book is useful in making filed notes, or recording tests on the ground, where a continuous story of important happenings is wanted. The card catalogue is of the utmost value for reference work and certain kinds of office data, but its bulk largely destroys its usefulness in the field.

H. S. KNOWLTON, Newton, Mass.

A 48.—Information is requested regarding the sprinkling of streets by street railway companies, and particularly the proportion of street usually sprinkled, and the amount paid by the city and municipalities for this service. Does your company sprinkle streets? If so, on what terms?

The Chicago City Railway Company is required by ordinance to sprinkle its right of way, 16 ft. wide, from May 1 to Nov. 1. All streets are sprinkled four times a day during the season, except on Sundays, when only three sprinklings are required. The first sprinkling must be completed before 8 a. m.; the second sprinkling between 8 and 11 a. m.; the third sprinkling between 12 m. and 3 p. m., and the fourth sprinkling between 3 p. m. and 6 p. m. The right of way in the business district on both electric and cable tracks is sprinkled by contract. The work is usually let to the contractor who sprinkles the balance of the street for the property owners. They do the work with wagon sprinklers. We operate sixteen electric motor-driven sprinklers, each holding 1600 gals., which sprinkle the right of way on all our electric tracks. We have one sprinkler which is trailed behind a grip car, and is used only on the cable lines. We have several streets where we have to use wagon sprinklers, owing to the fact that we have no provision for filling the tank cars without interfering with the regular traffic on the street; in these cases, we use our own wagons. We do not receive any pay from the city of Chicago for this service, but have to pay the city for all the water we use. During the year 1904, it cost the Chicago City Railway Company \$43.70 per mile of single track to sprinkle its right of way.

HARVEY D. FLEMING, Supt., Chicago City Railway Co.

B.—EMPLOYEES

B 17a.—What arrangements have you whereby employees can secure life insurance or pensions? Please give details and the results secured.

This company fosters a death benefit association for its employees. The association is run on the assessment plan, and every time it is necessary to make an assessment in the event of a death the company adds \$100 to the amount collected from the members, the death benefit being \$500 in each case. The company also furnishes the clerical aid necessary for handling the business of the association.

E. R. GILBERT, Asst. to Gen. Mgr., Chicago City Ry. Co.

B 27.—What do you consider the best system for keeping records of individual conductors and motormen? Please describe the system you use.

On this road each division superintendent keeps a record of his own men, this record including entries of individual instances of disobedience to rules, of which the superintendent is informed either from his own observation or from the main office. The main office handles the secret service checking system.

E. R. GILBERT, Asst. to Gen. Mgr., Chicago City Ry. Co.

F.—STEAM ENGINEERING

F 21.—Where feed-water is taken from city mains on meter basis, what is a fair charge for the water?

One mill per cu. ft.

FRANCIS G. DANIELL.

F 24.—What advantage or economy is obtained by the use of automatic boiler-feeding devices?

Automatic boiler-feeding devices increase the economy of the boiler by giving it a uniform feed of water. High water, which causes wet steam, does not occur, and low water, which may cause the boiler to burn or explode, is avoided. Boiler-feed pumps steady the work on the boilers, increase their life, and reduce the boiler repairs. On the other hand, their employment may tend toward carelessness on the part of the employees, and consequent danger should the apparatus fail in its operation. The boiler, therefore, should always be provided with high and low-water alarms.

E. G. HINDERT, Chief Engr.,
Cleveland & Southwestern Tract. Co.

F 34.—What are the relative merits and what the relative cost of iron and brass for hot feed-water piping?

Brass piping will not corrode or fill with scale. Iron will do both. The corrosion is usually the most severe at the point where water leaves the pipe, and where the temperature begins to increase. Brass pipe costs about one hundred times as much as iron. We tried iron, and in less than six months it began to give way on account of corrosion.

E. G. HINDERT, Chief Engr.,
Cleveland & Southwestern Tract. Co.

F 35.—Do you know of any novel or unusual arrangement of valves or piping on boiler feed-lines that have resulted in better regulation or other advantage in feeding water to boilers? If so, please give detailed description, with sketch if possible.

We have a ring system with valve between each boiler, and means whereby in cases of emergency we can feed through the glow-off.

E. G. HINDERT, Chief Engr.,
The Cleveland & Southwestern Tract. Co.

F 39.—What is the minimum head of hot-water supply above pump suction for reliable pumping service?

We have found it unreliable to have less than 4 ft., with a suction of about 12 ft. in length.

E. G. HINDERT, Chief Engr.,
Cleveland & Southwestern Tract. Co.

F 49.—What should be done to prevent coal-storage bins from taking fire by spontaneous combustion?

When coal is stored in yards and exposed to the weather, 3-in. or 4-in. vertical tubes, drilled full of $\frac{3}{4}$ -in. holes, should be set vertically every 4 ft. or 5 ft. apart and run through the whole height of the pile. In bunkers the only way is to empty the bunker as quickly as possible. Never use water to extinguish fire in coal pile, as the reaction of gases caused by water would cause spontaneous combustion. Coal should not remain long in a bunker, and when there are a series of bunkers fill them in regular rotation and at regular intervals, in other words, keep the coal moving.

H. A. TIEMANN.

F 50.—An engineer of a small power station requests suggestions on reducing cost of handling coal from cars to boilers. He does not believe size of plant warrants chain bucket conveyors. Can you give him any pointers or "wrinkles" on reducing this cost?

Get the car as close to the boiler room as possible, and shovel the coal off the car directly into the boiler room if the room is large enough. Make a bin that is open at the bottom edge next the

boilers convenient for the firemen to get coal out. Cover this bin over the top and up tight to the outside walls, then no dust will arise when coal is being unloaded. This is a very simple, yet good arrangement.

CHAS. H. COX, Gen. Mgr., Lincoln (Neb.) Tract. Co.

Have an elevated trestle built as close to boiler room as possible, and chute coal into boiler room. Always have coal delivered in dump cars.

E. G. HINDERT, Chief Engr.,
Cleveland & Southwestern Tract. Co.

H.—THE LINE DEPARTMENT

H 4.—What is the best form of cradle or other device for catching broken high-tension lines at highway crossings, or where the lines cross over or under other wires?

Common wire netting, such as is used for fences. The kind that comes in rolls is preferable, as it is light, strong and closely woven and can be reeled off and cut to any desired length. This form of cradle is frequently used in the West, where high-tension lines cross telephone or telegraph lines.

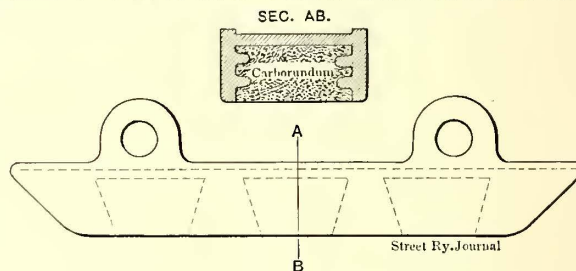
J. B. CRAWFORD, Hartford, Conn.

Would recommend wires parallel under high-tension wires with cross strips of wood having hooks at ends, or ordinary wire "sheep" fence of sufficient width.

H. V. S.

H 16a.—On a road operating with third rail, what is the best method of keeping the third rail clean?

The sketch herewith shows a cast-steel shoe filled with carborun-



FILLED TROLLEY SHOE

dum, designed for removing rust from the third rail. Application has been made for a patent covering this device.

J. E. OSMER, M. M.,
Northwestern Elevated R. R. Co., Chicago.

H 21a.—What means, machines, devices or special rigged cars are you using for expediting or cheapening the work of the line department? Please send descriptions, with photographs or drawings, and statement of results secured.

We constructed in our own shops, after our own designs, a very handy and efficient construction and repair car, mounted on a Brill 21 E truck. The car is of the box type, having three end and two side windows and two side doors, is painted a different color from other cars, and supplied with a complete set of wrecking and line tools, work bench, heaters, search lights, lanterns, etc. The roof is surmounted by a working platform, built up of wood slats about 2 ins. wide, and spaced 1 in. apart, and entirely insulated from the body of the car. A section of this platform, about 4 ft. x 6 ft., may be raised a distance of 6 ft. above the rest of the car, making a roomy tower capable of rising to some 18 ft. above the track. This tower is rigidly fastened to two double-strength vertical pipes, 3 ins. diameter, which are cross-connected at the bottom, and slide up and down through properly braced iron castings in the roof and over two smaller double-strength pipe, the bottom ends of which are rigidly fastened to the car floor. Attached to the 1-in. pipe, connected across the bottom of the moving vertical pipe, are two pulleys, over which pass $\frac{3}{8}$ -in. flexible steel cables, which are fastened to the roof of the car at one end, and at the other end to a long pipe roller operated by gears and handle under the workbench. By this means one man can raise two men on the tower if necessary, and by placing the vertical pipes in a line parallel to the length of the car, they give ample support and interfere very little with work in the car. Having both city and interurban lines, this car on lines with 15-minute schedules is able to do most of all of the repair work in the day time, and on single-track line with half hour run between turnouts, is very handy for work at night in all kinds of weather.

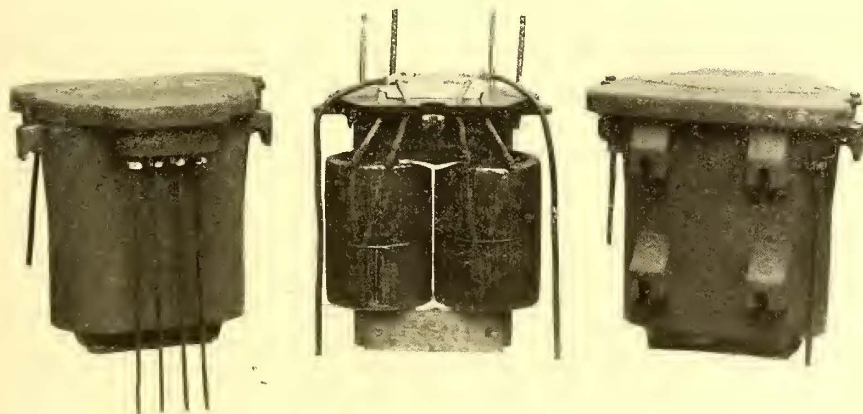
H. V. S.

TYPE C TRANSFORMERS

The Westinghouse Electric & Manufacturing Company has placed upon the market a new line of core type transformers in addition to the large assortment of transformer apparatus regularly made, with which users of electrical appliances are familiar. These transformers will be known as type C, and have operating characteristics closely approximating those of Westinghouse type OD transformers. They are intended for general distribution service on 60-cycle circuits operating nominally at 1050 volts and 2100 volts, although they will operate successfully on voltages up to 1200 and 2400. They are manufactured in sizes from .6 kw to 50 kw, all wound for the same primary voltages, but divided into classes according to the voltages of the secondary. Class 200 may be connected for either 105 volts or 210 volts, and class 400 for 210 volts or 420 volts.

The transformer is enclosed in a cast-iron case with felt gaskets under the lid, so as to make the transformer absolutely weatherproof. For sizes above 20 kw the case is corrugated to increase the radiating surface, but in the smaller sizes a smooth case has surface sufficient to radiate the heat generated. Hanger irons are provided by which any transformer up to and including the 30 kw may be mounted on a pole.

The core of a type C transformer is built up of carefully annealed steel punchings of cruciform shape, and is practically non-ageing. The primary and secondary coils are placed on the long sides of the core, the laminations of which are clamped together at top and bottom by suitable end frames. The low-tension winding is composed of one coil per leg, each coil having two sections so connected that the inner section of one leg is in series with the outer section of the other leg. This arrangement results in a secondary winding of two exactly similar parts, both as to resistance and reactance, and insures equal loading of each primary coil, irrespective of the



VIEW OF ENCASED AND EXPOSED TRANSFORMER

method of loading the secondary. A balanced voltage is thus maintained on the two sides of a three-wire distributing system, irrespective of the load. The high-tension winding is divided into two coils per leg to reduce the voltage between layers of the winding to a low value.

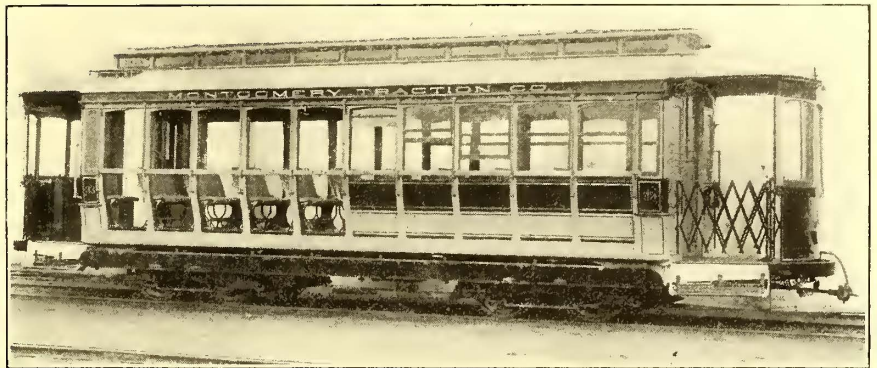
The core type construction allows the use of a circular coil, which has many advantages. All insulating parts between layers of the winding and between high and low-tension coils are cylindrical in form, eliminating sharp corners which are harmful to insulating material. The windings are so disposed and oil ducts so provided that a free circulation of oil between coils and core is obtained, insuring ready dissipation of the heat and preventing deterioration of the insulation. Very

careful attention has been paid to the insulation and liberal allowance made to insure a high factor of safety.

The design throughout has been worked out with the greatest care, and a line of transformers has been produced which can be relied upon for economical operation, durability and continuity of service. Their regulation and efficiency are as perfect as can be secured without detriment to other desirable features. All coils are wound to exact dimensions and all insulation is cut to gage, so that the corresponding parts of all transformers of the same capacity are interchangeable.

CONVERTIBLE CARS FOR MONTGOMERY, ALA.

Four convertible cars with the Narragansett double step have lately been completed for the Montgomery (Ala.) Traction Company, by the J. G. Brill Company. The Narragansett double-step arrangement comprises Z-bar sills with the upper



CONVERTIBLE CAR HALF CLOSED

step on the outward extending lower flange of the Z-bar, thereby utilizing the space ordinarily occupied by a timber sill. This arrangement enables double trucks having equal sized wheels to be used by overcoming the great objection to long open cars, namely, too extreme width when double trucks are used. It provides a running board of the same height as the platform step, adding safety as well as comfort and speed to the movement of passengers in and out. These cars are intended for city service, and therefore it is highly important that ingress and egress be facilitated to the utmost extent. The illustration gives a good idea of the appearance of the cars, either open or closed. The new cars are seated for thirty-eight passengers, the seats being of spring cane. Quartered oak in natural color, with decorated ceilings, constitutes the interior finish of the cars. Brill portable vestibules are used, the central sash sliding to one side and the side sashes stationary.

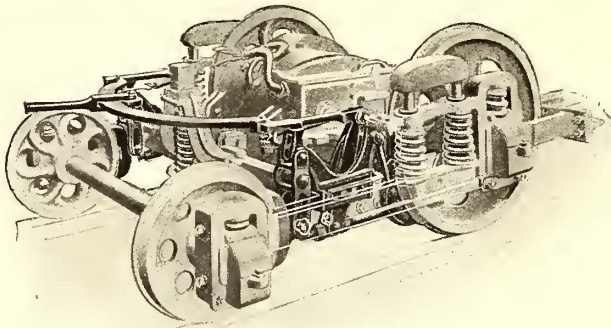
The length over the end panels is 28 ft. 4 ins., and over crown pieces, 38 ft. 4 ins. The other dimensions are: From panel over crown piece, 5 ft.; width over sills, 7 ft. 8 ins., and over posts at belt, 8 ft. 6 ins.; sweep of posts, 5 ins. The side sills are 8-in. x 3-in. x 1/2-in. Z-bars. The thickness of the corner posts is 3 5/8 ins., and of the side posts, 3 3/8 ins. The trucks are of the Brill No. 27-G type for fast and heavy city and suburban service. They have a wheel base of 4 ft. and 33-in. wheels.

J. G. White & Company, Ltd., London, England, have been awarded the contract by the London County Council for the reconstruction of the tramways from North Street, Wandsworth, via York Road, Battersea Park Road, etc., to Westminster Bridge. The contract price is £163,874.

A NEW TYPE OF BRAKE

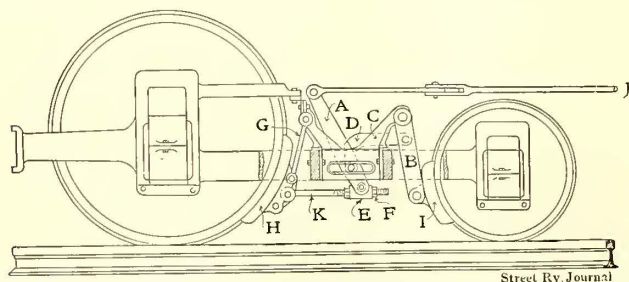
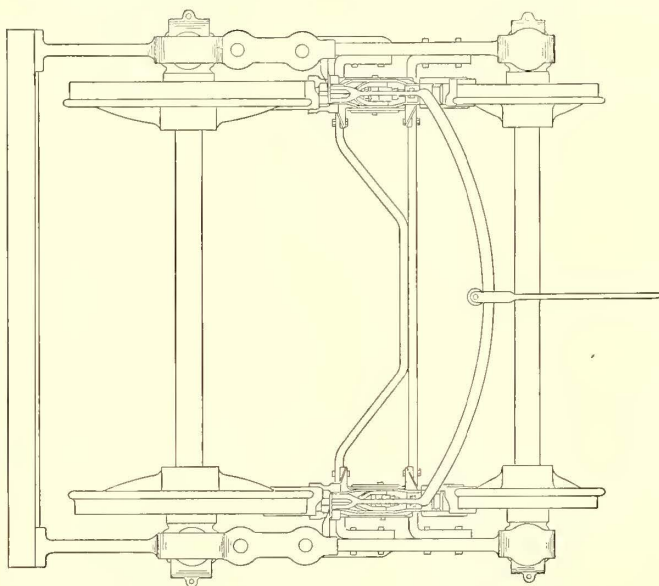
The Columbia Machine Works & Malleable Iron Company, of Brooklyn, has just placed on the market a new quick-acting beamless inside-hung brake. The inventor of the brake is Charles E. Remelius, superintendent of rolling equipment of the Public Service Corporation of New Jersey, who designed it especially for the Brill Eureka maximum-traction truck.

Several novel and important features are claimed for the new apparatus. A car of the Brooklyn Rapid Transit Company



GENERAL VIEW, SHOWING APPLICATION OF BRAKING APPARATUS

was equipped with the new brake and put into service on May 5, 1905, and up to July 17, notwithstanding the constant wear to which the brake rigging was subjected, it was only adjusted three times, and there was no report of slack chain or any defect in the mechanism. The brake-shoes that weighed 30 lbs. each in the beginning only lost 10 lbs. of weight per shoe.



PLAN AND ELEVATION OF MAXIMUM TRACTION TRUCK, SHOWING DETAILS OF BRAKING APPARATUS

The accompanying plan and elevation clearly bring out the compactness and neatness of the scheme. The braking mechanism on each side of the truck is confined to the space within

the wheels, while the usual brake-beam is eliminated, it being replaced with a pull-bar situated in a space outside of that devoted to the motor. The pull-beam is operated by a single rod. This arrangement leaves the motor unencumbered, so that there is easy access for repairs. It also expedites the removal of wheels and provides supports for side bearings, all of which have a very important bearing on satisfactory and economical maintenance.

Again referring to the drawing, it is seen that the usual motor support and a second cross-bar riveted to the center of the former makes the seat for the cast-steel frame, C, that supports the brake proper. The braking effect is obtained by a combination of levers: A, the main lever, being one of the first-class, with the fulcrum at the center, and B, the secondary lever, one of the third-class, with the fulcrum at the end. A and B are connected by means of the link D. The load end of the secondary lever B is directly connected to the pony brake-shoe and hung from C, while the load end of the main lever A is connected to the driver brake-shoe H through the push-rod K, the brake-shoe H being hung from frame C. When power is applied to the brake-rod J, which is connected with the main lever A, an analysis of the combination shows there is a close relation between the amount of movement of the brake-rod J and that of the brake-shoes. This relation depends on the relative lengths of the lever arms, which may be adjusted or varied. When the arms of lever A are as 1 is to 4, and the arms of B as 1 is to 3 from actual demonstration with slack shoes, it only requires three-quarters to a full turn of the brake handle to accomplish a full-speed stop. The shoes are equally as quick to release when the power is let off. Another desirable feature of the brake is that a great deal of the shoe must be worn away before it is necessary to make any adjustment of the brake. Still another feature is that the braking power is divided unevenly on the driver and pony wheel—that is, the major portion of the braking effect being accomplished by the driver-shoe H. A connecting pull-bar provides for independent equalization of the two brakes on opposite sides of the track, and any slight difference in the proportion of the parts of one side over those of the other may be compensated by the adjustment of the trunnion E.

The details of the foregoing brake have been very carefully worked out, each part having economical and substantial sections, with the levers A and B, link D and frame C of cast steel. Cars are now being equipped with this brake for the Public Service Corporation of New Jersey and for the Philadelphia Rapid Transit Company.

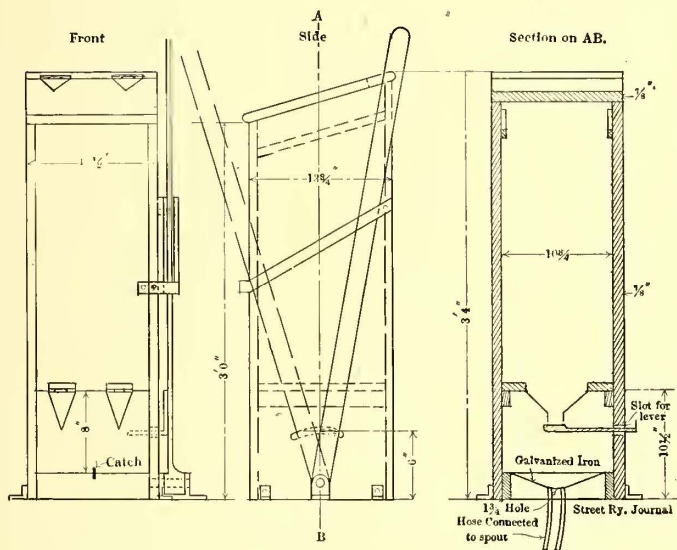
The Columbus, Buckeye Lake & Newark Traction Company and the Columbus, Newark & Zanesville Traction Company have discontinued the limited parlor car service between Columbus and Zanesville, as it was not very profitable.

In an editorial article in the "New York Medical Journal" of July 29, Dr. G. Frank Lydston discusses the ventilation of street cars. He says that if there is anything more unsanitary than the crowding together of all sorts and conditions of people in various states of health and cleanliness, he is not aware of it. The trouble at present, according to the author, is due partly to inadequate ventilating apparatus, but more to the passengers and conductors themselves. A proportion of the former object to imaginary or real drafts, while the conductors do not take the trouble to open the ventilators, or else keep them closed to economize in the heating of the car. The remedy suggested is to provide a double ventilated roof with suitable apertures for ventilation at various points in the lower part of the car. These openings should have no means of closure, thus making both conductors and passengers helpless in the matter of opposing proper ventilation.

A NEW SAND BOX FOR SCRANTON

A new design of sand box has been in use by the Scranton Railway Company, at Scranton, Pa., for some time past with excellent results. The important feature of the sander is the feeding device, which is so arranged that clogging at the valve by accumulations of damp sand is entirely prevented. This difficulty had formerly been experienced to an uncomfortable degree, because Scranton is a very hilly city and a large amount of sand had to be carried in the hoppers. In wet weather moisture would inevitably gain access to the spout hose and gradually work past the valve into the lower funnel portion of the box, with the result that the sand would pack and refuse to feed out onto the rail when needed.

The principle of the new sand box is shown in the accompanying drawing. The box, which is about 1 ft. square and 3 ft. high, has a funnel bottom 10½ ins. above the floor of the car platform on which the box is mounted. Below this bottom is the outlet valve, which is operated by the vertical hand lever for use of the motorman, and below this valve is a second funnel, which is directly connected to the sand hose. When the sand valve is opened the sand flows out to the lower funnel below and thence through the spout to the rail. The provision



ELEVATIONS AND SECTION OF SCRANTON SAND-BOX

of this air space below the valve has been found effectually to prevent access of moisture to the sand.

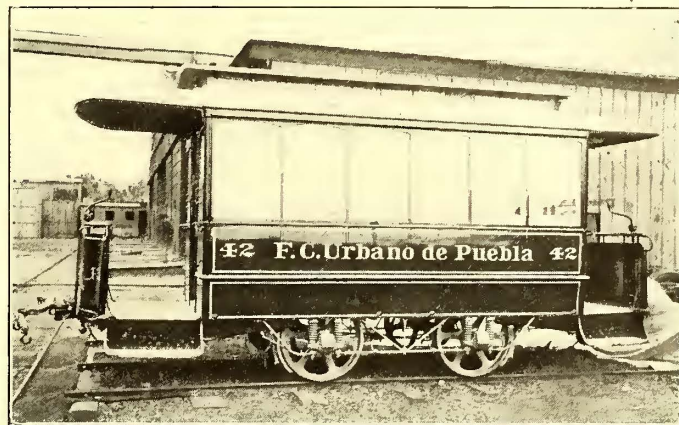
A rapid method of filling sand boxes is employed at the car houses in Scranton. Instead of laboriously carrying sand into the cars while in the car house at night, the cars are sanded as they leave the car house; special men are stationed at the sand bin near the street entrance for this purpose. As the car passes, a man with two pails of sand rapidly passes through a car and fills the box at each end with hardly a moment's delay. Each sand box has a capacity of over 2 cu. ft., which is more than enough for a day's service under most extreme conditions.

The Cœur d'Alene & Spokane Railway has established week-day limited service between Spokane and Cœur d'Alene. By means of the special train now being run, Spokane business men can leave that city at 4:30 p. m., reach Cœur d'Alene fifty-five minutes later, spend the night at the latter place and return to Spokane in time for business the next morning by taking the Spokane limited at 8:28, which gets into Spokane at 9:18. The total distance to Cœur d'Alene from Spokane is 34 miles, or 30¼ miles from the city limits. It requires eighteen minutes to take a train out of Spokane, so that the remaining 30¼ miles are covered in a total of thirty-five minutes.

CAR EQUIPMENT FOR PUEBLA, MEXICO

In these days of electric operation the fact that horses are still used in street railway service is called to mind only when visiting New York or Washington, or inspecting the foreign shipments of some of the large car companies. The horse is still the favorite motive power in Mexico, however, and is one of the few countries for which new horse cars are built. As a reminder of the past, the accompanying illustration of a new closed car recently built by the American Car Company for Puebla, Mexico, is given. Puebla is the second city in size in Mexico, and operates about forty cars for its 16 miles of track.

The car illustrated is 11 ft. 10¾ ins. over the end panels and 6 ft. 6 ins. over posts at belt. The seats are longitudinally



CLOSED CAR FOR ANIMAL TRACTION IN MEXICO

placed and the windows are arranged to drop into pockets in the side walls. Wooden blinds are also provided. The interiors are of cherry and ash, with ceilings of carline finish. The open cars, which formed part of the same order, are 12 ft. ⅓ in. over the end panels and 6 ft. 8 ins. over posts at belt, and have a seating capacity of twenty-five. Like the closed, the cars are finished in cherry and ash, with carline ceilings. Brill gear trucks with 4-ft. 10-in. wheel base and 30-in. wheels are used under both the closed and open types. The American Car Company reports a number of orders for small cars from Mexico, Central and South America.

PROJECTED ELECTRIC RAILWAY FOR LEGHORN, ITALY

There has just been announced the incorporation at Leghorn, Italy, under the auspices of the Banca Commerciale Italiana, of a new tramway company which proposes to build and operate an electric railway between Lucca, Pescia, Bagni di Montecatini and Monsummano, and to establish public automobile service in the towns adjacent to the line. It has the backing of a number of important savings banks and similar institutions, as well as of private capitalists. The capital is placed at \$2,400,000, divided into 12,000 shares of 100 lire (\$20) each. The headquarters of the line will be at Lucca, and the name of the company is La Societa per la Tramvia Lucca-Pescia-Monsummano. Lucca is 25 miles east of Leghorn; Pescia is 12 miles east of Lucca, and Monsummano is 8 miles east of Pescia.

The Dayton & Troy and Western Ohio lines, operating limited chair car service between Dayton and Lima, have abrogated the excess fare on interline business between points on the two roads, but will still retain the excess on local business on either of the two roads. This is to encourage through travel and to discourage the use of the limiteds by local passengers.

LEGAL DEPARTMENT*

ASSAULTS AND INSULTS BY EMPLOYEES

The law is settled in the State of New York to the effect that when a railway employee commits a wanton or malicious assault upon a passenger the company is liable as matter of law, but that in the case of such an assault upon a trespasser it may be a question for the jury whether or not the servant was acting within the scope of his authority. In the recent decision of the Supreme Court, Appellate Division, First Department, in *Barry vs. Union Railway of New York* (94 N. Y. Supp., 449), that distinction was administered in a suit brought by a newsboy who boarded a car to sell papers and claimed to have been forcibly ejected and seriously injured by the motorman. It was held that the plaintiff, being a trespasser, the question whether the motorman was acting within the scope of his authority should have been submitted to the jury, and if the finding had been in the negative the company would not have been liable. In *Berry vs. Boston Elevated Railway Company*, decided by the Supreme Judicial Court of Massachusetts (74 N. E., 933), it was held that where plaintiff, a policeman, was called by one of defendant's conductors to a discarded horse car, used for shelter only, for the ostensible purpose of arresting certain "crooks," as a mere joke on the policeman, and he was injured by reason of a defect in the platform as he boarded the car, the conductor's act was not within the scope of his authority and defendant was not liable, though the act was performed on its premises.

American courts agree quite generally with those of New York with regard to the liability of a railway company for assaults by its employees upon passengers. A recent New York case (*Gillespie vs. Brooklyn Heights Railroad Company*, 178 N. Y., 347), held a street railway company answerable for insulting language used by a conductor to a passenger. This decision is also in accord with the general current of American authority.

The relation of passenger does not begin until a person has actually touched the car with the intention of entering it. It has been held, nevertheless, as to assaults, that the relation of passenger may continue after one has actually left the car. One of the most recent cases on the subject was *Flynn vs. St. Louis Transit Company* (May, 1905, 87 S. W., 560). It appeared that defendant's street car conductor committed an unprovoked assault on plaintiff, who was an old man, as he was endeavoring to alight, and pushed or threw him from the car. Plaintiff's umbrella remained on the platform, and when he attempted to get it the conductor kicked him in the groin, whereupon plaintiff hit the conductor with the umbrella, and the latter then followed plaintiff to the street and beat him. It was held that the assault was continuous, and that the relation of carrier and passenger continued to exist during the entire assault.

In *Savannah Railroad vs. Bryan* (86 Ga., 312), Bryan, a passenger, was kicked off the car by the conductor. Bryan then immediately repaired to the office of the company for the purpose of making complaint to the superintendent. He reached the office in eighteen or twenty minutes. The conductor arrived at or about the same time, and again kicked him and hit him with his fists, and cut him with a knife. It was held that the company was liable for both assaults. In *Wise vs. Covington & Cincinnati Street Railway* (91 Ky., 537; 16 S. W., 351), it was held: "Where a passenger on a street car leaves the car because he is insulted and abused by the driver, and is pursued and beaten by the driver in the street, it must all be regarded as one continuous wrong, and the railway company is as much liable as if the beating had taken place in its car."

LIABILITY FOR NEGLIGENCE

MICHIGAN—Street Railroads—Killing Cattle—Actions—Evidence—Trial—Misconduct of Counsel—Argument—Direction of Verdict—Instructions—Prejudice.

1. Where a witness subsequently gave the evidence sought to be

obtained by a question which was disallowed, the sustaining of the objection was harmless error.

2. Where the court sustained an objection to a question asked of a witness on cross-examination, and stated that the question was improper, and defendant's counsel thereafter made no request to have the matter referred to by the court in its charge, he was not entitled to predicate error thereon.

3. Where, in an action against a street railway company for killing one of plaintiff's cows, the record showed that the car which struck the cow had a conductor, and was carrying upwards of fifty passengers, and there was no effort to obtain the attendance of the conductor or more than one of the passengers, and their absence was not accounted for, defendant's counsel having severely criticised one of plaintiff's witnesses, it was not error for plaintiff's counsel in his argument to refer to the absence of the conductor and the other passengers, and to draw an inference therefrom that their testimony, if produced, would be adverse to defendant.

4. In an action against a street railway company for killing plaintiff's cow, an instruction that plaintiff could only recover if the killing was willful and reckless, and that unless defendant, when it saw the cow on the track, or had good reason to believe it would go on the track, did nothing to prevent running against the cow, the jury could not find for plaintiff, was not prejudicial to defendant.

5. In an action against a street railway company for the killing of plaintiff's cow, evidence held to require the denial of a motion to direct a verdict for defendant.—(*Airikaian vs. Houghton County St. Ry. Co.*, 101 N. W. Rep., 264.)

MICHIGAN—Carriers—Injuries to Passengers—Street Railroads—Sudden Jerks—Evidence.

Where plaintiff, a passenger on an open street car, arose as the car was approaching his destination, and stood with one foot on the platform and the other on the car step, with his hand on the rail, and, as the car stopped with a sudden jerk, he was thrown to the ground and injured, he was not entitled to recover, in the absence of evidence as to the cause of the jerk.—(*Conroy vs. Detroit United Ry.*, 102 N. W. Rep., 641.)

MINNESOTA—Willful Negligence—What Constitutes—Street Railroads.

1. Willful or wanton negligence, whereby liability is incurred irrespective of the contributory negligence of the party injured, is a reckless disregard of the safety of the person or property of another, by failing, after discovering the peril, to exercise ordinary care to prevent the impending injury.

2. The trial court erred in submitting the question of the defendant's willful negligence to the jury in this case.—(*Alger, Smith & Co. vs. Duluth-Superior Traction Co.*, 101 N. W. Rep., 298.)

MISSOURI—Carriers—Injury to Passengers—Street Cars—Premature Start—Negligence—Contributory Negligence—Last Clear Chance—Damages—Loss of Time—Instructions.

1. A street car company is bound to stop a car for a period reasonably sufficient to afford passengers an opportunity to board it, in the exercise of reasonable diligence on their part, with due regard to age and physical infirmity.

2. In an action for injuries to a passenger while attempting to board a street car by the premature starting thereof, evidence as to plaintiff's acts in attempting to board the car, held to require a submission of the question of plaintiff's contributory negligence to the jury.

3. Where a street car was started before plaintiff succeeded in boarding it, whereupon the conductor seized plaintiff by the arm in an endeavor to drag him on the car, which failed, plaintiff's direction to the conductor to release him as the speed of the car increased, and after the conductor had failed to stop the car as plaintiff requested him to do, was insufficient to preclude a recovery for injuries sustained by plaintiff in falling from the car.

4. An instruction, in an action for injuries to a passenger, was not objectionable as eliminating the question of plaintiff's contributory negligence, where the change as a whole was not subject to such objection.

5. Specifications of negligence, in an action for injuries to a passenger while boarding a street car, in that the car was started before plaintiff was afforded a reasonable opportunity to board the same, and that it was not stopped subsequently to avert the peril impending in plaintiff's jeopardous situation, were not inconsistent.

6. Where plaintiff was injured by the premature starting of a street car while attempting to board it, an instruction that if the jury found that, after seeing plaintiff's dangerous position, the conductor could have stopped the car, by signaling to the motorman, in time to have prevented the injury, and failed to exercise ordinary care so to do, which produced it, plaintiff was entitled to recover, etc., was proper.

7. Plaintiff's evidence, in an action for injuries to him while at-

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

tempting to board a street car, that the conductor did not release his hold on plaintiff's arm until he commanded him to do so, was binding on plaintiff as an admission.

8. A requested instruction that plaintiff had admitted that defendant's conductor had not released his hold on plaintiff's arm until plaintiff commanded him to do so, and that if from the evidence the jury believed that plaintiff's fall from the car and injury were directly due to, or were directly contributed to by, plaintiff's conduct in causing the conductor to release his hold, etc., plaintiff could not recover, regardless of the negligence of defendant's servant, was properly refused as a comment on the evidence, and as emphasizing certain parts of plaintiff's testimony.

9. Where, in an action for injuries to a passenger, it appeared that plaintiff had retired from business, and that during his disability plaintiff's son had collected his rents, etc., without compensation, plaintiff was not entitled to recover for loss of time.—(Shanahan vs. St. Louis Transit Co., 83 S. W. Rep., 283.)

MISSOURI—Street Railways—Negligence—Injuries to Employees—Defective Turntable—Actions for Damages—Causes of Action—Proof—Pleadings—Evidence—Admissibility—Harmless Error—Excessive Verdict—Passion or Prejudice.

1. When two or more proximate causes contribute to produce an injury, each is sufficient within itself to support a cause of action for the recovery of the entire damage resulting, and a plaintiff pleading in his petition all of such claimed acts of negligence is entitled to recover upon proof of any one of them.

2. In an action against a street railway company by an employee for personal injuries, the petition alleged that defendant negligently allowed a turntable to become so out of repair that the grip slot on it and the grip slot in the track would not, when operated in the usual manner, so fit as to make the slot on one side exactly correspond with, and be opposite to, the slot on the other; that the operator in charge of the turntable so negligently set the same that the slot on the turntable was not in line with the slot in the track; and that, by reason of his negligence and the dangerous condition of the turntable, the grip on the car which plaintiff, a gripman, was attempting to take across the table, struck the slot rails of the track, causing the car to stop; and that plaintiff was struck by the grip lever, as the result of the arrested motion of the grip bar, and injured. Held that plaintiff could recover under the cause of action pleaded without proof of negligence on the part of the operator.

3. The evidence examined, and held sufficient to show that the negligence charged with respect to the defective condition of the turntable could have contributed to the injury.

4. The petition alleged that the slot in the turntable, when the latter was turned and set by the operator to allow plaintiff to take his car onto the emergency track, as the track on the other side of the table was called, did not fit the slot in the emergency track, by reason of which the grip struck the slot rails of such track, etc.; the gist of the complaint being the failure of the slot in the table to meet that in the emergency track when the car reached that point. Held that as the car could not have entered on the table if the latter was out of position there, and the accident was charged to have occurred after it entered and crossed, defendant was advised that the issues to be met were involved in the fact of a displacement during the crossing, and hence recovery could be sustained on account of a displacement of the table produced by the motion of the car in crossing.

5. Evidence that prior to the date of the accident the operator was seen holding the table in position with a crowbar, in the presence of defendant's foreman, and also that other but similar means had also been used for the same purpose, was admissible as tending to show the defective condition of the locking apparatus of the table, and notice thereof of defendant.

6. Evidence that one of defendant's employees, prior to the date of the accident, told defendant's foreman that he did not think the table was in good condition for a man to run over, was inadmissible to show the defective condition of the table.

7. The evidence was, however, competent to show notice to defendant of such condition.

8. An objection to the question asked a witness by defendant's counsel, as to what the condition of the slot and of the latch of the locking apparatus was on the day of the accident, was sustained, as calling for the opinion of one not qualified as an expert. Thereupon defendant asked the witness to describe the condition in his own language—the condition of the socket, the latch, the turntable track, and of the emergency track, and the condition of the opposite track "as to being in line," on that day—and there being no objection, the witness answered. Held that, even had competent evidence been called for, defendant was not injured by the ruling as to the first question; the error, if any, being cured in the evidence admitted.

9. Plaintiff's left arm was broken, and the muscles thereof badly

bruised, as the result of the accident, and at the trial, some 20 months thereafter, was still so disabled as to be practically useless; his doctor testifying that, in his opinion, the arm would never entirely recover. Held that a verdict for \$2,500 was not so excessive as to justify the court in saying that it was the result of passion or prejudice.—(Dutro vs. Metropolitan St. Ry. Co., 86 S. W. Rep., 915.)

MISSOURI—Street Railways—Negligence—Contributory Negligence—Discovered Peril—Trial—Verdict by Nine Jurors—Statute—Constitutionality—Vested Rights.

1. Though an action was begun and the issues joined prior to the adoption of the law authorizing nine of the jury in a civil case to render a verdict, a verdict so rendered was valid, as no one has a vested right in modes of procedure.

2. Plaintiff was driving down a grade of 3 per cent, approaching a street railroad crossing, his horse going at a slow walk, when he saw a street car approaching at about nine miles an hour. There was no brake on plaintiff's wagon, and he drove on the tracks without stopping or attempting to turn out, and a collision ensued. The crossing was level, and when plaintiff first saw the car, it was about 250 feet from the point of contact. Held that he was guilty of contributory negligence.

3. The evidence as to the distance the car was from plaintiff at the time he drove onto the tracks being conflicting, and ranging between 50 and 108 feet, defendant could not be held liable under the doctrine of discovered peril.—(Roefeldt vs. St. Louis & S. Ry. Co., 79 S. W. Rep., 706.)

MISSOURI—Street Railroads—Crossings—Injuries to Drivers—Contributory Negligence—Failure to Look—Last Clear Chance.

1. Where plaintiff, prior to driving onto a street across which a street railway was operated, notwithstanding certain small trees and weeds growing on plaintiff's lot, could have seen a car approaching at a high rate of speed, but he failed to look, and drove upon the track after having checked his team to avoid a passer-by, and was injured, he was guilty of such contributory negligence as precluded a recovery.

2. Where, at the time plaintiff drove upon a street car track, defendant's car by which plaintiff was struck was not more than 75 feet away, and was running at such a rate of speed that it could not have been stopped, by the use of the brake and reverse, before striking plaintiff's wagon, plaintiff was not entitled to recover notwithstanding his contributory negligence, on the ground that the motorman had the last clear chance of avoiding collision.—(Fellenz vs. St. Louis & S. Ry. Co., 80 S. W. Rep., 49.)

MISSOURI—Street Railways—Injuries to Pedestrians—Negligence—Contributory Negligence—Question for Jury—Instructions—Concurrent Negligence—Departure from Pleadings—Parties—Real Party in Interest—Assignment of Unliquidated Claim—Effect.

1. Under Rev. St. 1899, Section 540, providing that every action shall be prosecuted in the name of the real party in interest, except in certain cases, but which expressly recites that it shall not be deemed to authorize the assignment of a thing in action not arising out of contract, an unliquidated claim for personal injuries cannot be assigned, and an attempted assignment of a part thereof to an attorney does not render him a party in interest in an action for the injuries.

2. From testimony that, while defendant's car had stopped, and passengers were alighting, plaintiff sought to pass in front of the car, which was started without any signal to her, it could be fairly inferred that the motorman saw, or should have seen, plaintiff's effort to get by the car.

3. A pedestrian in the most crowded portion of a large city, who seeks to pass in front of a stationary car, in plain view of the motorman, is not guilty of contributory negligence, as a matter of law, but the question of due care on his part is for the jury.

4. A motorman at the junction of two of the most prominent thoroughfares in a large city, in frequent and constant use by pedestrians and vehicles of every sort, should exercise a degree of care commensurate with such conditions, and is charged with knowledge that the diligence which might suffice in less populous and traveled parts of the city would fall short of constituting ordinary care in such thronged portions.

5. In an action against a street railway for injuries to a pedestrian attempting to cross in front of a stationary car, where the defense was that the car was moving, and that plaintiff was negligent in stepping immediately in front of it, it was not sufficient for the court to charge that the burden throughout rested on plaintiff to establish that her injuries were caused solely by the negligence of defendant, and without fault on plaintiff's part, but defendant was entitled to a sharply defined and concise instruction that, if plaintiff's injuries resulted from the concurrent and mutual negligence of both herself and defendant, defendant was not responsible therefor.

6. In an action against a street railway for injuries to a pedestrian, where plaintiff's evidence was that the car had stopped two feet from the crossing on which she started to pass over defendant's tracks, and the negligence assigned was the act of the motorman in charge of a motionless car in recklessly starting it, and there was no averment that the casualty resulted from failure to stop a moving car, it was error for the court to qualify a charge to find for defendant if plaintiff stepped in front of the car when she knew it to be moving by adding, "if the motorman could not have stopped the car after he either saw, or could have seen by using ordinary care, that plaintiff was in a position of danger."—(McLeland vs. St. Louis Transit Co., 80 S. W. Rep., 30.)

MISSOURI—Carriers—Injury to Street Car Passenger—Boarding Car at Unusual Place—Duty of Lookout by Carmen—Safety of Handrail—"Res Ipsa Loquitur"—Duty Towards Probable Licensee.

1. Carmen are not under obligation to guard against negligently starting the car so as to throw a person who attempts to board it on the wrong side of a street crossing, where the car has stopped to throw a switch, where they have no actual knowledge of his position, and the only testimony to show that it was usual to receive passengers at that point is that of the injured person, who merely states that he had previously seen persons board the car where he did.

2. The doctrine of "res ipsa loquitur" applies to a handrail on a street car, used by passengers to assist them in boarding and alighting, and which gives way in the hand of a passenger struggling to regain his balance on the car's suddenly starting.

3. A street car company is under obligation, to a person who attempts to board a car at an unusual place without the knowledge of the carmen, to use ordinary care to keep the handrail used by passengers in boarding and alighting in proper repair.—(McCarty vs. St. Louis & S. Ry. Co., 80 S. W. Rep. 7.)

MISSOURI—Street Railway—Passenger Boarding Moving Car—Duty of Motorman—Instructions—Contributory Negligence.

1. An instruction that if plaintiff, at a place where defendant received passengers, signaled the motorman his intention to become a passenger, and the motorman slowed the car down to enable plaintiff to board it, and plaintiff, while it was so slowed down, attempted to board it, it was the duty of the motorman to use a high degree of care to so control the car as to enable plaintiff to safely get on it as a passenger, correctly states the law.

2. The bracketed words in an instruction: "If the jury find * * * that the car was slowed down while passing around the curve * * * for the purpose of making it safe in getting around said curve, and that such slowing down was not done for the purpose of enabling plaintiff to get on the car, [then such slowing down of the car was not an invitation to plaintiff to attempt to get on the same]; and if the motorman did not know, and had no reasonable cause to think, that plaintiff was attempting to get on said car while it was in motion, then it was not negligent or improper in the motorman to accelerate the motion of said car when leaving said curve"—add no strength to the instruction, so that the omission thereof was harmless; the defense to which the instruction was applicable being that the motorman did not see plaintiff or know of his presence.

3. An instruction that the jury are the judges of the credibility of the witnesses, and of the weight to be given their statements, and if the jury believe, from all they have "seen and heard at the trial," that a witness has sworn falsely, they may disregard entirely his testimony, while too broad, will not be held to have misled the jury to suppose they could go outside the evidence and the demeanor of the witnesses.

4. It is not contributory negligence, as a matter of law, for an ordinarily active man, 38 years old, to attempt to board a street car turning out of a curve at a speed of 5 or 6 miles an hour; the place being the usual place where the car stops to let passengers on and off, and he being familiar with the place.

5. Any negligence of plaintiff in attempting to get on a street car while it was in motion will not prevent his recovery; the increase in the speed, after he had got part way on, made by the motorman when he knew or had good reason to believe that plaintiff was attempting to get on, having caused him to lose his balance and fall.—(Fikenberry vs. St. Louis Transit Co., 80 S. W. Rep., 860.)

MISSOURI—Street Railways—Injury to Passenger—Collision of Cars—Evidence—Opinion.

1. The answer of a witness, who, after testifying that he did not see what broke the window of a street car in which he was a passenger, was asked if he could describe the noise that he heard, stated that it sounded to him like a collision of the car; that was his impression of it—is not open to the objection of being opinion evidence.

2. Evidence in an action for injury to a passenger in a street

car by the breaking of a window therein, held sufficient to go to the jury on the claim of plaintiff that it was caused by the collision of that and another car while passing at a high speed, with a swaying motion, on a curve.—(Binsbacher vs. St. Louis Transit Co., 82 S. W. Rep., 546.)

MISSOURI—Carriers—Street Railroads—Injuries to Passengers—Premature Start—Time to Alight—Negligence—Prima Facie Case—Actions—Pleading—Evidence—Instructions.

1. Where an action for injuries to a passenger was tried on the theory of negligence, as distinguished from a willful injury, an objection that the issue of negligence was not raised by the petition was waived.

2. Where, in an action for injuries to a passenger on a street car, her evidence showed that she got a transfer from the motorman, and that passengers sometimes boarded the cars to which plaintiff was transferred at the point where she attempted to alight, and the motorman testified that passengers got on and off defendant's cars at such junction, and that before starting his car he looked around to see if anyone was getting on or off, and plaintiff alleged that the motorman negligently and carelessly turned on the electricity as she was attempting to alight, causing the car to suddenly jerk and start forward, throwing her to the pavement, such evidence sufficiently disclosed a duty of the motorman to exercise due care to see that passengers had alighted in safety before he started the car; and the petition was therefore sufficient to support a verdict for plaintiff, though it did not allege that she informed the motorman of her intention to alight.

3. In an action for injuries to a passenger on a street car by the premature starting thereof as she was attempting to alight, plaintiff's evidence held sufficient to make out a prima facie case.

4. Where, in an action for injuries to a passenger by the premature starting of a street car as she was attempting to alight, plaintiff had not communicated to the motorman her intention to get off—the motorman being only bound to watch the rear platform, where passengers generally were accustomed to alight, and see that no one was in the act of getting on or off before he started the car, and having done so—it was error for the court to charge, as a matter of law, that it was the motorman's duty to have seen and observed plaintiff until she reached the street in safety, before starting the car.

5. Where a street car was operated by a motorman without a conductor, and, from his station on the front platform, he got the best observation possible to see that no one was getting on or off the car, and then sounded the gong as notice of his intention to start, he was not guilty of negligence, as a matter of law, in failing to ascertain that plaintiff was in the act of alighting when he started the car.—(Cramer vs. Springfield Traction Co., 87 S. W. Rep., 24.)

MISSOURI—Street Railroads—Personal Injuries—Collision with Vehicle—Contributory Negligence—Duty to Look and Listen—Discovered Peril—Evidence—Question for Jury.

1. In an action against a street railroad company for personal injuries caused by collision of defendant's car with plaintiff's vehicle, evidence held to justify submission of the issues of negligence and contributory negligence to the jury.

2. In an action against a street railroad company for injuries caused by collision of a car with plaintiff's wagon as plaintiff was attempting to cross the tracks, there was evidence that plaintiff was negligent in pausing before starting to cross the tracks, and then attempting to cross after the motorman had proceeded under the impression that plaintiff intended to stop. Defendant requested an instruction that it was the duty of plaintiff to have exercised ordinary care, and to look and listen, and that, even though the gong was not sounded, still if plaintiff could, by ordinary care, have stopped in time to avert the collision, they should find for defendant. The court modified the instruction by adding the words: "Provided that you find that he did fail to exercise such care, and that his failure to exercise such care directly contributed to plaintiff's injury, and that the defendant, by the exercise of ordinary care after the plaintiff was, or by the exercise of ordinary care might have been, discovered to be in a position of danger, might have stopped the car by the use of the appliances at hand, and without danger to the persons on the car, and so have avoided injury, and that the defendant failed so to do." Held that the modification rendered the instruction unintelligible.

3. Where plaintiff attempted to cross defendant's street car tracks without looking or listening, but at a time when he could have safely crossed had not his progress been prevented by an excavation, of which he had no knowledge, and which compelled him to stop so that he was struck by a car, his failure to look and listen did not preclude a recovery.

4. Where the negligence of one injured by a collision on a street railroad track directly contributed to the injury, he could not recover if the motorman was merely negligent, but might recover if

the motorman was guilty of reckless or wanton misconduct, and could have stopped the car in time to avoid injury after discovering the danger.—(Frank vs. St. Louis Transit Co., 87 S. W. Rep., 88.)

MISSOURI—Carriers—Injuries to Passenger—Contributory Negligence—Instructions—Harmless Error.

1. In an action against a street railroad for personal injuries received by a passenger from being struck on the arm by the brake handle while riding on the front platform of a car, the measurement of the platform showed that plaintiff had ample room to keep out of the way of the brake handle. He knew the handle was there, that the signal had been given for the car to start, and knew the brake handle would immediately begin to revolve, but placed his arm within its radius. Held that plaintiff was injured through his own negligence by having placed his arm in a place of known danger.

2. In an action against a street railroad for personal injuries received by a passenger by being struck on the arm by the brake handle while riding on the front platform of a car, where the evidence tended to show that the platform was in a crowded condition, and that the motorman could have broken the force of the revolutions of the brake, though it is error to charge that it was not the duty of the motorman to anticipate that plaintiff would put his arm within the radius of the brake handle, it is not cause for reversal, the evidence showing conclusively that plaintiff was guilty of negligence in having placed his arm within the radius of the brake handle, the danger of which was known to him.—(Brewer vs. St. Louis Transit Co., 79 S. W. Rep., 1021.)

MISSOURI—Carriers—Negligence—Personal Injuries—Instructions—Issues—Speed of Car—Opinion Evidence—Res Ipsa Loquitur.

1. On an issue as to the speed of a street car, witnesses who were accustomed to railroad travel, many of whom rode daily on street cars, and some of whom traveled frequently on steam railroads also, were competent to give an opinion.

2. Where plaintiff in an action for personal injuries alleges specific acts of negligence, the evidence and right of recovery must be confined to those acts.

3. In an action against a street railway company for injuries alleged to have been caused by negligence of defendant in allowing a gate on the rear platform of one of its cars to remain insecurely fastened, so that it swung open, allowing plaintiff to fall, the court instructed the jury to consider all the circumstances shown by the evidence. This was followed by a charge that the actual issue was that the gate was not securely fastened, and that there was no issue that the gate was not properly made, or of a safe kind, or the fastenings not of a safe kind. Held not erroneous as allowing a recovery on negligence not pleaded.

4. In an action against a street railway company for injuries alleged to have been caused by negligence in leaving a gate on the rear platform, through which plaintiff fell, in a condition in which it was liable to open, and in which there was no allegation or proof that the gate broke, the use of the words "giving away," with reference to the gate, in the instructions, was not erroneous, as they did not refer to a fracture, but to disconnection from position as a barrier.

5. Where a gate on the rear platform of a street car swung open while the car was in motion, allowing plaintiff to fall through and injuring her, the happening of the accident created a presumption of negligence on the part of the street car company, casting upon it the burden of showing freedom from negligence.—(Aston vs. St. Louis Transit Co., 79 S. W. Rep., 999.)

MISSOURI—Street Railroads—Personal Injuries—Collision with Vehicle—Instructions—Failure to Look and Listen.

1. Where, in an action against a street railroad company for injuries from a collision of a car with plaintiff's vehicle, the complaint alleged that defendant was negligent in running the car at an excessive rate of speed, and in failing to ring the bell, instructions authorizing a recovery if the motorman discovered plaintiff's danger in time to have prevented the collision by ordinary care were outside the pleadings.

2. In an action against a street railroad company for injuries from a collision with plaintiff's vehicle, in which there was evidence that plaintiff failed to look and listen before attempting to cross the track, an instruction that plaintiff could not recover if he did so fail should have been given, and an instruction denying the right to recover if plaintiff's negligence directly contributed to the injury did not sufficiently cover the point.—(Hartman vs. St. Louis Transit Co., 87 S. W. Rep., 86.)

MISSOURI—Street Railways—Injury to One Attempting to Board Car—Relation of Passenger and Carrier—Contributory Negligence—Proximate Cause—Instructions—Modification.

1. One cannot be held, as matter of law, guilty of contributory negligence in attempting to board a moving street car; there being

evidence that its speed was no greater than that of a man going at a fast walk.

2. Where persons are lined up in the attitude of waiting for a car on a platform constructed by a street railway company for convenience of passengers in getting on and off cars, this is notice to a motorman of their desire to board his car; and, he having turned off the power, applied the brake, and checked the car for the apparent purpose of taking on passengers, one of such persons has the right to assume that he is invited to board the car, so that, in his attempt to do so, the relation of passenger and carrier exists between him and the company, though the power had been turned off and the brake applied for some other purpose, not communicated to those waiting for the car.

3. Though possession of a transfer by one injured in attempting to board a street car has no bearing on the question of his right to recover for injuries received in such attempt, yet, such fact being uncontroverted, and no attempt being made to give it any force, its mere recital in an instruction is harmless.

4. Defendant's requested instruction, in an action for injury to plaintiff while attempting to board defendant's street car, that, if plaintiff attempted to board it while it was going at such speed that a person of ordinary care and prudence would not have attempted to do so under the circumstances, then he was guilty of contributory negligence, and could not recover, is properly amended by the insertion after the word "circumstances" of the clause, "and that fact directly contributed to cause plaintiff's injury;" plaintiff's evidence being that he landed safely on the step of the car, and was thrown therefrom by the sudden forward lurch of the car, and, if this is true, such lurch, and not the attempt to board the car while it was in motion, being the proximate cause of his injury.

5. Modification of a requested instruction that the fact that the motorman failed to stop the car for plaintiff to get on does not authorize plaintiff to recover, by insertion of the words "of itself" between the words "not" and "authorize," does not change the meaning of the instruction, and is harmless.

6. It is negligence, as matter of law, for one to attempt to board a street car going at a speed of 8 or 10 miles an hour.—(Spencer vs. St. Louis Transit Co., 86 S. W. Rep., 593.)

MISSOURI—Street Railways—Injury to Passengers in Alighting—Variance—Excluding Evidence—Harmless Error.

1. Refusal to exclude plaintiff's evidence in an action for injury in alighting from a street car because of variance between the allegation of the petition that the ground was lower than the car, and proof that it was a foot higher than the floor of the car platform, is not ground for reversal, the variance being immaterial; the gravamen of the charge being the stopping of the car at an unsafe place to alight, and defendant not having, as required by Rev. St. 1899, Section 655, alleged and proved by affidavit that it was misled by the variance.

2. Though defendant in an action for injury to a passenger in alighting from a street car was entitled to show that the uneven condition of the street was due to its lowering its tracks pursuant to order of the city, exclusion of such evidence was harmless; the court having confined the jury to consideration of defendant's duty to stop its car at a reasonably safe place for plaintiff to get off the car.

3. Though plaintiff, injured in getting off a street car, knew that the company was sinking its tracks at such place, and of the general condition of the ground there, and saw two men slip and fall in getting off the car, yet, she having then said to the conductor that he could not expect her to get off there, and he having taken hold of her arm, got down to the second step, and said, "Jump this way," in doing which she slipped and fell, she cannot be held, as matter of law, to have been guilty of contributory negligence.—(Senf vs. St. Louis & S. Ry. Co., 86 S. W. Rep., 887.)

MISSOURI—Carriers—Street Cars—Death of Passenger—Wilful Acts of Conductor—Duties—Evidence—Questions for Jury—Instructions.

1. A carrier is bound to exercise the greatest care consistent with the practical operation of its cars toward a passenger, not only while he is on the car, but also until he has alighted in safety.

2. In an action against the carrier for death of a passenger on a street car, under Rev. St. 1899, Section 2864, authorizing recovery where the passenger shall die from an injury resulting from or occasioned by the negligence, unskillfulness, or criminal intent of any servant or employee while running any public conveyance, etc., evidence held sufficient to require submission of defendant's liability to the jury.

3. In an action against a carrier for death of a passenger, an instruction that if deceased, just before alighting from the car, called the conductor vile names, and struck him, and the conductor, in resenting the insult and repelling the assault, struck deceased, and deceased dragged the conductor from the car, and was shot in a fight which ensued on the ground away from the car, from which

shooting deceased died, plaintiff was not entitled to recover, was proper.

4. An instruction that if deceased cursed defendant's street car conductor while deceased was alighting from the car, and at that time the conductor had not struck deceased nor cursed him, such conduct constituted a breach of the peace; and if the conductor, in resenting such insult, engaged in a fight with deceased on the street, in the course of which deceased was shot, plaintiff was not entitled to recover from defendant—was error, as eliminating as immaterial whether the conductor was dragged from the car, as defendant's evidence tended to prove, or voluntarily followed deceased to the sidewalk, and there attempted to preserve the peace, according to plaintiff's evidence.

5. In an action against a carrier for death of a passenger caused by an altercation with the conductor, an instruction that if deceased struck the conductor before the latter had made any assault upon him, and a fight ensued on the street, off the car, during which the conductor shot and killed deceased, defendant was not liable, was erroneous; for if, after striking the conductor, deceased attempted to get off the car, and the conductor held and beat him, and then followed him off the car, and killed him, the carrier would be liable.

6. In an action for death of a passenger from injuries received in an altercation with the conductor there was evidence that, after deceased struck the conductor, the latter began "defending himself" by beating deceased with the butt end of a pistol as he was leaving the car, and followed him, still beating him, to the sidewalk. defendant's evidence showed that the conductor was first assaulted by deceased, and then dragged off the car by him. Held that an instruction that if deceased assaulted the conductor as he was alighting, the conductor was justified in defending himself, and if he did defend himself from such assault, and while so doing there was a fight on the street, off the car, between the deceased and the conductor, in which deceased was shot, plaintiff could not recover, should not have been given.

7. An instruction that if deceased pulled the conductor off a street car the latter was entitled to strike deceased in resistance thereof, and if deceased succeeded in pulling the conductor from the car, and then engaged in a physical conflict with him, the conductor was entitled to resist any assault that deceased made on him, and, even if the conductor did more than was necessary to resist such assault, and in doing so shot deceased, the carrier was not liable for its conductor's conduct, was proper.

8. An instruction that, though the conductor voluntarily followed deceased from the car, and thereafter engaged in a physical conflict with him, and as a result thereof deceased was shot by the conductor, yet such voluntary act of the conductor was no part of his duty as conductor, and defendant was not liable for the consequence thereof, was erroneous.—(O'Brien vs. St. Louis Transit Co., 84 S. W. Rep., 939.)

MISSOURI—Street Railroads—Collision at Crossing—Injury to Passenger—Pleading and Proof—Variance—Expert Evidence—Excessive Damages.

1. In an action by a passenger for injuries in a collision between an electric car and a cable car at a crossing, where the negligence alleged in the petition was the failure of the flagman to give "such signals as would have enabled the gripman and motorman, by the use of ordinary care, to have avoided said collision," and the evidence showed that the flagman gave both the gripman and motorman the signal to proceed at the same time, there was no material variance.

2. Where the defense in an action for personal injuries is that the paralysis complained of by plaintiff is the result of some other cause than the accident, it is error to permit medical experts to testify that they attribute plaintiff's condition to the accident.

3. In an action for personal injuries, evidence considered, and held that a judgment for \$5,500 damages is excessive.—(Taylor et al vs. Grand Ave. Ry. Co., 84 S. W. Rep., 873.)

MISSOURI—Carriers—Street Railroads—Injuries to Passengers—Negligent Starting—Sudden Jerks—Care Required—Evidence—Variance.

1. Where, in an action against a street railway company for injuries to a passenger, she alleged that her injuries occurred because the car started with a sudden jerk before she had reached a place of safety thereon, and she testified in her examination in chief that the car was still as she attempted to get aboard it; that, as she was stepping on it, the car gave a jerk, which threw her over and against the back seat, causing her injuries—the fact that she testified on cross-examination that the car had started before it gave the sudden jerk did not establish such a variance between the pleading and proof as precluded plaintiff from recovery.

2. The starting of a street car before a passenger has landed securely on the platform is negligence.

3. A street railway company is required to exercise toward pas-

sengers the utmost care and diligence of very cautious persons while such passengers are boarding and alighting from its cars.—(Lehner vs. Metropolitan St. Ry. Co., 85 S. W. Rep., 110.)

MISSOURI—Street Railroads—Injury to Person Attempting to Board Car—Contributory Negligence—Questions for Jury—Pleading—Separate Counts—General Verdict—Defects Cured by Verdict—Objections to Petition—How Made.

1. Whether plaintiff was guilty of contributory negligence in attempting to board an electric street car while it was moving rapidly, or when he ought to have known that its speed had been checked not to take on passengers, but to get past a broken circuit at a crossing, and that it was likely to recover speed immediately, so as to preclude his recovery for injuries received at the time, was a question for the jury.

2. Where, in an action against a street railroad for personal injuries received by plaintiff in attempting to board defendant's car, the two acts of negligence charged in the petition in separate counts could have been as well charged in one, but one cause of action is stated, and a general verdict is good.

3. Where, in an action against a street railroad for personal injuries received by plaintiff in attempting to board defendant's car, the petition alleged that, though the conductor knew, or by reasonable care could have known, plaintiff was being dragged, he negligently failed to signal the motorman to stop, and by reason of that negligence plaintiff was thrown to the ground with great violence, the failure to aver that, if the conductor had signaled the motorman to stop, he could have stopped the car in time to avert the injury, was a defect cured by verdict.

4. An objection on account of such defect should have been taken by motion or demurrer before trial.—(Leu vs. St. Louis Transit Co., 85 S. W. Rep., 137.)

MISSOURI—Street Railroads—Injuries at Crossing—Negligence—Speed Limit—"Vigilant" Watch Ordinance—Contributory Negligence—Demurrer to Evidence—Admission of Evidence—Instructions—Review—Questions Not Raised Below—Record.

1. A person crossing a street on foot at an intersection of streets has a right to the use of the street equal to that of the street railway company.

2. A person crossing a street railway has a right to presume, unless he has knowledge to the contrary, that cars will not be operated at a speed exceeding that limited by the city ordinance.

3. It is negligence per se to operate a street car over a crossing at a speed exceeding that limited by the city ordinance.

4. A person about to cross a street railway track is charged with the duty of looking and listening for approaching cars before stepping on the track.

5. If the position of a person three feet from a street car track when he looked and listened was such that when looking at the end of the approaching car he was unable to discern that it was approaching at a rate of speed exceeding 15 miles an hour, as limited by the city ordinance, and it was apparent that the car was at a sufficient distance to enable him, with the exercise of due care to cross the track in safety, he would be justified in relying on the car being operated within the speed limit and with due care.

6. By the direct provision of St. Louis General Ordinances, c. 23, art. 6, Section 1760, subd. 4, it is the duty of electric car motormen to "keep a vigilant watch for * * * persons on foot * * * either on the track or moving toward it, and on the first appearance of danger * * * to such person * * * the car should be stopped in the shortest time and space possible.

7. Though a person may have been negligent in attempting to cross a street car track in front of an approaching car, his negligence will not bar recovery for injuries resulting from the negligence of the motorman in not stopping or checking the car.

8. In passing on defendant's demurrer to the evidence, the court should place the most favorable construction possible on plaintiff's theory of the evidence, allowing him, as a presumption, every inference that could be reasonably deducted from the evidence in his behalf.

9. In an action against a street car company for injuries at a street crossing, evidence considered, and held that a demurrer to the evidence by defendant was properly overruled.

10. It is proper to refuse instructions which ignore important evidence in the case.

11. A person about to cross a street car track is not required to "stop and look and listen;" if he looks and listens it is sufficient.

12. In an action against a street car company for injuries to a person attempting to cross the track, evidence held to show that the city ordinance limiting the speed of cars to 15 miles an hour on certain streets applied to the street where the accident in suit occurred.

13. The objection that a city ordinance introduced in evidence, limiting the speed of street cars to 15 miles an hour, does not apply

to the street where the injuries in question occurred, cannot be raised for the first time in review.

14. Where defendant asked and the court gave instruction on the issues raised by a city ordinance introduced in evidence without objections, defendant cannot contend on review that the ordinance did not apply to the issues in the case.

15. A city ordinance limiting the speed of street cars in certain portions of the city may be introduced in evidence in an action against the street railway company, without showing an acceptance by the company of the privileges granted by the ordinance.

16. Instructions which are not incorporated in the abstract on appeal will not be reviewed.—(Deitring vs. St. Louis Transit Co., 85 S. W. Rep., 140.)

MISSOURI.—Railroads—Collision at Crossing—Pleading—Joiner of Causes—Nature of Action—Authority of Agent—Burden of Proof—Harmless Error.

1. In an action by one railroad company against another for one-half of the damages resulting from a collision at a crossing, the complaint alleged as one cause of action an agreement between the companies whereby damages resulting from the sole negligence of one of the parties at this crossing were to be paid by such party, and damages resulting from the concurring negligence of the parties, or from the negligence of a watchman employed by one of them, were to be paid by them equally. Facts were alleged showing that a collision resulted from the negligence of the watchman, and the concurring negligence of the servants of both companies, and that plaintiff had settled all resulting claims, and demanded payment for one-half the amount so expended. As a second cause of action the complaint alleged that after the damages in suit occurred, the parties met, each recognized its liability, and verbally agreed that plaintiff proceed to settle the claims for damages, and defendant would repay plaintiff one-half the amount so expended. Held that both causes were based on contract, and could be joined under Rev. St. 1899, Section 593; the necessity of pleading the negligence not rendering the first cause of action one *ex delicto*.

2. On establishing the latter contract, plaintiff could recover, though it appeared that defendant was free from negligence.

3. A railroad company is bound by the contracts made by its general claim agent, where the person with whom he contracted had no knowledge of any limitation in his authority.

4. A judgment will not be reversed for an error in favor of appellant.

5. The burden of showing limitations on authority of an agent is on the principal.—(Southwest Missouri Electric Ry. Co. vs. Missouri Pac. Ry. Co., 85 S. W. Rep., 966.)

MISSOURI.—Street Railroad—Injury to Child—Contributory Negligence—Negligence—Questions for Jury—Proximate Cause—City Ordinance—Speed of Cars—Limitation—Construction—Evidence—Admissibility.

1. The test of a minor's responsibility for conduct charged to have been negligent is whether he exercised the caution usually displayed by ordinary children of the same age and capacity.

2. In an action against a street railroad for injuries to a child, evidence examined, and whether the child was guilty of contributory negligence held a question for the jury.

3. The negligence of a street railroad in failing to stop a car to allow a passenger to alight does not render it liable for an injury to the passenger by another car, by which he was struck after having alighted in safety, where by standing still he could have avoided the injury from the car that struck him.

4. Where a person stepped from a street car, on which he had been riding as a passenger, to a place of safety between the defendant's parallel tracks, where he could have remained unharmed while a car on the other track passed him, but, after having seen it within five or six feet of him, he attempted to cross the track in front of it, and was struck and injured, any negligence in failing to ring the bell of such car or give warning of its approach is not the proximate cause of the injuries.

5. In an action against a street railroad for injuries, evidence examined, and whether defendant was guilty of negligence held a question for the jury.

6. Where there is a city ordinance limiting the rate of speed of street cars, the ordinance rate may not be lawfully persisted in, regardless of situations which render a slower movement indispensable to the safety of the public.

7. In an action against a street railroad for injuries, where the petition averred the motorman's failure to use any care to control the car which caused the injuries, the averment was broad enough, as an allegation of negligence at common law, to let in evidence concerning excessive speed of the car, especially where no objection was made either to the pleading or the evidence.—(Fry vs. St. Louis Transit Co., 85 S. W. Rep., 962.)

MISSOURI.—Street Railroads—Personal Injuries—Collision of Car and Vehicle—Negligence—Contributory Negligence—

Questions for Jury—Instructions—Burden of Proof—Presumptions—Appeal—Municipal Corporation—Ordinance—Violation—Evidence—Sufficiency.

1. In an action against a street railroad for injuries, evidence examined, and held that whether the defendant was guilty of negligence, and the plaintiff of contributory negligence, were questions for the jury.

2. Where the petition charged negligence, and averred a number of specific acts characterized as negligence, a charge which authorized a recovery by plaintiff for any act of negligence, without limitation as to the acts charged, was erroneous.

3. In an action against a street railroad for injuries received in a collision between plaintiff's wagon and a car, the petition alleged that plaintiff saw the car in question coming from the north "as" he turned off to cross from the east to the west track on which the car was approaching. Held that "as" meant that he saw it "when," "at some time," or "while" he was driving across the track; and hence a contention that it meant that plaintiff saw the car coming from the north at the moment he turned to drive across the west track, and that he was thereby convicted of contributory negligence by his pleadings, and that his evidence that he looked and did not see the car should be rejected as contradicting his petition, was untenable.

4. In an action against a street railroad for injuries received in a collision of plaintiff's vehicle with a car, the court charged that if the jury believed that, while plaintiff was crossing the tracks of defendant, his vehicle was struck by a car through the defendant's negligence in failing to stop the car on the first appearance of danger to the plaintiff, whereby plaintiff was injured, then they should find for plaintiff, unless he was guilty of negligence which directly contributed to his injury, as explained in other instructions. Held that by the first appearance of danger referred to was meant the first appearance of danger to plaintiff as seen by the motorman, and a criticism that the instruction was ambiguous in this respect was unwarranted.

5. The instruction mentions a definite fact on which the motorman was required to act, and to begin to check the speed of his car when he first saw there was danger of colliding with plaintiff's vehicle; and an objection that it left the matter open for conjecture was untenable.

6. The fact that the motorman neglected his duty would not render the instruction objectionable.

7. There being no evidence to show the time and space within which the car could have been stopped, the instruction was erroneous in requiring the jury to find such facts.

8. In an action against a street railroad for injuries to plaintiff in a collision of his vehicle with a car, where contributory negligence is pleaded as an affirmative defense, the burden is on defendant to prove it.

9. Having pleaded contributory negligence as an affirmative defense, defendant's failure to ask an appropriate instruction defining contributory negligence raises a presumption that it abandoned the defense; and hence the fact that, as qualifying several instructions given, the court made reference to plaintiff's contributory negligence "as defined in other instructions," when no instructions defining those terms was given, was harmless error.

10. In an action against a street railroad for injuries to plaintiff in a collision of his wagon with a car, evidence examined, and held to show that plaintiff was not driving in violation of an ordinance providing that no vehicle shall use a street railroad track when driving in a contrary direction of the cars running on the track, except for the purpose of crossing or avoiding other vehicles.

11. It is not error to refuse a charge which tells the jury that, before the plaintiff can recover in a personal injury action, "it is not only necessary that nine or more of your number shall agree to find in his favor, but it is also necessary that the nine or more of you so agreeing shall all concur in finding the existence of at least one of the specific grounds of negligence submitted for your determination.—(Schroeder vs. St. Louis Transit Co., 85 S. W. Rep., 970.)

MISSOURI.—Carriers—Injuries to Passengers—Damages—Pleading—Evidence—Instructions.

1. Where, in an action for personal injuries, the petition alleged that plaintiff was severely bruised on her body and limbs, causing severe and permanent internal injuries, and also causing injuries to plaintiff's nervous system, the allegation was sufficient to justify admission of evidence that the injury to plaintiff's nervous system was permanent.

2. In an action for personal injuries, an instruction authorizing the jury to consider pain of body or anguish of mind which would reasonably result to plaintiff by reason of her injuries, and be directly caused thereby, was proper.

3. Where it was alleged that plaintiff had received internal injuries, such allegation was sufficient to justify evidence of an in-

jury to plaintiff's left kidney; defendant having made no motion before trial to have the petition made more definite and certain as to such injuries.—(Fuchs vs. St. Louis Transit Co., 86 S. W. Rep., 458.)

MISSOURI.—Carriers—Injuries to Passengers—Negligence—Damages—Special Injuries.

1. A motorman who, on account of the crowded condition of the rear platform of his car, invites an intending passenger to enter by the front platform, is bound to exercise that high degree of care required of a carrier to prevent injury to such passenger while boarding the car.

2. The unexplained slipping of a brake on a street car, so that it revolves and strikes a passenger boarding the car in the face, authorizes an inference of negligence on the part of the employee in charge of such brake.

3. A functional trouble, which manifests itself in a woman about 70 days after a severe blow on the face, and is caused by a nervous shock produced by the blow, is not a necessary result of the blow, but is a matter of special damage, which must be specially pleaded in order to authorize a recovery therefor.—(Thompson vs. St. Louis & Suburban Ry. Co., 86 S. W. Rep., 466.)

MISSOURI.—Witness—Contradiction—Instruction—Trial—Street Railroads—Personal Injuries—Collision—Contributory Negligence—Question for Jury.

1. A charge that the plaintiff vouches for the credibility of his witnesses, and cannot be heard to impeach their testimony or to question the veracity of any of them, given in a case where plaintiff had introduced a witness who testified to a state of facts directly contrary to what had been testified to by the other witnesses, was misleading, without further advice to the jury as to what was meant by impeaching the testimony of a witness, and hence was ground for granting a new trial on return of a verdict for defendant.

2. A party who puts a witness on the stand may prove by other evidence facts inconsistent with the witness's statement, even if the inconsistent evidence tends to show the witness committed perjury.

3. In an action against a street railroad for injuries to the plaintiff while an occupant of a buggy which was being driven by another person when it collided with defendant's car, evidence examined, and whether the plaintiff was charged with contributory negligence by the act of the driver, held a question for the jury.—(Joyce vs. St. Louis Transit Co., 86 S. W. Rep., 469.)

MISSOURI.—Carriers—Injuries to Passengers—Sudden Stop—Negligence—Prima Facie Case—Instructions—Damages—Excessiveness.

1. Where, in an action for injuries to a passenger by the sudden stopping of street cars, following an assault by another passenger on the conductor, plaintiff's evidence did not show that such assault was the operation of a cause of the accident beyond the control of the carrier, it was proper to charge that if plaintiff, while a passenger, was thrown from the car and injured on account of the sudden stopping thereof, she was prima facie entitled to recover.

2. The existence of a fight on a street car between the conductor and a negro passenger, in which the conductor was stabbed, did not constitute such an emergency as justified the motorman in stopping the car so suddenly as to disable its motive power and throw a passenger from the car and injure her.

3. Where plaintiff was injured by being thrown from a street car by the sudden stopping thereof, and there was evidence that passengers sitting in seats were thrown over and upon other seats, a requested instruction that the simple fact that the car when stopped may have "jerked or slowed up some," having a tendency to cause persons not holding to the car to be thrown forward, would not authorize a recovery, even if plaintiff fell therefrom and was injured on account of such stopping of the car, was properly refused.

4. Where, in an action for injuries to a passenger by being thrown from a street car by a sudden stop, there was no evidence that any of the passengers jumped from the cars, or were attempting to alight, prior to defendant's attempt to stop the cars, an instruction that if there was a fight or commotion on the cars at the time, and the passengers became excited and were jumping therefrom while the cars were in motion, and such passengers cried out "Fire!" or "Fight!" or "Stop the cars!" it was the duty of defendant's servants to stop the cars in the shortest time, having due regard to the rights and safety of passengers thereon, was properly refused.

5. Plaintiff, a child 12 years of age, sustained a fracture and dislocation of the elbow by being negligently thrown from a street car by the sudden stopping thereof. The attending physician testified that her arm would entirely recover, except that she might be affected with rheumatism in the elbow in damp weather, and there was other evidence that she did suffer from rheumatism, and had

undergone considerable suffering. Held that a verdict for \$1500 was not excessive.—(Willis vs. St. Joseph Ry., Light, Heat & Power Co., 86 S. W. Rep., 567.)

NEBRASKA.—Directing Verdict—Contributory Negligence.

1. On a motion to direct a verdict for the defendant the plaintiff is entitled to every inference which the jury would have been warranted in drawing from the evidence adduced.

2. In an action for personal injuries, where contributory negligence is relied upon as a defense, and where, from the facts and circumstances proven, reasonable minds may draw different conclusions concerning the negligence of the plaintiff's intestate, such question should be submitted to the jury.

3. Evidence examined, and held not sufficient to bring the case within the reason of the "humane doctrine" or "last chance."—(McLean vs. Omaha & C. B. Ry. & Bridge Co., 103 N. W. Rep., 285.)

NEW HAMPSHIRE.—Carriers—Personal Injuries—Evidence—Admissibility—Trial—Remarks of Court—Materiality.

1. On cross-examination of one of plaintiff's medical witnesses, defendant's counsel asked him about the relative authority of certain medical writers on nervous diseases, and inquired of him if he would produce in court the work of a certain specialist. Thereupon the court remarked: "I guess we won't go into a comparison of books. If they don't give us any more information than some lawbooks do, we shan't get much from them." Held that as the remark was conditional in form, and, as it was not the statement of a fact, it could have conveyed no information to the jury as to the reliability of medical theories advanced by the witness, and was therefore immaterial and harmless.

2. In an action against a carrier for injuries in a collision, evidence that other passengers had not complained of having been injured in the accident, and that none had made claim against defendant on account of the injuries, was collateral to the main issue, and properly excluded.—(Foss vs. Portsmouth, D. & Y. Ry. Co., 60 Atl. Rep., 747.)

NEW JERSEY.—Carriers—Moving Car—Attempt to Board—Assumption of Risk.

1. Although it cannot be held, as a matter of law, that a person who attempts to board a trolley car while it is in motion is negligent, yet, when the fact that the car is in motion is the sole producing cause of the injury sued for, the risk of its occurrence is one which the person making the attempt must be held to have assumed.

2. A plaintiff is only entitled to recover by establishing the truth of his case as laid in his declaration, and, if he fails to do this, the defendant is entitled to the verdict of the jury.—(Murphy vs. North Jersey St. Ry. Co., 58 Atl. Rep., 1018.)

NEW JERSEY.—Street Railroads—Negligence—Collision—Instructions.

Upon the trial of an action against a traction company to recover damages for the partial destruction of a wagon with which an electric car collided, the trial judge, without objection, instructed the jury as to the duty of the motorman in terms that made the traction company an insurer against collisions under particular circumstances specified. He then refused a request for instructions to the effect that the motorman was not obliged to foresee that the driver of the wagon would leave his place of safety beside the track, and turn across the track, until he did so turn. Held under the evidence in the case, and in view of the instructions actually given, that the refusal of this request was erroneous.—(Hollingshead et al. vs. Camden & Suburban Ry Co., 60 Atl. Rep., 514.)

NEW JERSEY.—Carriers—Injury to Passenger—Street Car in Collision With Wagon—Negligence—Question for Jury—Instruction.

1. In an action against a street railroad for injuries to a passenger in a collision with a wagon, evidence examined, and whether defendant was negligent held a question for the jury.

2. In an action by a passenger to recover for injuries received in a collision with a wagon, where the declaration alleged that defendant negligently operated its car, a request that plaintiff's proof must conform to the allegation of his pleadings was sufficiently complied with by a charge that under the declaration, "which is founded purely on the negligent operation of the car," and not on the construction of the roadbed, the question was, ought the motorman to have apprehended that the rear of the wagon would be likely to slide towards the car by reason of the cross-over or the condition of the pavement at which the accident happened, and that an accident might then occur? and that, if the motorman ought to have apprehended such danger, then it was his duty to act with reference to it, and that if he failed to guard against a danger he ought to have anticipated, and because thereof the accident occurred, then he was negligent, etc.—(Walsh vs. North Jersey St. Ry. Co., 60 Atl. Rep., 335.)

NEW JERSEY.—Street Railroads—Collision With Truck—Contributory Negligence—Directing Verdict.

1. The driver of a truck is not guilty of negligence, as a matter of law, in attempting to cross a street railway track in front of a trolley car 550 feet away, which is approaching him at a very great rate of speed. He has the right to assume that the car is furnished with appliances to reduce speed and to stop, and with a motorman to make use of such appliance, and that the car will not continue to run in violation of the law limiting the speed of vehicles in public streets to that which is compatible with a safe use thereof by other vehicles.

2. In an action for damages resulting from an injury caused by negligence, it is the duty of the trial judge, when requested to nonsuit or direct a verdict, to determine whether any facts have been established by evidence from which negligence may be reasonably inferred. If the real facts have not been established by the evidence, he must submit them to the jury.—(Vrooman vs. North Jersey St. Ry. Co., 59 Atl. Rep., 459.)

NEW JERSEY.—Street Railroads—Ejection of Passengers—Punitive Damages—Exclusion of Evidence—Reversal of Joint Judgment.

1. A street railroad company is not liable in punitive damages to a passenger who was wrongfully and with unnecessary violence ejected from a car by the conductor, where it did not participate in the wrongful acts, either by authorizing or approving of them.

2. In an action by a passenger against a street car company for being wrongfully ejected from a car, where plaintiff's evidence tended to show that the ejection was wanton and malicious, but that the defendant company approved of the acts of its conductor by retaining him in its service, it was error to exclude evidence offered by defendant that such conductor was prosecuted criminally for his assault on plaintiff and was acquitted.—(Peterson vs. Middlesex & Somerset Traction Co. et al., 59 Atl. Rep., 456.)

NEW YORK.—Street Railroads—Injuries to Passenger—Contributory Negligence—Connecting Injury with Accident.

1. A passenger, in alighting from a street car, is only bound to exercise due care under the circumstances, and the fact that he placed himself in a position of danger while exercising such care does not show contributory negligence, as a matter of law.

2. Evidence in an action against a street car company for injuries to a passenger considered, and held sufficient to present a question for the jury as to whether plaintiff's injuries resulted from the accident alleged to have been caused by defendant's negligence.—(Johnson vs. Yonkers R. Co., 91 N. Y. Suppl., 508.)

NEW YORK.—Street Railroads—Injuries to Passengers—Negligence—Contributory Negligence—Question for Jury—Ordinances—Obedience.

1. In an action for injuries to one having left a street car, while going round the end of the car, from which she alighted, to reach a car running on an intersecting street, to which she desired to transfer, by being struck by a car running in the opposite direction to that from which she alighted, evidence held to require the submission of defendant's negligence and plaintiff's contributory negligence to the jury.

2. A city ordinance providing that no driver of a street car in the city shall allow the car to pass any other car standing at any crossing for the discharge or reception of passengers until the standing car shall have started on its course, and cleared at least 20 ft., is applicable to a case where the street car company caused its cars to be stopped to discharge passengers before crossing a street, though it was difficult for the railroad company to obey the ordinance under such circumstances.—(Craven vs. International Ry. Co., 91 N. Y. Suppl., 625.)

NEW YORK.—Defective Streets—Negligence of City—Contributory Negligence.

1. Where a subway was being excavated in a street under legislative authority by a corporation over which the city had no control, the city was not negligent because it did not keep a gang of men at work repairing the street as it was interfered with from day to day by the contractors making the excavation.

2. The driver of an automobile, who was killed by being thrown into an excavation in the street by an accident which resulted from one of the front wheels running into a depression while he was trying to cross a street car track at a high rate of speed in front of a car going in the same direction, was guilty of contributory negligence.—(Morris vs. Interurban St. Ry. Co. et al., 91 N. Y. Suppl., 479.)

NEW YORK.—Street Railroad—Personal Injury—Person Driving Along Track—Contributory Negligence—Question of Fact.

It cannot be said, as a matter of law, that the failure of a person driving on a street on which there is a street car track to leave the track, when not warned of an approaching car, consti-

tutes such contributory negligence as would defeat his action for injuries sustained through the negligence of the motorman in running him down without warning, though the conditions were such that the injured person, by having driven nearer the curb, could have avoided the accident.—(Barringer vs. United Traction Co., 91 N. Y. Suppl., 386.)

NEW YORK.—Street Railroad—Personal Injury—Negligence—Evidence—Sufficiency.

Error of judgment and miscalculation on the part of one walking in dangerous proximity to a street car track as to the distance he could travel before an approaching car, which he saw and watched during the progress of his journey, would reach him, are insufficient to establish his right to recover, much less negligence on the part of the street railroad, even in the absence of signal of the approach of the car.—(Sullivan vs. New York City Ry. Co., 91 N. Y. Suppl., 325.)

NEW YORK.—Carriers—Assault by Servant—Passengers—Termination of Relation.

Where a passenger on a street car was refused change by the conductor, and, after voluntarily dismounting from the car and awaiting the conductor on his return trip, spoke to him in an office of the street railway company to which he had gone, and was there assaulted by him, the company was not liable for the assault, inasmuch as the relation of passenger and carrier had ceased, and the conductor was not at the time in the performance of his duty.—(Reilly vs. New York City Ry. Co., 91 N. Y. Suppl., 319.)

NEW YORK.—Street Railroads—License Fee—Agreement—Amount—Limitations—Contract Under Seal.

1. By an agreement on Jan. 1, 1853, the Third Avenue Street Railway Company contracted with the city of New York for permission to lay a double track in certain streets. The power to use steam was forbidden, and the privilege was granted on the payment "of the annual license fee for each car now allowed by law." Held, that the amount of the license fee was thereby established, and such amount was not affected by the voluntary change by the railroad company of its motor power to a cable system, and from a cable system to electricity.

2. Where an agreement between the city of New York and a street railway company, Jan. 1, 1853, granted the use of the streets for "the annual license fee for each car now allowed by law," the amount thereof was established by Ordinance May 8, 1839, Section 5, relating to stages or accommodation coaches, at \$20.

3. A contract under seal is not governed by the six-year statute of limitations.—(City of New York vs. Third Avenue R. Co., 87 N. Y. Suppl., 584.)

NEW YORK.—Negligence—Personal Injuries—Joint Tort Feasors—Liability—Municipal Corporations—Regulations of Street Traffic—Ordinance—Construction.

1. Where a truck was being driven on a street, when it was struck by a street car, and thereby caused injury to a pedestrian, the liability of the street railroad in an action against it by the pedestrian for the injuries was not affected by contributory negligence of the driver of the truck.

2. Under a city ordinance providing that vehicles proceeding in a northerly or southerly direction have the right of way over vehicles proceeding in an easterly or westerly direction, a street car proceeding in a northerly direction had not an absolute right to the exclusive use of the street, as against a vehicle going in a westerly direction; and hence the driver of the vehicle was not required to stop his horses and let the car pass when the distance between them was such that, had the speed of the car been slackened, a collision would not have occurred.—(Demarest vs. Forty-Second St., M. & St. N. Ave. Ry. Co., 93 N. Y. Suppl., 663.)

NEW YORK.—Carriers—Duty to Passengers—Supervision of Movements—Insufficient Accommodations—Crowded Platforms—Negligence—Questions for Jury—Proximate Cause.

1. A common carrier engaged in a great city in the transportation of a large number of passengers between stations, from which it controls their admission to its trains, is bound to exercise care to so direct the movements and disposition of those whom it undertakes to transport as to preserve their safety.

2. Where a carrier of passengers in a city fails to provide either seats or standing room inside its cars, so that the passengers must stand on the platform in order to ride at all, and they are permitted to so ride, whether the carrier is negligent in allowing the platform to become so crowded that a passenger is liable to be pushed off is a question for the jury.

3. A carrier of passengers in a city is not liable for the death of a passenger who falls from a crowded platform, in the absence of evidence that the passenger's fall was caused by the crowded condition of the platform, and where the evidence rather shows that the passenger slipped and fell because of snow brought upon

the platform by other passengers, and there is no evidence of any other negligence on the part of the carrier than the overcrowding of the platform.—(Kohm vs. Interborough Rapid Transit Co., 93 N. Y. Suppl., 671.)

NEW YORK.—Street Railways—Persons Driving Teams—Injuries—Questions for Jury—Degree of Care—Instructions—Cure of Errors.

1. In an action against a street railway company for injuries to one driving a team, where the evidence of plaintiff's witnesses was that, before driving across the track at a street corner, he looked and saw defendant's car in the middle of the block, and, thinking that there was plenty of time to cross, made the attempt, but the car struck the wagon just back of the front wheel, and defendant's evidence was that, as the car was approaching plaintiff, he, without any notice of his intention so to do, turned upon the track immediately in front of the car, and in such close proximity to it that it was impossible to avert a collision, the questions involved were properly submitted to the jury.

2. The obligation resting on a street railway company to prevent injuries to persons using the street is to exercise that degree of care which persons of ordinary prudence, exercising reasonable care, would use under similar circumstances, and a charge imposing on a street railway the duty of using all the care that the motorman could use at the time imposed on it too great a responsibility.

3. In an action against a street railway company for injuries to one driving a team, a charge imposing on defendant the duty of using all the care that the motorman could exercise at the particular time, was not cured by a subsequent charge exonerating defendant if the motorman, "while operating his car with ordinary care," stopped it as soon as he discovered plaintiff, where the court qualified the subsequent charge by giving it "in connection with the charge already made."—(Klimpl vs. Metropolitan St. Ry. Co., 87 N. Y. Suppl., 39.)

NEW YORK.—Carriers—Street Car Passenger—Injury—Instruction—Withdrawing Issue of Negligence—Proximate Cause—Freedom from Contributory Negligence.

1. In an action by a street car passenger for personal injuries it is error to instruct that, if the jury find the accident to have happened in the manner testified to by plaintiff and his witness, "then the plaintiff would be entitled to a verdict," as the issue of negligence is thereby withdrawn from the jury.

2. In an action by a street car passenger for personal injuries it is error to instruct that, if the jury find that the car was started without warning, with a lurch so violent as to cause plaintiff to be thrown, as testified to by him and his witness, and the car could have been started by the exercise of reasonable skill without such lurch, and the seats were all occupied, and the plaintiff was standing and holding on to a strap, and was solely by reason thereof thrown and was injured, then plaintiff would be entitled to a verdict; since the instruction omits the elements both of proximate cause and freedom from contributory negligence.—(Goodkind vs. Metropolitan St. Ry. Co., 87 N. Y. Suppl., 523.)

NEW YORK.—Carriers—Injury to Passenger—Negligence—Question for Jury.

In an action against a street railroad company for injury to a passenger who alighted from a crowded car for the purpose of allowing other passengers to pass out, and was injured by the car giving a sudden jerk as he was attempting to regain his place on the car, evidence examined, and held sufficient to require submission of the question of the defendant's negligence and plaintiff's contributory negligence to the jury.—(Michelson vs. Metropolitan St. Ry. Co., 87 N. Y. Suppl., 501.)

NEW YORK.—Street Railroads—Pillars in Street—Duty of Conductor—Negligence.

1. A street car conductor is bound to take notice of the distance between his car and the pillars of an elevated railroad in the street, and of the size of a passenger standing on the running board, in determining whether it is safe to permit the car to pass a pillar before the passenger has had time to enter the car; but it is not necessarily negligence in every case to allow the car to pass the pillar while a passenger is standing on the running board.

2. A street railway company is not bound to anticipate that a passenger standing on the running board of an open car will swing back so as to come in contact with a pillar of an elevated railroad sufficiently distant to permit the passenger, standing in the position first assumed by him, to pass it in safety, though the passenger found such movement convenient in order to swing himself more easily up into the car.—(Canavan vs. Interurban St. Ry. Co., 87 N. Y. Suppl., 491.)

NEW YORK.—Street Railways—Negligence—Personal Injuries—Injuries at Crossing—Contributory Negligence—Rights of Parties—Degree of Care—Failure to Look—Negligence in Law—Requested Instructions—Error.

1. It cannot be said, as a matter of law, that a person is not ordinarily prudent, when, at the intersection of two city streets, upon alighting from a car and waiting until he has a clear view for half a block, on seeing no car, he undertakes to cross a space of 15 ft., relying upon the assumption that any approaching car will be under control, or that some warning will be given of its approach to enable him to escape danger.

2. The same degree of care is imposed upon a street railway company to avoid injury to a pedestrian crossing its track in front of an approaching car as is required of the pedestrian to avoid danger, the rights of the parties being equal.

3. One who looks, and sees no street car approaching for a sufficient distance to warrant an ordinarily cautious person in believing that it is safe to cross, has the right to rely on the assumption that the car company will respect his equal right of passage, and cannot be said to be negligent, as a matter of law, if he does not thereafter look in the direction from which danger happens to come.

4. Where plaintiff ascertained that the way was clear for a sufficient distance to warrant a reasonable person in believing it was safe to cross defendant's street car tracks, it could not be said, as a matter of law, that she was bound to see the car by which she was struck if it was only 10 ft. from her when she stepped on the track.

5. Where, in an action against a street railroad company for personal injuries, the court had charged that, if defendant's theory that plaintiff, while attempting to cross the track, escaped the fender of the car, and deliberately walked into the car, so that whatever injury she received was the result of her own carelessness, was correct, plaintiff could not recover, it was not error to refuse to charge that, "if plaintiff went into the side of the car at the dashboard after the fender had passed her in safety, she was guilty of contributory negligence."—(Beers vs. Metropolitan St. Ry. Co., 93 N. Y. Suppl., 278.)

NEW YORK.—Contributory Negligence—Persons Non Sui Juris—Street Railways—Persons on Streets—Negligence—Evidence—Absence of Fender—Negligence—Safeguards in Common Use—Failure to Supply—Actions—Instructions—Limitation of Evidence.

1. The jury may find that a boy seven and a half years of age is not chargeable with contributory negligence.

2. In an action against a street railway company for the negligent killing of a person on the streets, evidence that no fender was on the particular car which caused the accident is admissible.

3. Negligence may be predicated on the omission of a street railway to provide its cars with such safeguards as a fender, where the jury is satisfied from the evidence that the injury would have been prevented by the use of such a safeguard, and they are usually attached to cars of similar construction operated in similar localities generally throughout the country, and have proved ordinarily efficacious for the protection of persons on the highway.

4. In an action against a street railway for the negligent killing of a person on the highway, where the use of fenders on other car lines in the locality had been proved, without objection, and the judge, in response to the request of defendant's counsel for further instructions, told the jury, in effect, that they were to consider the absence of a fender on the car which caused the accident only in connection with the management of the car at the time when the accident occurred, the jury could not have been misled on the subject of fenders so as to predicate negligence on the street railway's omission to supply them generally.—(Fritsch vs. New York & Queens County Ry. Co., 87 N. Y. Suppl., 942.)

NEW YORK.—Servant's Injuries—Incompetent Fellow Servants—Assumption of Risk—Knowledge of Incompetency—Assumption of Risk—Pleading—Necessity—Incompetent Fellow Servants—Notice—Evidence.

1. A conductor on a street car, who has knowledge of the incompetency, by reason of intemperance, of the motorman on his car, assumes the risk of working with such motorman.

2. In an action for a servant's injuries, defendant may avail himself of the defense of assumption of risk, though he did not plead it, where plaintiff's own evidence shows that the risk was assumed.

3. In an action for a servant's injuries, testimony as to a conversation, subsequent to the accident, with defendant's superintendent, as to his knowledge before the accident of the intemperance of the fellow servant through whose incompetency the accident occurred, was incompetent as original evidence of notice.—(White vs. Lewiston & Y. F. Ry. Co., 87 N. Y. Suppl., 901.)

NEW YORK.—Street Railways—Injury to Passenger Boarding Car—Negligence—Pleading and Proof—Negligence—Evidence—Proximate Cause—Concurrent Negligence—Witnesses—Proof of Bias—Harmless Error—Witnesses—Bias—Party Entitled to Show.

1. A complaint alleging that plaintiff was injured by a fall from

defendant's street car while in the act of boarding it, caused by its being started before he had been given reasonable opportunity to place himself in a position of security, does not require proof that it was started with more than ordinary violence.

2. Testimony that defendant's car had come to a stop to take on passengers, and that plaintiff mounted the footboard, and had placed one foot inside on the main platform, and was in the act of raising the other, so as to enter the car, when the car was started, with the result that he fell into the street, authorizes an inference that the fall was caused by the sudden movement of the car, and a finding of negligence on the part of those in charge of the car.

3. The negligence in starting up a street car while one was boarding it, throwing him on to the ground, where he was run over by a truck, is a proximate cause of the injury, making the street railway company liable, notwithstanding the concurrent negligence of the driver of the truck.

4. A mere change in the order of proof, by allowing evidence of bias of witness before his testimony making it material to his credibility, is harmless.

5. Plaintiff may show bias of a witness first called by him, witness's first material testimony having been elicited by defendant.

6. Though witness was first called by plaintiff, yet, his first material testimony having been elicited by defendant, defendant cannot impeach him as to such testimony.—(Fine vs. Interurban St. Ry. Co., 91 N. Y. Suppl., 43.)

NEW YORK.—Carriers—Misconduct of Employees—Liability—Damages.

1. A street railway company is liable to a passenger for an injury to his feelings because of insulting language used by a conductor.

2. In an action against a railroad to recover for injuries to feelings, caused by insulting language of conductor, the jury may consider the humiliation and injury to the feelings, but not any injury to the character resulting therefrom.

3. Where a passenger on a street car tendered the conductor an amount more than the fare, and asked for a transfer, and, after the conductor had attended to another passenger, demanded her change, whereupon the conductor in an abusive manner refused to return any change, but called the passenger a deadbeat and swindler, a directed verdict for plaintiff for the amount of the change as the extent of the carrier's liability is reversible error.—(Gillespie vs. Brooklyn Heights R. Co., 70 N. E. Rep., 857.)

NEW YORK.—Trial—Misconduct of Counsel—Inflammatory Argument.

In an action for injuries, defendant only litigated the question of damages. Defendant's employees operating one of the colliding cars in which plaintiff was injured had been indicted for criminal negligence, and a change of venue had been granted for prejudice of the inhabitants of the county. Plaintiff's counsel, in argument, stated that the accident occurred through the criminal negligence of defendant, to which an objection was sustained, and later asked the jury to bring in such a verdict as would teach defendant and all similar corporations that their railroads must be run with some regard to the safety of human life and limb. Defendant objected to this, but the objection was overruled, and a verdict returned for plaintiff for \$17,952.04. Held, that such argument constituted reversible error.—(Kinne vs. International Ry. Co., 90 N. Y. Suppl., 930.)

NEW YORK.—Carriers—Railroads—Injuries to Passengers—Boarding Car—Evidence—Order of Proof—Redirect Examination.

1. Where plaintiff was injured, while attempting to board a horse car standing in the car house, by the premature starting thereof, and it appeared that plaintiff in boarding the car was preceded by another, plaintiff was entitled to answer whether he had got on cars at that place before, and if he knew what the custom was at that time with regard to passengers boarding cars at that point, to show that defendant was in the habit of receiving passengers at that place, which it denied.

2. Where evidence, sought to be elicited from plaintiff on redirect examination, went to plaintiff's cause of action, and related to a subject to which plaintiff's attention had not been directed either on direct or cross-examination, and as to which plaintiff might have been recalled and examined, it was not subject to exclusion, in the discretion of the court, because not offered on direct examination.—(Gleason vs. Metropolitan St. Ry. Co., 90 N. Y. Suppl., 1025.)

NEW YORK.—Carriers—Injury to Passenger—Proximate Cause.

In an action against a street railroad for injuries to a passenger resulting from the plaintiff stepping into an unguarded excavation some distance from the car, from which he had alighted with safety, where it appeared, according to plaintiff's own testimony,

that he had taken two or three steps before falling, neither a fire which from unknown causes had broken out in the car, nor the act of the conductor, on its discovery, in stopping the car and letting the passengers alight, was the proximate cause of the injury.—(Goldberg vs. Interurban St. Ry. Co., 90 N. Y. Suppl., 347.)

NEW YORK.—Street Railways—Injuries to Passengers—Res Ipsa Loquitur—Applicability—Burden of Proof.

Where, in an action for injuries to a passenger on an electric street car, plaintiff showed that a series of explosions, which seemed to come from under the car, caused a panic among the passengers, who, in their endeavor to leave the car quickly, pushed plaintiff off, and defendant's evidence tended to show that the explosions did not occur through its negligence, it was error to refuse to charge that the burden of proving negligence was on plaintiff, notwithstanding the explanations of the explosions given by defendant, though it be assumed that at the close of plaintiff's case the doctrine of res ipsa loquitur applied.—(Lynch vs. Metropolitan St. Ry. Co., 90 N. Y. Suppl., 378.)

NEW YORK.—Carriers—Negligence—Action—Evidence—Sufficiency.

Where an open street car, which was on fire, came to such a sudden stop as to hurl a passenger to the pavement, in an action for the injuries it was error to direct a non-suit on evidence showing such facts, since, if the motorman stopped the car, his conduct was plainly negligent, and if the fire caused the sudden stoppage the burden was on defendant to explain the cause of the accident.—(Glassberg vs. Interurban St. Ry. Co., 92 N. Y. Suppl., 731.)

NEW YORK.—Negligence—Personal Injuries—Question for Jury—Carrier—Personal Injuries—Negligence—Burden of Proof.

1. In an action against an ice company for injuries to plaintiff while a passenger on a street car by a collision of the defendant's wagon with the car, whether the defendant was guilty of negligence held a question for the jury.

2. In an action against a street railroad for injuries to plaintiff while a passenger on one of defendant's cars by a collision with a wagon, the burden of proving negligence on the part of the defendant rested on plaintiff throughout the trial, and was not changed by proof of plaintiff's injuries by the collision, which, with the aid of legal presumptions, made out plaintiff's prima facie case against the defendant.—(Maher vs. Metropolitan St. Ry. Co. et al., 92 N. Y. Suppl., 825.)

NEW YORK.—Street Railroads—Construction Work—Use of Streets—Liability to Pedestrians—Judgments—Dismissal—Failure of Proof.

1. An elevated railway is not liable for injuries to a pedestrian caused by his stepping on a nail in a plank placed on the sidewalk by the railroad in the course of the construction of steps, unless it permitted the plank to remain upon the sidewalk beyond a reasonable time.

2. A judgment of dismissal on the merits, entered after a non-suit for failure of proof, is, in so far as it directs the dismissal upon the merits, erroneous.—(Hedenberg vs. Manhattan Ry. Co., 91 N. Y. Suppl., 68.)

NORTH CAROLINA.—Carriers—Street Railroads—Injuries to Passengers—Premature Start—Negligence—Duty of Conductor—Damages.

1. Plaintiff alighted from a street car, on which he had paid his fare, and received a transfer to a connecting line. As he attempted to board the connecting car at the usual place for the transfer of passengers, he was thrown to the street and injured by the sudden start of the car when he had one foot on the step and the other on the ground. Held, that plaintiff was a passenger at the time he was injured.

2. Where plaintiff was injured by the sudden starting of a street car before he had succeeded in boarding it at a regular stopping place, and it appeared that at the time the conductor was not at his post of duty controlling the movements of the car, an instruction that such facts, if believed, were sufficient to establish the street car company's negligence was not error.

3. It is the duty of a street car conductor to be at his station on the platform where passengers are in the habit of boarding the car, and to give them such assistance as is necessary, and see that the motorman is not signaled to start until reasonable time has been given passengers assembled, who manifested an intention to get on the car, to do so.

4. In an action for injuries to a passenger by the premature starting of a street car, an instruction authorizing a recovery of damages for actual nursing, medical expenses and "loss of time, or loss from inability to perform ordinary labor or capacity to earn money," was proper.—(Clark vs. Durham Traction Co., 50 S. E. Rep., 518.)

PENNSYLVANIA.—Street Railroads—Collision with Traveler—Non-Suit—Rulings on Evidence.

1. Plaintiff's evidence, in an action to recover for injuries at a street railway crossing, showed that he looked for a car when at the building line of the street, and saw one about 480 ft. away, approaching; that he drove to the track, and looked for the second time, when his horse was on the track, and saw a car about half that distance away, and drove on at a slow walk; and that the car struck his front wheel almost instantly. Held, that an order of non-suit was properly granted.

2. An offer of evidence is properly excluded where it contains both relevant and irrelevant matter.—(Mease vs. United Traction Co., 57 Atl. Rep., 820.)

PENNSYLVANIA.—Street Railroads—Injury to Passenger.

Where plaintiff was riding in an open summer car having a running board along its side, and wished to get off at a certain street, and when the car stopped before it came to the point where she wished to alight, she stepped down on the landing board, and attempted to step off backwards, and found the distance too great for her to touch the ground comfortably with her foot, and, whether from confusion or inability to control herself, she fell and was hurt, it was error to submit the case to the jury.—(Scanlon vs. Philadelphia Rapid Transit Co., 57 Atl. Rep., 521.)

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

1. It is the duty of a conductor on a single-track road, before starting the car, to look on both sides of the car to see if passengers are about to enter.

2. In an action against a street railroad company to recover damages for personal injuries while attempting to enter a car, evidence held sufficient to take the case to the jury.—(Redington vs. Harrisburg Traction Co., 60 Atl. Rep., 305.)

RHODE ISLAND.—Street Railroads—Negligence—Obstruction on Track—Removal—Liabilities.

Where the operatives of a street car, on removing from the track an obstruction that had been unlawfully placed there, left it in the street, and, owing to its presence there, plaintiff was injured by riding into it on a bicycle, the railroad company was not liable.—(Howard vs. Union R. Co., 57 Atl. Rep., 867.)

RHODE ISLAND.—Carriers—Injuries to Passengers—Permanency—Allegations—Proof—Carlisle Tables—Damages—Excessiveness.

1. Where a description of injuries sued for did not show that they were necessarily permanent, plaintiff should allege their permanency, in order to recover therefor.

2. In an action for injuries, to entitle plaintiff to recover present damages for apprehended future consequences, the evidence must show such a degree of probability of their occurring as amounts to a reasonable certainty that they will result from the original injury.

3. Where, in an action for injuries not of themselves permanent, nor alleged to be permanent, the evidence did not establish with reasonable certainty that plaintiff would not recover therefrom, the admission of life tables in evidence was erroneous.

4. Plaintiff, while a passenger on defendant's street car, sustained a severe shock or jolt, which caused pain and suffering to the date of the suit. No bones were broken, nor was there a loss of any limb or organ; and her physician testified that under the most favorable conditions her recovery would be a question of probably eighteen to twenty-four months, but that under ordinary circumstances it might last indefinitely. Held, that a verdict for \$6,000 was excessive.—(MacGregor vs. Rhode Island Co., 60 Atl. Rep., 761.)

TEXAS.—Carriers—Failure to Stop Car—Instructions—Actual Damages—Exemplary Damages—Separation in Verdict—Evidence.

1. Where, in an action against a street railroad for damages because of the failure to stop a car and admit plaintiff as a passenger, the court instructed on exemplary damages, it might properly have required the jury to separate in their verdict the exemplary and actual damages, and to state the character of the damages if they only found one kind.

2. Where, in an action against a street railroad for damages for failure to stop a car and admit plaintiff as a passenger, plaintiff and one who accompanied him testified that they commenced signaling the car by waving their hands when it was a quarter of a mile distant, and continued it until it passed, and that when it passed, the motorman motioned to them and the conductor signaled them and laughed. The motorman testified that they stood near the track talking, but gave no signal until he was even with them. Held, that an instruction on exemplary damages was warranted.

3. Where, in an action against a railroad for damages because

of the failure to stop a car and admit plaintiff as a passenger, it was an issue of fact whether plaintiff was compelled to walk a certain distance, an instruction that the jury might consider that plaintiff had to walk such distance was error.—(Northern Texas Traction Co. vs. Peterman, 80 S. W. Rep., 535.)

TEXAS.—Carriers—Street Railroads—Injuries to Passengers—Negligence—Contributory Negligence—Assumption of Facts—Question for Jury.

1. Plaintiff (a minor) and his friend boarded the running board of a street car on the side opposite to that on which the conductor was collecting fares, intending only to ride a short distance, and then to continue their journey by wagon. Plaintiff had money, and agreed to pay the fare for both. Plaintiff claimed that, after signaling the car to stop, the car slowed up but slightly, and then began to run faster, and he, believing it would not stop, stepped off, and was injured. It also appeared that plaintiff did not pay his fare before he alighted. Held, that it could not be found, as a matter of law, that plaintiff, in good faith, intended to pay his fare, and hence it was error, in the instructions, to assume that plaintiff was a passenger.

2. Where, in an action for injuries to a person in alighting from a moving street car, his testimony that he rang the bell a number of times for the car to stop before he alighted was uncontradicted, and other passengers on the car testified, but failed to state anything with reference to the ringing of the bell, and the motorman was not called to answer whether he heard the bell or not, the court was justified in assuming that the company was guilty of negligence in failing to stop the car in response to the signal.

3. Where a passenger on a street car signaled the car to stop for him to alight, and he testified that, on the car slowing up and then increasing its speed, he concluded it was not going to stop, whereupon he jumped off and was injured, the question of his contributory negligence was for the jury.—(Dallas Rapid Transit Co. vs. Payne, 82 S. W. Rep., 649.)

TEXAS.—Negligence—Personal Injuries—Petition—Sufficiency—Evidence—Admissibility—Damages—Instruction.

1. In an action for injuries, an allegation of the petition that plaintiff was seriously and permanently injured in his head, neck, shoulders, arms, body, and in his back and spine, without averring any reason why the injuries could not be stated, was obnoxious to a special exception as being too general.

2. An allegation of the petition that plaintiff's injuries resulted in greatly and permanently impairing and diminishing his capacity to earn money was also obnoxious to special exception.

3. Plaintiff was not limited in his damages to the particular calling in which he was engaged at the time of the injuries or the wages he was then receiving.

4. Proof of damages as to the particular trade in which plaintiff is skilled is inadmissible, in the absence of allegation setting forth the particular trade in which he is skilled.

5. Under an allegation of the petition that plaintiff's injuries greatly and permanently impaired and diminished his capacity to earn money, to which a special exception was properly taken as too general, evidence that at the time plaintiff received the injuries he was earning \$10 a week was inadmissible.

6. Under an allegation of the petition that plaintiff's injuries greatly and permanently impaired his capacity to earn money, to which a special exception was properly taken, and objections to the admission of evidence thereunder were made, a charge that a finding for plaintiff should include damages for loss of earnings was erroneous, the allegations not showing what plaintiff's earning capacity was before he was injured.—(Dallas Consol. Electric St. Ry. Co. vs. Hardy, 86 S. W. Rep., 1053.)

CHARTERS, FRANCHISES, ORDINANCES, ETC.

PENNSYLVANIA.—Street Railroads—Right of Way—Injury to Property—Action for Damages—Evidence.

1. Where a street railway company contracted in writing with a landowner for the use of land through his meadow, and thereafter orally agreed with him to pay for cutting up the meadow in reaching the strip, the landowner could recover compensation, though he had no right to it except under the oral agreement.

2. A landowner, who had granted a right of way to a street railway company, in an action for damages alleged that defendant had so constructed his railway as to do great damage to plaintiff's property, and introduced evidence that the construction of the road had severed a three-cornered lot from his other land, to his great injury. There was evidence from which the jury could determine the value of the lot. Defendant did not ask for any more definite description of the damages. Held, that the evidence was admissible under the pleadings.—(Quigley vs. Montgomery & Chester Electric Ry. Co., 57 Atl. Rep., 512.)

FINANCIAL INTELLIGENCE

WALL STREET, Aug. 16, 1905.

The Money Market

The money market this week failed to reflect the beginning of the movement of money to the West for crop-moving purposes, and the comparatively small reserves held by the local institutions. The tone, if anything, was easier, some lenders being disposed to shade the rate for over the year maturities, which has heretofore been held firm at 4 per cent. The ease, however, was due more to the falling off in demand for all classes of accommodations, rather than to any pressure of funds upon the market. Stock commission houses are said to have secured all necessary requirements, while the inquiry from commercial sources appeared to be less urgent. Money on call was in fair demand and ample supply, at rates ranging from $1\frac{1}{2}$ to 2 per cent, with most of the week's business transacted at the latter figure. The time money market was extremely quiet. The demand for funds was light, notwithstanding the continued activity and strength in the securities market. Sixty and ninety-day contracts were obtainable in almost any amount at $2\frac{3}{4}$ and 3 per cent respectively, while four months' money was offered at $3\frac{1}{2}$ per cent. Over the year maturities were placed at $3\frac{3}{4}$ per cent against 4 per cent quoted for some time past. Six months' contracts remained firm at 4 per cent. Commercial paper was only moderately active on the basis of 4 per cent for choice double names. Specialists reported a fair supply and a good absorption, the buying being principally out of the institutions. Local banks continued to accommodate their customers, but have done little in the open market. The European markets remained easy at practically unchanged quotations. The bank statement, published a week ago, showed a further loss in cash of \$1,933,500, but owing to a decrease of \$2,616,775 in the reserve required, the surplus was increased by \$683,775. The surplus on Aug. 12 was \$12,846,800, as compared with \$37,731,475 in the corresponding week of 1904, \$21,563,575 in 1903, \$7,126,600 in 1902, \$18,421,900 in 1901, and \$20,587,050 in 1900. During the week the initial transfer of currency to the West was made through the sub-Treasury for moving the crops. The movement this year is somewhat earlier than in previous years, and although the shipments thus far have been small they will assume larger proportions from now on. Reports from the West are to the effect that the interior institutions are in splendid condition to meet these demands, but it is believed in local banking circles that, judging from the size of the crops now indicated, the New York banks will be called upon to provide as much, if not more, money for crop moving than in recent years.

The Stock Market

The stock market continued to display strength during the week, and although there were periods when prices reacted moderately on profit-taking selling, there was no modification of bullish opinion, and the buying was of a character to stimulate confidence and to encourage broader interests in the speculation. For the first time in many weeks public buying has been in evidence, and it is expected that public interest in the market will materially increase during the second half of the month. The real stimulating influence has been the government crop report showing conditions on Aug. 1, which indicated record yields of wheat and corn and large harvests of other grain, and this was regarded as a very practical offset to the indicated smaller crop of cotton. The continued placing of large orders for steel rails, structural material and railway equipment, was taken to reflect the confidence on the part of the transportation interests and a large tonnage for the ensuing year. The strong position of the copper metal market and the favorable reports regarding other trades were counted among the favorable influences, and so far as the stock market is concerned little attention had been paid to the yellow fever situation at New Orleans. In the early part of the current week prices for stocks reacted to a moderate extent on profit taking and professional selling, but at the close there was a resumption of aggressiveness by the leading interests in such stocks as Union Pacific, St. Paul, the Hill group, the coal stocks, the Southwestern stocks and Amalgamated Copper, and a number of these stocks made new high records on this movement. Much attention has been paid to the peace conference at Portsmouth, and while it is expected that some snag is likely to be struck, it is believed that the result will

be an agreement that will terminate the war. Even should the conference prove a failure it would not have any more than a temporary adverse influence on the stock market. The bond market has been strong with good buying of all the Japanese issues and a satisfactory demand for other choice securities. The commodity markets have ruled weak until the close, when cotton advanced sharply.

The local traction issues have been only moderately active, but at the end of the week some aggressive buying developed in Metropolitan which carried the price up sharply, and also caused some improvement in Brooklyn Rapid Transit. Rumors of an early dividend of 2 per cent on the latter stock are emphatically denied, and it is stated that the policy of putting earnings back into the property will be continued.

Philadelphia

Trading in the traction stocks continued upon a fairly large scale this week, and although price movements were irregular, the general trend of value was toward a higher level. A feature of the trading was the activity and strength displayed by American Railway, over 1000 shares of which were dealt in at from 53 to $54\frac{1}{2}$, the closing being within a small fraction of the highest. Railways General was another of the low priced issues to display strength, 540 shares changing hands at from 3 to $3\frac{3}{4}$, an advance for the week of a point. A better inquiry was noted for the investment issues, and prices advanced sharply on very light transactions. Frankford & Southwark Passenger stock sold at 455 and 458 for thirty-four shares, a gain of 8 points, while small amounts of Second and Third Streets Passenger sold at 302. Thirteenth and Fifteenth Passenger sold at 306, and sixty shares of Union Passenger brought 238 and 240. United Companies of New Jersey sold at $269\frac{1}{2}$ for nine shares. The speculative issues were active and irregular. Philadelphia Company common, after selling at the beginning at $46\frac{7}{8}$ reacted to $46\frac{1}{4}$, but later recovered to $46\frac{3}{4}$. Upwards of 9000 shares were dealt in. The preferred stock sold at 49. Philadelphia Rapid Transit was active and strong, about 6000 shares changing hands at from $29\frac{1}{2}$ down to $28\frac{3}{8}$, but subsequently there was a recovery to $28\frac{7}{8}$. Philadelphia Traction held firm at 100. Consolidated Traction of New Jersey was fairly active and strong, about 1700 shares selling at from 81 to $82\frac{1}{2}$, the closing transaction taking place at $81\frac{7}{8}$. Other transactions included 900 United Railways preferred at 90, 235 United Traction at 61.

Baltimore

Increased activity, accompanied by substantial advances in prices, characterized the trading in the local traction issues this week. The overshadowing feature was the extremely heavy dealings in all of the issues of the United Railway Company. The stock was dealt in to the extent of 1300 shares at prices ranging from $14\frac{3}{4}$ to 15, while trust receipts, representing more than 1900 shares, sold at $14\frac{1}{2}$ to $15\frac{3}{8}$. The 4 per cent bonds were in active demand, over \$81,000 changing hands at from $94\frac{1}{4}$ to $95\frac{3}{8}$. The incomes were heavily traded in, \$233,000 of the free bonds changing hands at from $60\frac{1}{2}$ to 63, while trust receipts representing \$203,000 sold from $59\frac{1}{4}$ to 62. Charleston Consolidated 5s sold at 98 for 6000, and \$5,000 Toledo Traction 5s brought 101. Other transactions were: \$1,000 Virginia Electric Railway & Development 5s at 100, \$10,000 Macon Railway & Light 5s at 99, Norfolk Railway & Light 5s at $93\frac{1}{4}$, Augusta Railway 5s at 105 and Baltimore Traction 5s at $101\frac{1}{2}$.

Other Traction Securities

The Boston market was without noteworthy feature. Trading was quiet and prices in most instances ruled practically unchanged from those prevailing at the close of last week. Massachusetts Electric issues were exceptionally strong, the common and preferred advancing 2 points each to $19\frac{1}{2}$ and 62, respectively, on an extremely small volume of business. Boston Elevated fluctuated between 153 and 154, closing at the latter figure. Boston & Suburban preferred brought 68 for small amounts, and odd lots of Boston & Worcester sold at from 28 down to 27. West End common advanced $\frac{1}{2}$ to $97\frac{1}{2}$, while the preferred moved up a point to 114.

The Chicago market was extremely quiet. Metropolitan Elevated sold at 24, and the preferred at from 63 to $64\frac{1}{2}$. Chicago & Oak Park common held firm at 54, and 100 shares of the preferred brought 19. Interborough Rapid Transit was active in the New

York curb market, but the dealings were attended with erratic price movements. From 220½ at the opening the price ran off to 217½, but rallied and closed at 218½. About 10,000 shares were dealt in. Washington Railway common was decidedly strong, the price advancing a point to 40½ on the purchase of 500 shares. The preferred stock was firm also, 400 shares selling at 93 and 93¼. American Light & Traction sold at 99 for 100 shares. The New Orleans Railway issues were quiet and about unchanged. The common stock sold at 30⅞ to 30⅞ for 1300 shares, while an odd lot of the preferred brought 73. The 4½ per cent bonds were strong, with sales of \$16,000 at 88¾ and 89¼.

At Cincinnati, of late, there has been pronounced activity in the securities of the Cincinnati, Newport & Covington, due to indications of a dividend declaration on the common stock. This has been selling at around 33 for many months, but recently moved up to 37⅞ and 38; sales this week, 1371 shares. The preferred advanced to 96¼. Cincinnati Street Railway sold at 146; Toledo Railway & Light at 34¾, and Detroit United at 92¾. Cincinnati, Dayton & Toledo 5s sold at 96¼ to 96¾, and Toledo, Bowling Green & Southern 5s at 95.

Aurora, Elgin & Chicago has been very active in Cleveland of late; last week about 1800 shares changed hands, advancing from 18 to 19½, and the early part of this week the price was forced up to 20, the highest price recorded this year. The bonds advanced from 93½ to 95½ on sales of about \$50,000 worth. Reports of increased earnings are responsible for the anxiety to get these securities. Lake Shore Electric common has been quite active at 10 to 10¾. Northern Texas sold at 66½; Cleveland & Southwestern preferred, a dividend payer, at 54, and Cleveland Electric at 79.

Security Quotations

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

	Aug. 9	Aug. 16
American Railways	52½	53
Boston Elevated	*153	154½
Brooklyn Rapid Transit	69%	70%
Chicago City	—	a196
Chicago Union Traction (common).....	9¼	8½
Chicago Union Traction (preferred).....	35%	36
Cleveland Electric	78	78
Consolidated Traction of New Jersey.....	82	82
Consolidated Traction of New Jersey 5s.....	108½	108½
Detroit United	92½	92½
Interborough Rapid Transit	218	218¼
International Traction (common).....	26½	31
International Traction (preferred) 4s.....	63	68½
Manhattan Railway	166%	167
Massachusetts Electric Cos. (common).....	17½	18
Massachusetts Electric Cos. (preferred).....	60	61
Metropolitan Elevated, Chicago (common).....	24	24
Metropolitan Elevated, Chicago (preferred).....	63	64
Metropolitan Street	127%	129¼
Metropolitan Securities	83%	83%
New Orleans Railways (common), W. I.	30%	30
New Orleans Railways (preferred), W. I.	72%	71½
New Orleans Railways 4½s.....	88%	89½
North American	100%	100%
North Jersey Street Railway.....	25	—
Philadelphia Company (common).....	46¼	46¼
Philadelphia Rapid Transit	29%	28¼
Philadelphia Traction	100	100
Public Service Corporation 5 per cent notes.....	—	—
Public Service Corporation certificates.....	68½	68½
South Side Elevated (Chicago).....	95	95
Third Avenue	127	127¾
Twin City, Minneapolis (common).....	117	117¾
Union Traction (Philadelphia).....	60½	61¾
West End (common)	97	97
West End (preferred).....	a113½	113

a Asked. W. I., when issued. * Ex-div.

Iron and Steel

The "Iron Age" says, that in nearly all the heavy lines the tonnage on the books is enormous, and further work cannot be taken in many instances from sheer inability to meet even distant deliveries. In the structural trade the event of the week has been the award of the contract for the new Manhattan Bridge to the Pennsylvania Steel Company, which calls for 43,937 tons of material. The pressure upon the structural mills is exceedingly heavy, and the payment for prompt delivery, and the importing of occasional lots of foreign shapes seem to foreshadow an upward

movement. During the week the car builders have gathered in additional work. Pig iron has been rather quiet, taking the country as a whole. The purchase by the United States Steel Corporation will probably not be made until early in September. In the East there has been a little wavering as to prices, one large producing company offering iron at somewhat lower figures.

THE SYRACUSE, LAKESIDE & BALDWINVILLE SOLD

The Syracuse, Lakeside & Baldwinsville Railroad was sold at a mortgage foreclosure sale of Aug. 11 to the Beebe syndicate, which owns the Auburn & Syracuse Electric, the Rochester, Syracuse & Eastern, and the Newark & Marion railroads. The price paid was \$530,000, and there was spirited bidding by other interests. The sale was at the instance of the United States Mortgage & Trust Company, of New York, trustee of the mortgage for the bondholders, represented by Davis, Stone & Auerbach. The defendants in the foreclosure action were the Syracuse, Lakeside & Baldwinsville Railroad Company, William B. Rockwell, receiver, and others. The mortgage was made March 1, 1899, to secure a bond issue of \$500,000, which was the total principal of the debt, bearing interest at 5 per cent. Interest was never paid, making the sum due on the mortgage \$658,872.22, plus interest from July 7. The Syracuse, Lakeside & Baldwinsville Railroad is a 14-mile line extending northwest from Syracuse along Onondaga Lake and to the village of Baldwinsville. The new owners will improve the property at once, and extend it to Fulton and Oswego.

ORDER FOR NEW YORK CENTRAL TRANSFORMERS

The General Electric Company announces that it has just received the contract for all the transformers to be used in the eight sub-stations of the New York Central Railroad at its New York terminal. There will be fifty-four 375 kw, and eighteen 550-kw transformers for operating rotary converters, and thirty-three 120-kw transformers for operating booster sets, representing a total of 34,110 kw, or, approximately, 45,000-hp transformer capacity. All these transformers are to be of the GE air-blast type, built for 25-cycle circuits.

These transformers are provided with one-third and two-thirds voltage taps on the low-tension side, to permit the starting of the rotary converters directly from the alternating current end without the use of starting motor or starting compensator. The order for the motor-driven blower sets for all of these transformers has also been awarded to the General Electric Company.

OUTING AT BREWSTERS OF THE OFFICERS OF THE NEW YORK CITY RAILWAY COMPANY

The seventh annual entertainment, tendered to the officers and heads of departments of the New York City Railway Company by President H. H. Vreeland, occurred Aug. 16. This annual invitation to visit the country home of Mr. Vreeland, enjoy a fish dinner, and afterwards attend a reception at his residence, is anticipated during the summer by all who have the fortune to be invited, and is always most enjoyable. For the first time since they were instituted, the weather interfered with the usual programme. The date originally set was Aug. 15, but owing to the unpropitious elements the entertainment was postponed until the following day. Although not fair, the weather conditions were much more favorable on Aug. 16 than on the previous day, and the occasional showers did not detract in any way from the pleasure of those who were able to attend. The clam bake and dinner were given as usual at the Tonetta Club, under a large tent, and proved most appetising. In the afternoon the guests were driven to Mr. Vreeland's residence. Here they were tendered a reception by Mrs. Vreeland, who has the happy faculty of making all her guests feel entirely at home, and who was assisted in receiving by several other ladies. Later in the afternoon and in the evening the time was spent in indoor entertainment at Mr. Vreeland's "play house," which is provided with bowling alleys, billiard tables and other means of recreation, which were very popular. After a supper at Mr. Vreeland's house, the party, which numbered about 125, returned to New York by special train.

SUBWAYS FOR PITTSBURG

A system of underground lines is projected for Pittsburg. According to the information that is available about the project these companies, all controlled by the same interests, are to apply for incorporation at Harrisburg. They are the Pittsburg Subway Company, the East End Tunnel Company and the Bayard Street Railway Company. E. K. Morse, a prominent engineer, with offices in the Farmers' Bank Building, Pittsburg, is the principal promoter as judged from the incorporators. That he represents important financial and engineering interests whose identity is yet to be disclosed is generally admitted.

The charter applications show that there is a connected system for this new underground system. The first, known as the Pittsburg Subway Company project, includes the down-town terminals of the system. This will provide a tunnel, starting from Oliver Avenue and Smithfield Street through Oliver Avenue to Liberty Avenue, to Ferry Street, to Third Avenue, to Smithfield Street, and back to the point of beginning, thus forming a convenient loop for the turning of cars. All of this is to be under ground, and, with the exception of Oliver Avenue, it conflicts with the routes to the Flinn tunnels for his freight transportation lines.

The East End tunnel route, as marked by the application for the charter, commences at Oliver Avenue and Smithfield Street and goes underground at once, almost in a direct line to the intersection of Neville Street and Ben Venue Avenue. This company claims the right to condemn lands for approaches to its tunnels at the terminals.

The final line is a surface street car line, which starts at Center Avenue and Neville Street and runs through Neville Street to Bayard Street, to Bellefield Avenue and Forbes Street and back to the point of beginning. This last will give Bellefield terminals for the line of tunnels and give passengers service throughout the Bellefield district.

The connection between the terminus of the East End tunnel line and the commencing of the surface line of the company is supposed to be provided for in the statement of "approaches and other necessary lands to be used for the general development of the enterprise." It is complete and connected and opens clearly the route proposed for the general system, and it is said will also mark the beginning of a more extensive system that will be carried to the East End as time passes and the project gets well under way.

THE FIRST DRAWING UNDER THE LOTTERY SYSTEM IN MEXICO

The first drawing under the lottery system in connection with the issuance of tickets on the electric lines in Mexico City, Mexico, which was fully described in the STREET RAILWAY JOURNAL of July 1, 1905, was held a few days ago. There were many thousands of tickets out, and the greatest interest was manifested in the drawing by the ticket holders. The drawing took place in the presence of Mr. Wheatly, general manager; Sir Charles Euan-Smith, of London, Eng., chairman of the board of directors, and a representative of the Mexican government.

The arrangement of the drawing was well devised. The instruments used were seven enameled steel globes and a large number of wooden balls, about the size of marbles. Each of these balls contained a single number, from 0 to 9, and two hundred and nine of these balls with these numbers were put into each of the globes. When all of the globes were filled, they were locked by the government inspector who kept the keys in his possession during the drawing process. When everything was ready for the drawing to begin, one of the company's employees turned the first globe, which, like all the others, was so constructed as to revolve on an axis, and the numbers were all shaken and well mixed. One of the balls was then taken out through an aperture on the side of the globe opposite that of the lock. The ball taken out first was numbered 0, and it was placed at the top of a large wooden frame, which was so made that there was a place for each of the balls to rest. The second globe was then made to revolve in the same manner as the first one, and a ball numbered 1 was taken from it. This ball was placed upon the right of the first ball, so that the two numbers read 01. The ball from the third globe, which was turned in the same way numbered 9, and the three numbers now read 019. The remaining globes were manipulated like the first three, until balls had been taken from them, the combined numbers, placed on top of the wooden frame, awarded the capital prize. This process was repeated until all the balls were taken from the globes, when there were seven frames filled with 200 numbers in each frame. A complete list of the numbers of the 209 tickets that won prizes will be published soon, and they will also be posted in all the cars of the system.

AN ATTEMPT TO DIVERT BROOKLYN BRIDGE TRAFFIC TO THE FERRIES

A radical change in the transportation system of Brooklyn, made possible through an agreement due to the initiative of the Transportation League and entered into by the Brooklyn Rapid Transit Company and the Union Ferry Company, went into effect on Monday morning, Aug. 14. By providing a sufficiency of cars for South Ferry on the Fulton Street, Putnam Avenue, Gates Avenue, Seventh Avenue, Bergen Street, Fifth Avenue, Greenpoint and Crosstown lines, the Transit Company will carry passengers to and from the ferry terminal with reasonable comfort and despatch. The ferry company will do its share of the work by arranging the boat service on a scale adequate to the demands which it hopes will be made upon it. The whole is a project for the relief of the congestion at the Brooklyn Bridge by diverting traffic to the ferries. During the hours between 6 a. m. and 8 p. m., the lines mentioned will connect with the ferry boats, which will be operated on a ten-minute headway.

INDIANA ROADS ADOPT OHIO MILEAGE

Secretary F. W. Coen, of the Ohio Interurban Railway Association, announces that the Indiana Northern, the Ft. Wayne & Wabash Valley, and the Indianapolis, Columbus & Southern Traction Companies have agreed to adopt the interchangeable coupon books of the Ohio Interurban Railway Association, making seven Indiana roads, embracing about two-thirds of the mileage of the State, which have adopted the Ohio arrangement. The Indiana managers find objection to the fact that the word "Ohio" is so prominent in this form of transportation—and many of the Ohio managers agree with them—that they have cause for complaint. There is little doubt that at the first meetings of the Ohio and Indiana associations this fall, plans will be worked out for consolidating the two organizations. Much of the credit for bringing the Indiana roads into line on this agreement is due to H. A. Nicholl, general manager of the Indiana Union Traction Company, who while manager of the Cleveland & Southwestern Traction Company was one of the prime movers in the promulgation of the plan among Ohio roads.

ELECTRIC RAILWAY TO CONNECT SAN MATEO AND SAN JOSE

A party of surveyors is laying out a right of way through the Stanford University campus for an electric railway which is to join the electric lines of San Mateo and San Jose. This is the first time that a franchise through or near the Stanford estate has been granted for an electric railway, for the reason that Mrs. Stanford, it is reported, personally objected to any such improvements being made upon the roads running through the campus. The board of trustees has evidently taken a different view of the matter, and is allowing the present survey to be made.

According to the work now being done, the new electric railway will approach the Stanford estate from the south and follow the road which runs along the foothills just west of Lake Lagunita and the Palo Alto stock farm. This road divides the original Stanford property at Palo Alto. The new road will give the university community easy access to all the towns south of Mayfield and north of Menlo Park.

A branch line is also to be run directly through the university campus to connect the university with the town of Palo Alto. It is probable that the branch line will leave the main line at the rear entrance of the campus proper, and then follow a northerly route to the faculty club house, from which point it will run parallel to University Avenue. A passenger station will also be built at a convenient place on the branch line.

An electric railway has long been wanted by students and faculty members living in Palo Alto. The fares charged by the bus drivers have been exorbitant, and the service poor. With an electric railway the time of travel will be much shortened, and the service more frequent. The fare will also be reduced more than half of what it has been in the past. A survey of the right of way will be made within the next month.

The Bogota City Railway Company, of Bogota, Columbia, now a mulc line, contemplates changing its entire system to electricity in the near future, if the proper concession can be secured from the government.

AN IMPORTANT CALIFORNIA PROJECT

The Central California Traction Company has been incorporated for the purpose of building 175 miles of electric railway in San Joaquin, Sacramento, Calaveras and Stanislaus Counties. The enterprise is said to be a Gould project, the proposed electric lines to serve the useful purpose of feeders of the Western Pacific. The company is incorporated with a capital stock of \$2,500,000, of which \$300,000 has already been subscribed. H. H. Griffiths, of Stockton, who has been prominently identified with Western Pacific affairs during the past few years, appears as the subscriber of \$299,000 of stock. The other incorporators and directors are: M. Fleishhacker, H. Fleishhacker, Alden Anderson, H. H. Ferns, F. W. Smith, W. J. Bartnett, J. Dalzell Brown, John Treadwell, Fred M. West and David F. Walker.

The company plans to build ten or twelve miles of electric railway in Stockton immediately. This will be followed by the construction of fifteen miles of track from Stockton to Lodi, and eventually lines reaching to Sacramento, Modesto, Walnut Grove and other points. The estimated mileage of the several lines is as follows: From Stockton to Lodi and Sacramento, and from Stockton to Modesto, including lines in each town, ninety miles; from Lodi to Walnut Grove, Sacramento County, twenty miles; from Stockton to Walnut Grove, thirty-five miles; from Stockton to Calaveras County, thirty miles.

It is explained that the company aims eventually to have a system of interurban electric lines with a total mileage of something like 200 miles of track, with Stockton as the center of the system. Electric power for the operation of the system will be obtained from the power plant of the American River Electric Company, in Placer County, in which some of the incorporators of the new company are interested. The incorporators of the new company say it is merely a coincidence that a majority of their number are identified with the Western Pacific, and that the electric lines they propose to build will be free to serve as feeders for not only the Western Pacific, but the Southern Pacific and Santa Fe as well.

RECENT SALES OF GENERAL ELECTRIC RAILWAY APPARATUS

The General Electric Company has recently received orders for a large amount of electric railway apparatus, of which the following is a partial description:

The New York Central & Hudson River Railroad Company has ordered 125 2-motor GE-69 (200-hp) equipments with Sprague-General Electric Type-M control, to be used in handling the suburban service out of the Grand Central Station, New York City. These equipments, together with the thirty-five electric locomotives of the same type as the "6000" (which has been described in these pages) will handle the entire passenger service of the New York Central in its electrical zone.

Another New York State order is for five 4-motor GE-67 (40-hp) equipments, with K-28 controllers, for the Buffalo Southern Railway Company which is a consolidation of the Buffalo, Gardenville & Ebenezer and the Buffalo, Hamburg & Aurora Railroad Companies.

The Atlantic Coast Electric Company has ordered two 2-motor, GE-67 equipments, with K-10 controller, while the New York & Queens County Railway Company, Long Island City, N. Y., has placed an order for ten of the new 4-motor GE-80 (40-hp) equipments with K-28 controllers. This motor is a recent design and represents the latest railway motor development. Another order for the new motor consists of twenty 2-motor GE-80 equipments, with K-10 controllers from the Omaha & Council Bluffs Street Railway Company, Omaha, Neb.

Other recent railway motor sales are twenty 40-hp, 2-motor equipments, with K-10 controllers for Oakland Transit Consolidated Company, Oakland, Cal.; eight 4-motor, 50-hp equipments with controllers for the Conneaut & Erie Traction Company; three 4-motor, 75-hp equipments with Sprague-General Electric Type-M control for the Columbus, Delaware & Marion Electric Railway Company, which now has ten equipments of this type in operation, and one 4-motor, 65-hp equipment with Sprague GE control for the Philadelphia & Westchester Traction Company, Llanerch, Pa.

Recent sales of railway generating equipment consist of one 5000-kw, three-phase, 35-cycle Curtis steam turbine generator, and one three-phase revolving field 3500-kw, 35-cycle, alternator, for Twin-City Rapid Transit Company, Minneapolis, Minn. Both of these generators are to furnish current at 13,200 volts; one 600-kw railway generator for furnishing power to Williamsport Passenger Railway Company, Williamsport, Pa.; one 500-kw motor generator

set, driven from a 13,200-volt, a. c. circuit, and furnishing 600 volts direct current for Dallas, Tex.; three 300-kw, 25-cycle, rotary converters with transformers, switchboards and accessories, one each for Lancaster, Pa., Chicago, Ill., and Landisville, Pa.

EXHIBITORS AT THE PHILADELPHIA CONVENTION

The following is a preliminary list of the manufacturers who have been assigned space at the South Pavilion, Philadelphia Museum, in connection with the convention next September.

Allis-Chalmers Company.
 American Brake-Shoe & Foundry Company.
 American Carbon & Battery Company.
 American Locomotive Sander Company.
 American Railway Supply Company.
 American Steel & Wire Company.
 Atha Company, Benjamin.
 Atlas Railway Supply Company.
 Baldwin Locomotive Works.
 Blake Signal & Manufacturing Company.
 Brady Brass Company.
 Brill Company, J. G.
 Brown, Harold P.
 Buda Foundry & Manufacturing Company.
 Carnegie Steel Company.
 Chicago Pneumatic Tool Company.
 Consolidated Car Heating Company.
 Continuous Rail Joint Company.
 Crouse Hinds Company.
 Curtain Supply Company.
 Dearborn Drug & Chemical Company.
 DeRonde, Frank S.
 DeWitt Sand Box Company.
 Duff Manufacturing Company.
 Edwards Company, O. M.
 Electric Railway Equipment Company.
 Empire Safety Tread Company.
 Galena Signal Oil Company.
 Garton-Daniels Company.
 General Electric Company.
 Globe Ticket Company.
 Gold Car Heating Company.
 Goldschmidt Thermit Company.
 Hale & Kilburn Manufacturing Company.
 Harrison Safety Boiler Works.
 Johns-Manville Company, H. W.
 Kenfield Publishing Company.
 Lorain Steel Company.
 Lord Electric Company.
 Lord Company, George W.
 Lumen Bearing Company.
 McGraw Publishing Company.
 Manning, Maxwell & Moore.
 Mayer & Englund Company.
 Merritt & Company.
 Miller Anchor Company.
 National Brake Company.
 National Carbon Company.
 National Electric Company.
 National Lock Washer Company.
 Nuttall Company, R. D.
 Ohio Brass Company.
 Ohmer Fare Register Company.
 Oliver Machinery Company.
 Pantasote Company.
 Peckham Manufacturing Company.
 Pennsylvania Steel Company.
 Peerless Rubber Manufacturing Company.
 Pressed Steel Car Company.
 Railway Journal Lubricating Company.
 Ridlon Company, Frank.
 St. Louis Car Wheel Company.
 Schoen Steel Wheel Company.
 Security Register Company.
 Sherwin-Williams Company.
 Simons Company, John.
 Smith Heater Company, Peter.
 Speer Carbon Company.
 Standard Paint Company.
 Standard Steel Works.
 Sterling-Meaker Company.
 STREET RAILWAY JOURNAL.
 Street Railway Bulletin.
 Taylor Electric Truck Company.
 Under Feed Stoker Company, The.
 Underwood Typewriter Company.
 United States Metallic Packing Company.
 Van Dorn Company, W. T.
 Weber Railway Joint Manufacturing Company.
 Wharton, William, Jr., & Company, Incorporated.
 Wheel Truing Brake-Shoe Company.
 Westinghouse Companies, The.

CONTRACT FOR MANHATTAN BRIDGE

The contract for building the superstructure of the Manhattan Bridge, the third to span the lower East River between Brooklyn and New York, was awarded Tuesday, Aug. 15, to the Pennsylvania Steel Company, which bid \$7,284,000. The awarding of this contract is of special interest because of the part the bridge will play in the traffic problem of the greater city. Located between the Brooklyn Bridge and the new Williamsburg Bridge, it will draw upon both of them for traffic. As the approach in Brooklyn, which will have its terminus at Flatbush Avenue and Fulton Street, has been planned on liberal lines, and as provision has been made for four tracks for street cars, two for elevated railroad cars, and two for subway cars to cross the structure, there is no telling what the effect will be of the new structure on the traffic situation. The terminus of the structure in New York will be at Canal Street and the Bowery.

The Manhattan Bridge contract calls for the manufacture of 43,000 tons of steel, 8000 tons of which will cover the wire cables and fittings. The bridge is to be located at Pike Slip, between Water and Monroe Streets, on the East River, New York City. The anchorage in Brooklyn is between Adams and Pearl and Water and Front Streets. Contracts for the anchorage, which will cost \$1,225,000 each, were awarded last February. The steel for the anchorages is to be delivered before February next.

NEW PUBLICATIONS

Moody's Manual of Railroad and Corporation Securities for 1905. Published by Moody Publishing Company, New York; 2580 pages. Price, cloth, \$10; leather, \$12.

This is the sixth annual edition of this important reference book, and is much more complete than any of its predecessors. The size of the page has been increased 30 per cent, and the size of the volume 35 per cent. The present edition contains over 3,000,000 words and covers the entire field of corporate investments. The book is divided into ten sections, as follows: 1, Full membership laws of the stock exchanges of the United States and Canada; 2, American and foreign government and State securities; 3, steam railroad companies; 4, electric traction companies; 5, gas and electric light companies; 6, water supply companies; 7, telephone, telegraph and cable companies; 8, industrial and miscellaneous corporations; 9, mines and oil corporations; 10, banks and trust companies and other financial institutions. Upon certain of these classes of securities other books are published, but the general investor will find the sections on gas and electric light, water supply, telephone and telegraph, mining, industrial and miscellaneous corporations especially useful. The fact that the manual contains statistics upon all classes of American securities makes it of especial value to the general investor.

The Corporation Laws of Pennsylvania, 1903-1905, being a Supplement of Statutory Law of Corporations, by John H. Whitworth and Clarence B. Millar. Published by T. & J. W. Johnson & Company, Philadelphia; 203 pages. Price, \$1.50.

This book is printed in the same style and with corresponding paging to the work of which it is a supplement, but is complete in itself. It presents all of the laws of 1903-1905 relating to corporations, including railroads and street railways, and is provided with a complete index which refers to both the original book and to the supplement. The rules and the fees of the State Department governing corporations in Pennsylvania are also given in full.

Railway Provident Institutions in English-Speaking Countries, by M. Riebenack, controller Pennsylvania Railroad Company, Philadelphia. Published by the author; 388 pages.

In this volume Mr. Riebenack presents an extensive collection of most valuable statistics, a large part of which were presented by him as reports on the subject considered at the last two meetings of the International Railway Congress. Establishments of this kind are of modern origin, but the practice has developed radically, so that more than 100 railroad companies have now institutions in which the provident idea is represented. A great many of the British companies and certain roads in this country, conspicuously the Pennsylvania Railroad, have gone into the subject of accident and other insurance in a very elaborate way, and full particulars are given of the provisions of the different companies in this respect as well as other provident institutions, such as co-operative capital stock purchasing, literary institutions, etc. Altogether the volume is of great interest and value to any companies which are contemplating any institutions of this kind.

STREET RAILWAY PATENTS

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

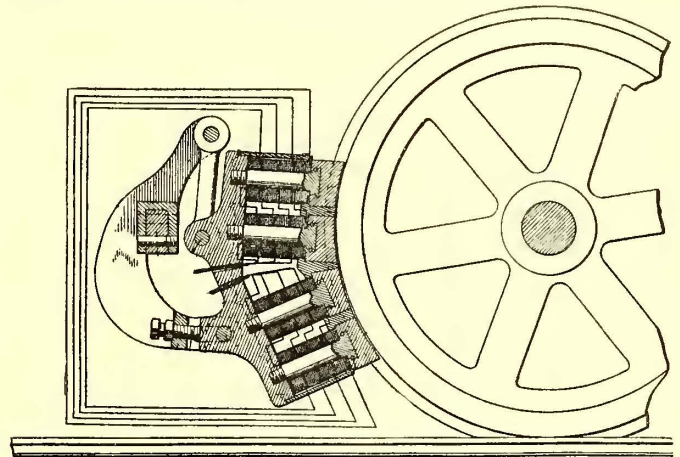
UNITED STATES PATENTS ISSUED AUG. 8, 1905

796,456. Roller Bearing Wheel; Joseph N. Sanchez, Galveston, Texas. App. filed March 1, 1905. The body of the wheel is fixed upon a non-rotatable axle and equipped with a rotatable tread or rim portion mounted to run concentrically upon the body and having anti-friction devices between the body and the tread of the wheel.

796,457. Car Truck Bolster; John Schaffer, Kirkwood, Mo. App. filed Dec. 15, 1904. A car-truck bolster having its body with the side bearings made in two parts, respectively integral, and adapted to meet along the middle of the bolster, the said body being box-shaped in cross-section in the assembled position of the parts, and means for detachably securing the parts to each other.

796,464. Car Brake; Charles J. Specht and Charles R. Krueger, New York, N. Y. App. filed June 24, 1904. An electro-magnetic brake-shoe in which the braking force is determined by the number of magnets energized.

796,509. Car Fender; Elwood C. Hall, New York, N. Y. App. filed Dec. 5, 1904. Details of construction.



PATENT NO. 796,464

796,621. Brake Rigging for Railway Vehicles; Chingalpat N. Achari and Cornelius E. Cardew, Insein, Lower Burma, India. App. filed Sept. 16, 1904. Mechanism whereby the thrust of the brake-blocks is increased or decreased in proportion as the load in or on a vehicle is increased or lessened.

796,657. Brake Apparatus for Vehicles; Edward H. Johnson, London, England. App. filed Dec. 1, 1903. A resilient spiral band mounted on a rotary axle driven by the car, automatic means whereby the band will frictionally engage the rotary axle, and means whereby the energy resulting from such engagement and from the kinetic energy of the moving car will actuate the brakes.

796,697. Trolley Catcher; Seth J. Buckland, Springfield, Mass. App. filed Jan. 30, 1905. Details of a spring-drum and ratchet arrangement for controlling the trolley cord.

796,749. Electric Car Lighting; James F. McElroy, Albany, N. Y. App. filed Oct. 6, 1902. A dynamo which is directly connected to the wheels of the car, has a mechanical attachment by which it is only connected to the storage batteries when its speed is sufficiently high, and has a mechanical pole changer to accord the dynamo to the direction of movement of the car.

796,817. Trolley Appliance; Frank P. Criner, Fort Wayne, Ind. App. filed Dec. 19, 1904. The harp is always held vertical by two parallel rods which constitute the trolley pole.

796,869. Trolley Wheel; John C. A. Riecke, Baltimore, Md. App. filed Jan. 14, 1905. Upwardly-extending, flaring arms, pivoted to the trolley harp so that they will rock rearwardly to avoid guy-wires, etc.

796,931. Car Brake; William Quinn, Philadelphia, Pa. App. filed Jan. 19, 1905. Consists of wheel and track brakes alternately set from the same source.

796,946. Brake-Shoe; William P. Taylor, Buffalo, N. Y. App. filed Dec. 15, 1904. A brake-shoe comprising a body cast complete in one piece, and a reinforcement within said body composed of a plurality of twisted strands.

796,964. Braking System for Cars; Jesse A. Field, Dunkirk, N. Y. App. filed Jan. 16, 1905. Consists in combination of an axle, a friction clutch on said axle having an annular groove and an even plane peripheral surface on each side of said groove and a movable member consisting of a segmental annulus around said clutch hav-

ing an interior longitudinal rib extending into the annular groove of the clutch for preventing lateral displacement of said segmental annulus, a braking element having operative connection to said segmental annulus and a hand-wheel, or the like, controlling the shifting of the segmental annulus into frictional engagement with the clutch.

796,976. Track Sanding Device; Washington H. Kilbourn, Greenfield, Mass. App. filed Dec. 5, 1904. The sand hopper is pivotally mounted under the car, and means are provided whereby it may be violently swung against a stop to thereby project the same through a lateral opening in the bottom of the hopper and into funnel-shaped pipe for conducting it to the track rails.

PERSONAL MENTION

MR. J. G. WHITE, of J. G. White & Company, sailed for Europe Aug. 15, on the "Kocnig Wilhelm II."

MR. C. F. SWIGERT has resigned as vice-president and superintendent of the Portland Consolidated Railway, of Portland, Ore.

MR. DAVID DALY has assumed his position of manager of the Houston Electric Company, of Houston, Tex., succeeding Mr. H. K. Payne, who has become identified with the home office of Stone & Webster, of Boston, who own the Houston system.

MR. H. M. SMITH has resigned as superintendent of transportation of the Rockford & Interurban Railway Company, of Rockford, Ill., to become connected with the Philadelphia & Western Railway, now building out of Philadelphia. Mr. Smith will make a tour of inspection of several lines in the West, and will assume his new duties about Sept. 15.

MR. JAMES STOWEL ANTHONY, of the General Electric Company, was married to Miss Alys P. Scott, daughter of Mr. and Mrs. Alfred Bowne Scott, on Aug. 15. The wedding took place at Geneva, Switzerland, the ceremony being performed by the Rev. Percy Gordon, assisted by the Rev. Mr. Belden. Mr. and Mrs. Anthony will return to this country early in the fall, and will reside in New York.

MR. JOHN MILLAR, formerly master mechanic of the International Railway Company, of Buffalo, has just returned from a three months' tour in Europe. Mr. Millar visited the principal cities in England, Ireland and Scotland as well as a few on the Continent. Although his trip was made largely for pleasure Mr. Millar spent a great deal of time studying street railway conditions and operating methods in the cities visited, and found this experience both interesting and profitable.

PROF. W. WYSSLING, Ph. D., secretary and member of the Council of the Swiss Institution of Electrical Engineers at the Swiss Polytechnicum, at Zurich, and director of the Sihl Electrical Works, has been appointed secretary general of a commission recently appointed by the Swiss Government to study the question of the electrification of the railways in Switzerland. In the study of this subject Prof. Wyssling will make a tour through the United States. He expects to visit a number of the principal cities of the country, as well as to make a personal inspection of the leading interurban electric railways. Prof. Wyssling is coming to this country on the "Grosser Kurfürst," and expects to arrive in New York the early part of next week.

MR. WALTER E. HARRINGTON, whose resignation as vice-president and general manager of the New York & Philadelphia Company was mentioned in the issue of this paper for July 29, has become associated with J. G. White & Company, of New York, as Operating Manager. In this capacity Mr. Harrington will supervise all of the railway, electric light, gas and other properties in which J. G. White & Company are very largely interested all over the world, and will make his headquarters at the New York office of the company. Mr. Harrington has been prominent and successful as a street railway manager, and is known most widely through his connection with the Camden & Suburban Railway Company, of which he was general manager and vice-president for the eight years ending in 1904. In the latter year this property was purchased by the Public Service Corporation, and Mr. Harrington was immediately placed in charge of all of the railway properties south of Trenton belonging to this company. In 1905 he assumed charge of the New York & Philadelphia Company, as vice-president and general manager, but remained with this company only a few months. Mr. Harrington is an active member of the executive committee of the American Street Railway Association, has served on the standing rules committee of the association for several years, is a member of the American Institute of Electrical Engineers, and has acted as consulting engineer for a number of street railway systems. The appointment to his new office dates from Aug. 1.

MR. W. W. WHEATLY, president and general manager of the Federal District Railway and managing director of the Mexican Traction Company, of Mexico City, Mex., an independent company taken over about a year ago by the owners of the Federal District Company, was tendered a banquet by Sir Charles Euan-Smith, the chairman of the board of directors of the company, at the Chapultepec restaurant, Mexico City, on Monday, Aug. 7. There were present as guests some 47 persons, among whom were many leading government officials, representatives of the diplomatic corps and leading business men and bankers, including the son of President Diaz and the president's military chief of staff. In his opening speech Sir Charles complimented Mr. Wheatly most highly on his efficient management of the street railway lines. Then paying a tribute to the administration of President Diaz, he closed by proposing the health of Mr. Wheatly and his assistants in the operation of the property in Mexico. Mr. Wheatly in replying acknowledged his debt of gratitude to Sir Charles, and paid tribute to the employees of the company, without whose most efficient help the success that has been achieved would not have been possible. On the evening of the day of the banquet Sir Charles and Lady Euan-Smith left Mexico for the North. They are bound for London, to which place they expect to sail from New York on Sept. 12. En route to the latter city they will visit San Francisco, Portland, Vancouver, St. Paul and other places. Mr. Wheatly himself expects to be in New York during October to remain several weeks, during which time he will contract for considerable sub-station machinery.

MR. GEO. R. FOLDS, whose resignation as assistant to the general manager of the Brooklyn Rapid Transit Company to become general manager of the South Chicago City Railway Company and Hammond, Whiting & East Chicago Electric Railway Company, which operate conjointly in Illinois and Indiana, was noted in the STREET RAILWAY JOURNAL of Aug. 5, has had an extensive experience in electric railway management, where his success has been due to an activity and application to the work which is characteristic only of those who take a great interest in it. Mr. Folds is 35 years of age, having been born in Oshkosh, Wis., on Aug. 23, 1870. Six years later his parents removed to Minneapolis. Here Mr. Folds received his early education. Graduating from the



G. R. FOLDS

high school in 1889, he entered mercantile business with his father. In the spring of 1893 he became connected with the Minneapolis Street Railway Company, his first work being in the cashiers' department. Later he held the positions successively of transfer clerk, mileage clerk and assistant paymaster, after which he spent a year in a special line of work connected with statements in the claim department. As a result of his investigations of claims and analysis of accidents, the side-running boards upon open cars was abolished upon all cars of the Twin-City Company, and use was made of end-entrance cars with gates for closing upon the platform entrances. During this period of investigations Mr. Folds began a course of study at the night law school of the University of Minnesota, from which he was graduated three years later (1897) and admitted to the bar. At the termination of his special investigations, Mr. Folds entered the claim department at Minneapolis as investigator and adjuster, which position he retained until in Feb., 1899, he was transferred to St. Paul in charge of the claim department of that division, where he also took up trial work. In the fall of 1902 Mr. Folds came to Brooklyn as assistant to the general attorney of the Brooklyn Heights Railway. Soon thereafter, in May, 1903, he became assistant to the general manager, Mr. J. F. Calderwood, in which capacity he served the company with marked success. Mr. Folds has been the means of inaugurating many improvements in operative methods in Brooklyn, most important of which may be named the employment bureau system and school of instruction for car men, described in detail in the STREET RAILWAY JOURNAL for June 17, 1905. Other accomplishments of his include the invention of a new system of transfers involving important advantages, a system of transfer collections from the conductors, the invention of several types of car fenders, and the production of rule books for both surface and elevated lines.